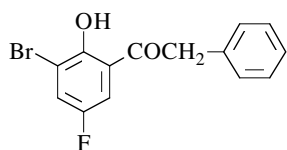


Chapter 9. Compounds derived from arylacetic acids*9.1. Compounds derived from phenylacetic acid***1-(3-Bromo-5-fluoro-2-hydroxyphenyl)-2-phenylethanone**

[4108-04-7]

C₁₄H₁₀BrFO₂

mol.wt. 309.13

**Syntheses**

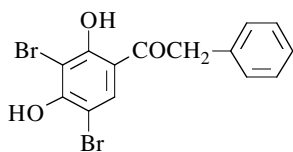
- Preparation by Fries rearrangement of 2-bromo-4-fluorophenyl phenylacetate with aluminium chloride, according to the methods [1313],
- *without solvent at 130° for 2 h [742];
- *in nitrobenzene at 25° for 6 h [742].
- Also refer to: [253].

m.p. 130° [253]; b.p._{1.5} 154-155° [742].**1-(3,5-Dibromo-2,4-dihydroxyphenyl)-2-phenylethanone**

[19816-40-1]

C₁₄H₁₀Br₂O₃

mol.wt. 386.04

**Syntheses**

- Obtained by reaction of bromine (2 mol) with 4-phenylacetylresorcinol in acetic acid for 48 h [182].
- Also obtained by Friedel-Crafts acylation of 2,4-dibromoresorcinol with phenylacetyl chloride in nitrobenzene in the presence of aluminium chloride, first at r.t. overnight, then heating on a steam bath for 4 h (44%) [307].

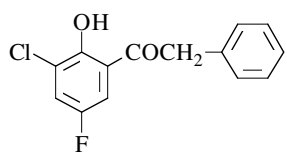
m.p. 190° [307], 180° [182].

1-(3-Chloro-5-fluoro-2-hydroxyphenyl)-2-phenylethanone

[4108-05-8]

C₁₄H₁₀ClFO₂

mol.wt. 264.68

**Syntheses**

- Preparation by Fries rearrangement of 2-chloro-4-fluorophenyl phenylacetate with aluminium chloride, according to the methods [1313],
- *without solvent at 130° for 2 h [742];
- *in nitrobenzene at 25° for 6 h [742].
- Also obtained by Friedel-Crafts acylation of p-fluoroanisole, followed by demethylation and chlorination of the obtained ketone [253].

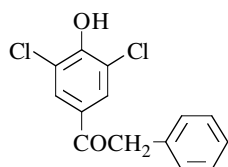
m.p. 122° [253]; b.p._{1.1-1.5} 209-210° [742].

1-(3,5-Dichloro-4-hydroxyphenyl)-2-phenylethanone

[73048-86-9]

C₁₄H₁₀Cl₂O₂

mol.wt. 281.11

**Synthesis**

-Obtained by DDQ oxidation of 1-(3,5-dichloro-4-hydroxyphenyl)-2-phenylethanol in dioxane at r.t. for 16 h (82%) [144].

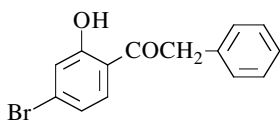
m.p. 132-135° [144]; ¹H NMR [144].

1-(4-Bromo-2-hydroxyphenyl)-2-phenylethanone

[54981-35-0]

C₁₄H₁₁BrO₂

mol.wt. 291.14

**Synthesis**

-Obtained by Fries rearrangement of 3-bromophenyl phenylacetate with aluminium chloride in carbon disulfide for 1 h at r.t. [1391].

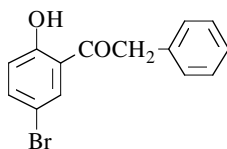
m.p. 68° [1391].

1-(5-Bromo-2-hydroxyphenyl)-2-phenylethanone

[54981-34-9]

C₁₄H₁₁BrO₂

mol.wt. 291.14

**Synthesis**

-Obtained by Fries rearrangement of 4-bromophenyl phenylacetate with aluminium chloride in carbon disulfide for 1 h at r.t. [1391].

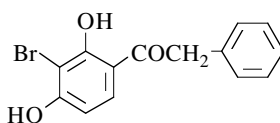
m.p. 70° [1391].

1-(3-Bromo-2,4-dihydroxyphenyl)-2-phenylethanone

[19816-35-4]

C₁₄H₁₁BrO₃

mol.wt. 307.14

**Synthesis**

-Obtained by Friedel-Crafts acylation of 2-bromoresorcinol with phenylacetyl chloride in nitrobenzene in the presence of aluminium chloride, first at r.t. overnight, then heating on a steam bath for 4 h (50%) [307].

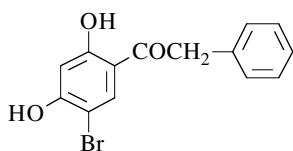
m.p. 195° [307].

1-(5-Bromo-2,4-dihydroxyphenyl)-2-phenylethanone

[92152-59-5]

C₁₄H₁₁BrO₃

mol.wt. 307.14

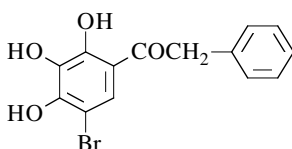
**Syntheses**

-Obtained by reaction of bromine (1 mol) with 4-phenyl-acetylresorcinol in acetic acid at r.t. for 24 h [182].
 -Also obtained by Friedel-Crafts acylation [283] of 4-bromoresorcinol with phenylacetyl chloride in nitrobenzene in the presence of aluminium chloride [1259].
 -Also refer to: [282].

m.p. 112° [283] [1259], 103° [182].

1-(5-Bromo-2,3,4-trihydroxyphenyl)-2-phenylethanoneC₁₄H₁₁BrO₄

mol.wt. 323.14

**Synthesis**

-Obtained by reaction of bromine with 4-phenylacetyl-pyrogallol in acetic acid [252], at r.t. for 24 h [182].

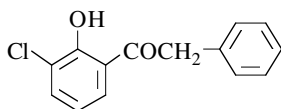
m.p. 164° [252], 155-156° [182].

1-(3-Chloro-2-hydroxyphenyl)-2-phenylethanone

[70331-83-8]

C₁₄H₁₁ClO₂

mol.wt. 246.69

**Syntheses**

-Preparation by Friedel-Crafts reaction [876].
 -Also refer to: [877].

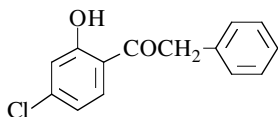
protonation constants [725];
 complexes with Cu (II), Ni (II) and Co (II) [725].

1-(4-Chloro-2-hydroxyphenyl)-2-phenylethanone

[107410-55-9]

C₁₄H₁₁ClO₂

mol.wt. 246.69

**Synthesis**

-Preparation by Fries rearrangement of m-chlorophenyl phenylacetate with aluminium chloride, first in carbon disulfide for 1 h, then, after elimination of the solvent, at 100° for 5 h (58%) [239].

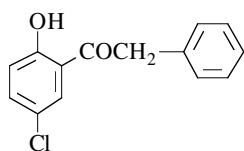
m.p. 62-64° [239].

1-(5-Chloro-2-hydroxyphenyl)-2-phenylethanone

[126260-45-5]

C₁₄H₁₁ClO₂

mol.wt. 246.69

**Syntheses**

-Obtained by Friedel-Crafts acylation of p-chlorophenol with phenylacetic acid in the presence of boron trifluoride at 160° for 4 h in a sealed tube (68%) [796].

-Also obtained by Fries rearrangement of p-chlorophenyl phenylacetate with aluminium chloride in refluxing chlorobenzene for 4 h (25%) [1554].

-Also obtained by Friedel-Crafts acylation of p-chloroanisole with phenylacetyl chloride in the presence of aluminium chloride in refluxing carbon disulfide for 5 h (25%) [1541].

m.p. 69° [796], 66-67° [1541], 64-65° [1554];

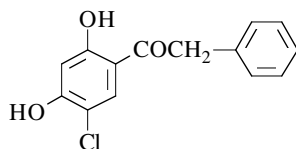
b.p._{0.3} 153-154° [796], b.p.₃₀ 280-285° [1541].

1-(5-Chloro-2,4-dihydroxyphenyl)-2-phenylethanone

[92103-22-5]

C₁₄H₁₁ClO₃

mol.wt. 262.69

**Syntheses**

-Preparation by Friedel-Crafts acylation [283] of 4-chlororesorcinol with phenylacetyl chloride in nitrobenzene in the presence of aluminium chloride, first at 10°, then at r.t. for 36 h (73%) [1259].

-Also refer to: [282].

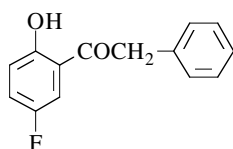
m.p. 121° [1259], 120° [283].

1-(5-Fluoro-2-hydroxyphenyl)-2-phenylethanone

[343-59-9]

C₁₄H₁₁FO₂

mol.wt. 230.24

**Syntheses**

-Preparation by Fries rearrangement of p-fluorophenyl phenylacetate with aluminium chloride,

*at 150-180° for 20 min (85%) [838];

*at 130° for 2 h (77%) [1393], according to the method [249];

*at 130° for 2 h [742], according to the method [1313];

*in nitrobenzene at 25° for 6 h [742], according to the method [1313].

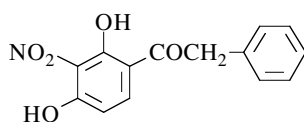
m.p. 85° [838]; b.p._{1.5} 175-179° [742], b.p.₁₋₂ 200-205° [1393].

1-(2,4-Dihydroxy-3-nitrophenyl)-2-phenylethanone

[19816-52-5]

C₁₄H₁₁NO₅

mol.wt. 273.25

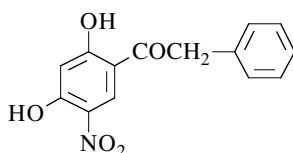
**Synthesis**

-Preparation by Fries rearrangement of 2,6-di(phenyl-acetoxy)nitrobenzene (m.p. 124°) with aluminium chloride in nitrobenzene, first at r.t. overnight, then at 70-80° for 30 min (72%) [307].

m.p. 109° [307].

1-(2,4-Dihydroxy-5-nitrophenyl)-2-phenylethanoneC₁₄H₁₁NO₅

mol.wt. 273.25

**Synthesis**

-Obtained by reaction of fuming nitric acid (d = 1.5) with 4-phenylacetylresorcinol in acetic acid in an ice bath for 48 h [182].

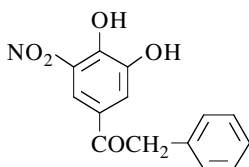
m.p. 156-157° [182].

1-(3,4-Dihydroxy-5-nitrophenyl)-2-phenylethanone

[274925-86-9]

C₁₄H₁₁NO₅

mol.wt. 273.25

**Synthesis**

-Preparation by treatment of 1-(4-hydroxy-3-methoxy-5-nitrophenyl)-2-phenylethanone with aluminium chloride in refluxing ethyl acetate/pyridine mixture for 2 h (99%) [885] [887].

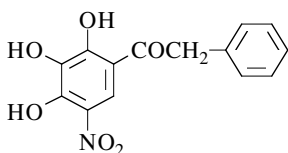
m.p. 178-179° [887], 177°6-178°8 [885];

¹H NMR [885] [887], ¹³C NMR [885] [887], IR [885] [887];

HPLC [885], IR [885] [887].

1-(2,3,4-Trihydroxy-5-nitrophenyl)-2-phenylethanoneC₁₄H₁₁NO₆

mol.wt. 289.24

**Synthesis**

-Obtained by reaction of fuming nitric acid (d = 1.5) with 4-phenylacetylpyrogallol in acetic acid in an ice bath for 48 h [182].

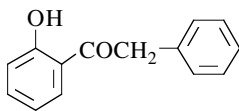
m.p. 179-180° [182].

1-(2-Hydroxyphenyl)-2-phenylethanone

[2491-31-8]

C₁₄H₁₂O₂

mol.wt. 212.25

**Syntheses**

-Obtained by Fries rearrangement of phenyl phenylacetate, *with aluminium chloride,

-without solvent, between 80 to 130° for 1 h (72%) [38], at 140° for 3 h (60%) [882] [883] [884], at 120° for 4 h [280] [475] or at 60° for 4 h (26%) [1553];

-in nitrobenzene at 60° for 4 h (14%) [1551], at r.t. for 24 h (4%) [882] [883];

-in nitroethane at r.t. for 24 h (< 13%) [1550];

-in chlorobenzene at 50° for 4 h (21%) [1553];

*with titanium tetrachloride in chlorobenzene at 50° for 4 h (< 5%) [1553];

*with polyphosphoric acid at 100° (1%) [1068];

*with or without 20% *Bleicherde* at 200° for 9 h (poor yields) [1369].

-Also obtained by stirring a mixture of S-[3-hydroxy-4-(phenylacetyl)phenyl] dimethylcarbamothioate, Raney nickel and ethanol at r.t. for 1 h (67%) [907].
 -Also obtained by photo-Fries rearrangement of phenyl phenylacetate,
 *in the presence of α - or β -cyclodextrin in organic solvents [1475];
 *included in a Nafion membrane, at r.t. for 7 h (quantitative yield) [1476].
 -Also obtained by acylation of phenol with phenylacetic acid,
 *in the presence of boron trifluoride etherate under argon on a water bath for 1.5 h (23%) [1516];
 *in the presence of zinc chloride and phosphorous oxychloride for 24 h at r.t. (21%) [391];
 *in the presence of polyphosphoric acid at 100° (4%) [1068].
 -Also obtained by degradation of 3-phenyl-4-hydroxycoumarin in refluxing 30% ethanolic hydrogen chloride for 1 h (56%) [387].
 -Also obtained by demethylation of 2-methoxyphenyl benzyl ketone (oil, b.p._{0.001} 130-140°),
 *with 47% hydrobromic acid (d = 1.5) in acetic acid for 5 h at reflux (87%) [475] or for 10 h on a steam bath (61%) [777];
 *with aluminium chloride in nitrobenzene on a steam bath for 1 h (36%) [777].
 -Also obtained by hydrolysis of (2-methoxybenzoyl)phenylacetonitrile (m.p. 108-109°) in acetic acid,
 *with concentrated hydrochloric acid on a steam bath for 20 h (48%) [777];
 *with 47% hydrobromic acid on a steam bath for 10 h (34%) [777].
 -Also obtained from ethyl (2-methoxybenzoyl)phenylacetate (m.p. 67-68°),
 *with boiling pyridinium chloride for 20 min (ca. 220°) (47%) [779];
 *in acetic acid with concentrated hydrochloric acid for 15 h on a steam bath (35%) [777].
 -Also obtained by heating under reflux flavone with 5% aqueous sodium hydroxide [335].
 -Also refer to: [289] [412] [462] [585] [608] [609] [747] [844] [1271] [1334].
N.B.: Complexes with Mn (II) [1338], Ni (II) [1338], Hg (II) [1338] and Co (II) [1338] [1339].

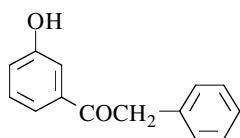
m.p. 60-61° [907], 60° [280] [475], 59° [289], 58-60° [1553], 57-58° [779],
 56-57° [777], 55° [387] [882] [883] [884] [1369].
 b.p._{0.004} 150-155° [777], b.p.₂₃ 165° [1369];
¹H NMR [907], IR [882] [883] [884], UV [882] [883] [884],
 MS [907]; GC [1476]; GC-MS [1476].

1-(3-Hydroxyphenyl)-2-phenylethanone

[332072-68-1]

C₁₄H₁₂O₂

mol.wt. 212.25



Synthesis

-Obtained by electrolysis in an undivided cell a DMF solution containing 3-iodophenol, chloromethylbenzene, iron pentacarbonyl and a catalytic amount of a nickel-2,2'-bipyridine complex (57%) [406].
 -This compound seems to have not been described previously.

It is not mentioned in the *Chemical Abstracts* between 1907 (volume 1) and 2000 (volume 133) under the various denominations, namely: m-Hydroxy- α -phenylacetophenone, 3'-Hydroxy-2-phenyl-acetophenone and actually 1-(3-Hydroxyphenyl)-2-phenylethanone, neither in the *Beilsteins Handbuch der Organischen Chemie* under the denomination [3-Oxy-phenyl]-benzylketon. This ketone might very likely be prepared more simply by diazotization of the 1-(3-aminophenyl)-2-phenylethanone [55251-36-0], an amino ketone known for a long time [1029].

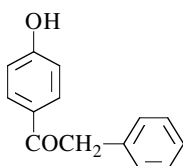
¹H NMR [406], ¹³C NMR [406], IR [406], MS [406].

1-(4-Hydroxyphenyl)-2-phenylethanone

[2491-32-9]

C₁₄H₁₂O₂

mol.wt. 212.25

**Syntheses**

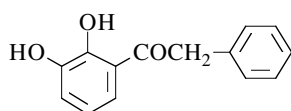
- Obtained by reaction of phenylacetic acid with phenol,
 - *in the presence of zinc chloride (Nencki reaction),
 - at 170-200° (reflux) for 1.5 h (20%) [641] [1525];
 - at 170-180° [1443], for 2 h (15%) [904];
 - *in the presence of zinc chloride and phosphorous oxychloride for 24 h at r.t. (75%) [391];
 - *in the presence of polyphosphoric acid in a boiling water bath for 15 min (28%) [1071] or at 100° (19%) [1068];
 - *in the presence of boron trifluoride at 80° for 2 h (87%) [798];
 - *in the presence of boron trifluoride etherate under argon on a water bath for 1.5 h (75%) [1516].
 - Also obtained by Friedel-Crafts acylation of phenol with phenylacetyl chloride in nitrobenzene in the presence of aluminium chloride (60%) [904], at 80-90° for 1.5 h (61%) [987] or at ≤ 80° for 0.75 h (60-70%) [1525].
 - Also obtained (by-product) by reaction of phenylacetyl chloride with anisole in benzene in the presence of stannic chloride between 55 to 75° for 1 h [641].
 - Also obtained by Fries rearrangement of phenyl phenylacetate,
 - *with aluminium chloride,
 - without solvent at 50° for 4 h (25%) [1553], at 80° for 4 h (72%) [1553], first in a water bath for 1 h, then at 120° for 4 h [280] [475] or at 140° for 3 h (10%) [882] [883] [884];
 - in nitrobenzene at r.t. for 12 h (35%) [1550] or for 24 h (65%) [882] [883], at 50° for 4 h (64%) [1553], at 60° for 4 h (64%) [1551];
 - in nitroethane at r.t. for 24 h (70%) [1550];
 - in nitropropane at 70° for 6 h (30%) [1550];
 - *with polyphosphoric acid at 100° (8%) [1068];
 - *with titanium tetrachloride in chlorobenzene at 50° for 4 h (19%) [1553].
 - Also obtained by diazotization of p-aminodeoxybenzoin [1084].
 - Also obtained (poor yield) by heating phenyl phenylacetate with or without 20% of *Bleicherde* for 9 h at 200° [1369].
 - Also obtained by photo-Fries rearrangement of phenyl phenylacetate in the presence of α- or β-cyclodextrin in organic solvents [1475].
 - Also refer to: [166] [526] [539] [613] [617] [623] [790] [867] [1264] [1302] [1418] [1549].
- m.p. 151° [280] [475], 149° [904], 148° [391], 146-147° [641], 145-147° [1553], 144° [1443] [1444], 143° [1071], 142° [798] [882] [883] [1525], 141° [1369], 139-142° [987], 129° [1084].
- There is discrepancy between the different melting points.
- b.p.₁ 220-230° [904]; IR [882] [883], UV [882] [883] [1443] [1444].

1-(2,3-Dihydroxyphenyl)-2-phenylethanone

[107410-01-5]

C₁₄H₁₂O₃

mol.wt. 228.25

**Syntheses**

- Preparation by total demethylation of 2,3-dimethoxy-desoxybenzoin (yellow oil, b.p.₃ 170-173°) with hydrobromic acid (d = 1.5) in refluxing acetic acid for 5 h (74%) [475].
- Also obtained by alkaline degradation of 8-hydroxyisoflavone (m.p. 222-224°) with sodium hydroxide in refluxing methanol for 1.5 h [475].

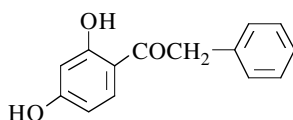
m.p. 79-81° [475]; paper chromatography [475].

1-(2,4-Dihydroxyphenyl)-2-phenylethanone

[3669-41-8]

C₁₄H₁₂O₃

mol.wt. 228.25



Syntheses

-Preparation by Friedel-Crafts acylation of resorcinol with phenylacetyl chloride in the presence of aluminium chloride,

*in methylene chloride (85%) [877];

*in nitrobenzene at 70-80° for 15 min (< 80%) [496], at

r.t. for 24 h (63%) [106] or for 2 days (60%) [182];

*in ethyl ether at r.t. for 24 h (43%) [601].

-Preparation by acylation of resorcinol with phenylacetyl chloride in boiling ethylene dichloride (84°), using a series of clay based catalysts (KSF, KSF/0, KP10, K10, K0, KS) (65-81%) [459], (60%) [152].

-Preparation by reaction of phenylacetic anhydride with resorcinol,

*in the presence of concentrated sulfuric acid as catalyst at 130° for some min (60%) [683];

*in the presence of boron trifluoride etherate for 2.5 h at 70-75° (48%) [1024].

-Preparation by reaction of phenylacetic acid with resorcinol,

*in the presence of boron trifluoride etherate under argon on a water bath for 1 h (89%) [1516];

*in the presence of boron trifluoride at 105-108° for 15 min, followed by hydrolysis of the obtained boron difluoride chelate (m.p. 154-155°) (78%) [1133] or at 90° for 1 h (66%) [1110];

*in the presence of boron trifluoride in chloroform (87%) [764];

*in the presence of zinc chloride (Nencki reaction) at 120° for 2.5 h (70%) [182], at 125-135°

[404], at 140° for 15 min (10%) [496] or at 145-150° for 2 h [1443];

*in the presence of zinc chloride and phosphorous oxychloride for 24 h at r.t. (50%) [391];

*in the presence of 70% perchloric acid at 150° for 30 min (30%) [1003];

*in the presence of Amberlite IR-120, a cation exchange resin sulfonic acid type, at 160° for 2-3 h (41%) [1200]. **N.B.:** Zeokarb 225 was found to be as effective.

-Preparation by reaction of phenylacetonitrile with resorcinol (Hoesch reaction) [285] [873] [1019] [1145], (64%) [1345], (58%) [115], (40%) [992].

-Also obtained by heating 2-phenyl-4-benzylidene-7-hydroxy-[4H]-1-benzopyran (SM) with refluxing aqueous sodium hydroxide for 1 h. SM was obtained by condensation of 1,4-diphenyl-1,3-butanediol with resorcinol in acetic acid [245].

-Also obtained by degradation of 7-hydroxy-2-methyl-3-phenylchromone (m.p. 244-246°) with refluxing 5% aqueous sodium hydroxide for 3 h [182].

-Also obtained by treatment of ethyl (2,4-dimethoxybenzoyl)phenylacetate with boiling pyridinium chloride (ca. 220°) for 20 min (48%) [779].

-Also refer to: [282] [462] [463] [467] [585] [698] [701] [712] [718] [747] [839] [907] [1076] [1140] [1182] [1291] [1328] [1335] [1419] [1543].

N.B.: Complexes with Mn (II), Co (II), Ni (II) and Hg (II) [1338].

m.p. 116° [1443] [1444], 115-116° [182] [711],

115° [106] [245] [285] [764] [1003] [1110], 114-116° [1200].

114-115° [683] [718] [1019], 114° [496] [627], 113-115° [1133], 113-114° [601],

113° [391], 110-113° [779];

b.p.₁₀ 220-225° [404];

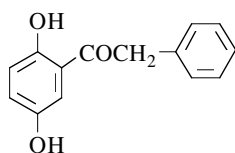
¹H NMR [992], IR [1133], UV [1019] [1133] [1443] [1444], MS [992].

1-(2,5-Dihydroxyphenyl)-2-phenylethanone

[52122-86-8]

C₁₄H₁₂O₃

mol.wt. 228.25

**Syntheses**

-Obtained by partial demethylation of 2,5-dimethoxyphenyl benzyl ketone,

*with hydriodic acid in acetic acid on a water bath for 2 h [110];

*with hydrobromic acid in acetic acid, first at 0°, then at reflux for 6 h [676].

-Also obtained by Friedel-Crafts acylation of hydroquinone with phenylacetyl chloride in the presence of aluminium chloride in nitrobenzene, keeping overnight, then on a water bath for 3 h [676] or at 70-80° for 15 min [496].

-Also obtained by acylation of hydroquinone with phenylacetic acid,

*in the presence of boron trifluoride etherate under argon on a water bath for 6 h (68%) [1516];

*in the presence of boron trifluoride (saturation) at 125° for 1.5 h (56%) [1110];

*in the presence of zinc chloride at 150° [496] (Nencki reaction).

-Also refer to: [206].

m.p. 170° [496], 113° [676], 112° [1110], 109°5 [110].

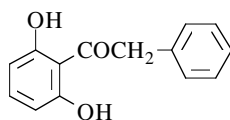
One of the reported melting points is obviously wrong.

1-(2,6-Dihydroxyphenyl)-2-phenylethanone

[13936-92-0]

C₁₄H₁₂O₃

mol.wt. 228.25

**Syntheses**

-Obtained by treatment of 3,5-dicarbomethoxy-2,6-dihydroxyphenyl benzyl ketone (m.p. 129-131°),

*with boiling 10% alcoholic caustic soda for 3 h. The obtained dicarboxylic acid was decarboxylated by boiling with water for 3 h (75%) [767];

*with refluxing 4% methanolic potassium hydroxide for 4 h, followed by refluxing 12 h in water (35%) [389].

-Also refer to: [585] [764].

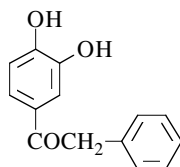
m.p. 170° [767], 166-167° [389].

1-(3,4-Dihydroxyphenyl)-2-phenylethanone

[107410-02-6]

C₁₄H₁₂O₃

mol.wt. 228.25

**Syntheses**

-Preparation by reaction of phenylacetic acid with pyrocatechol,

*in the presence of zinc chloride and phosphorous oxychloride for 24 h at r.t. (60%) [391];

*in the presence of phosphorous oxychloride for 2 h at 90-100° (59%) [987];

*in the presence of boron trifluoride in chloroform, first at 10°, then at r.t. overnight (36%) [474];

*in the presence of zinc chloride at 140-150° (Hoesch reaction) [496].

-Also obtained by total demethylation of 3,4-dimethoxydesoxybenzoin (m.p. 87-88°) with hydrobromic acid (d = 1.5) in refluxing acetic acid for 5 h [474].

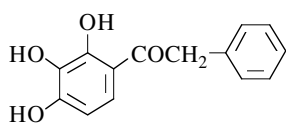
m.p. 173-174° [474], 173° [391] [496], 168-170° [987].

2-Phenyl-1-(2,3,4-trihydroxyphenyl)ethanone

[22761-00-8]

C₁₄H₁₂O₄

mol.wt. 244.25



Syntheses

-Obtained by reaction of phenylacetic acid with pyrogallol, *in the presence of zinc chloride at 150° for 30 min (Nencki reaction) [1443], (52%) [1095] or at 120° for 2.5 h (60%) [182];

*in the presence of Amberlite IR-120 cation exchange resin (sulfonic acid type) at 160° for 2-3 h (34%) [1200]. **N.B.:** Zeokarb 225 was found to be as effective;

*in the presence of 70% perchloric acid at 150° for 30 min (25%) [1003];

*in the presence of boron trifluoride in chloroform, first in ice cooling, then at r.t. overnight (96%) [764].

-Also obtained by Friedel-Crafts acylation of pyrogallol,

*with phenylacetyl chloride in nitrobenzene in the presence of aluminium chloride at r.t. for two days (50%) [182];

*with phenylacetic anhydride in the presence of boron trifluoride etherate for 2.5 h at 75-80° (26%) [1024].

-Also refer to: [698] [747] [1140].

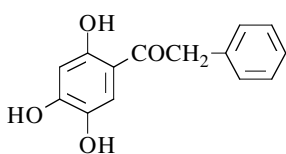
m.p. 147° [1003], 144-145° [182], 141-142° [1095], 140-141° [764] [1443] [1444], 135-136° [1200].

2-Phenyl-1-(2,4,5-trihydroxyphenyl)ethanone

[787-06-4]

C₁₄H₁₂O₄

mol.wt. 244.25



Syntheses

-Obtained by reaction of phenylacetonitrile with hydroxyhydroquinone (Hoesch reaction) (43%) [530].

-Also refer to: [1184].

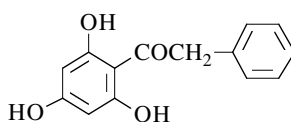
m.p. 208-210° [530]; ¹³C NMR [732].

2-Phenyl-1-(2,4,6-trihydroxyphenyl)ethanone

[727-71-9]

C₁₄H₁₂O₄

mol.wt. 244.25



Syntheses

-Preparation by reaction of phenylacetonitrile with phloroglucinol (Hoesch reaction),

*in the presence of zinc chloride [141] [285] [1019] [1145], (44-45%) [106] [771], (39%) [1024];

*in the presence of boron trifluoride etherate (50%) [1024].

-Also obtained by reaction of phenylacetic acid with phloroglucinol in the presence of zinc chloride and phosphorous oxychloride for 24 h at r.t. (50%) [391].

-Also refer to: [559] [585] [698] [701] [747] [873] [988].

N.B.: Complexes with Mn (II), Co (II) Ni (II) and Hg (II) [1338].

The monohydrate of this ketone was at first obtained [106] [285]. The water of crystallisation is lost on heating the crystals at 90°.

m.p. 164-165° [1019], 163° [391], 162° [106] [285] [771];

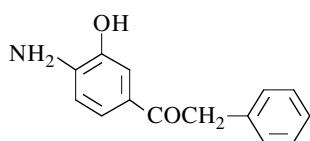
IR [771], UV [771] [1019]; TLC [771].

1-(4-Amino-3-hydroxyphenyl)-2-phenylethanone

[54903-53-6]

C₁₄H₁₃NO₂

mol.wt. 227.26



Syntheses

-Preparation from 6-phenylacetyl-benzoxazolinone by alkaline hydrolysis with boiling 10% aqueous sodium hydroxide solution for 4 h (90 to 100%) [204].
-Also refer to: [905].

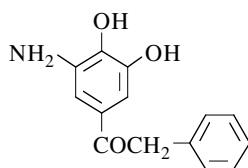
m.p. 141-142° [204].

1-(3-Amino-4,5-dihydroxyphenyl)-2-phenylethanone

[473790-02-2]

C₁₄H₁₃NO₃

mol.wt. 243.26



Synthesis

-Preparation by hydrogenation of 1-(3,4-dihydroxy-5-nitrophenyl)-2-phenylethanone in methanolic suspension in the presence of 10% Pd/C at r.t. for 2 h (91%) [886].

m.p. 234-237° [886];

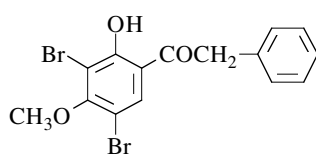
¹H NMR [886], ¹³C NMR [886], IR [886].

1-(3,5-Dibromo-2-hydroxy-4-methoxyphenyl)-2-phenylethanone

[19816-38-7]

C₁₅H₁₂Br₂O₃

mol.wt. 400.07



Syntheses

-Obtained by alkaline degradation of two substituted isoflavones with 10% sodium hydroxide in refluxing ethanol for 4 h,

*from 6,8-dibromo-7-methoxyisoflavone (m.p. 139°) (92%) [307];

*from 2,6,8-tribromo-7-methoxyisoflavone (m.p. 218°) [307].

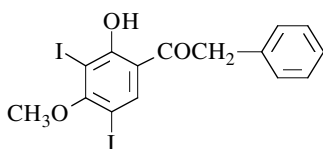
m.p. 120° [307].

1-(2-Hydroxy-3,5-diiodo-4-methoxyphenyl)-2-phenylethanone

[19816-44-5]

C₁₅H₁₂I₂O₃

mol.wt. 494.07

**Syntheses**

-Obtained by alkaline degradation of 6,8-diiodo-7-methoxyisoflavone (m.p. 210°) with 10% sodium hydroxide in refluxing ethanol for 4 h [307].
 -Also obtained by iodination of benzyl 2-hydroxy-3-iodo-4-methoxyphenyl ketone with iodine and iodic acid in ethanol at 60-70° overnight [307].

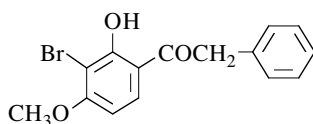
m.p. 140° [307].

1-(3-Bromo-2-hydroxy-4-methoxyphenyl)-2-phenylethanone

[19816-33-2]

C₁₅H₁₃BrO₃

mol.wt. 321.17

**Synthesis**

-Obtained by alkaline degradation of 8-bromo-7-methoxyisoflavone (m.p. 178°) with 10% sodium hydroxide in refluxing ethanol for 4 h (83%) [307].

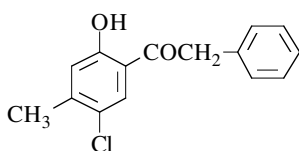
m.p. 198° [307].

1-(5-Chloro-2-hydroxy-4-methylphenyl)-2-phenylethanone

[92435-54-6]

C₁₅H₁₃ClO₂

mol.wt. 260.72

**Synthesis**

-Preparation by Friedel-Crafts acylation of 4-chloro-3-methylphenol with phenylacetyl chloride in nitrobenzene in the presence of aluminium chloride [1259].

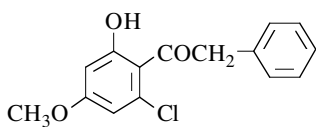
m.p. 112° [1259].

1-(2-Chloro-6-hydroxy-4-methoxyphenyl)-2-phenylethanone

[116475-72-0]

C₁₅H₁₃ClO₃

mol.wt. 276.72

**Syntheses**

-Obtained by Friedel-Crafts reaction of 1-chloro-3,5-dimethoxybenzene with phenylacetyl chloride in the presence of aluminium chloride and zinc chloride in ethylene dichloride between -10 to -7°, then at r.t. for 1 h and subsequent demethylation at 70° for 1 h (47%) [813].
 -Also refer to: [811] [812].

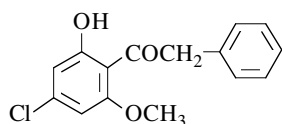
m.p. 123-125° [813]; ¹H NMR [813], IR [813].

1-(4-Chloro-2-hydroxy-6-methoxyphenyl)-2-phenylethanone

[137986-09-5]

C₁₅H₁₃ClO₃

mol.wt. 276.72

**Syntheses**

-Obtained by Friedel-Crafts reaction of phenylacetyl chloride with 1-chloro-3,5-dimethoxybenzene in the presence of aluminium chloride and zinc chloride in ethylene dichloride between 5 to 10°, then at r.t. for 1 h and subsequent

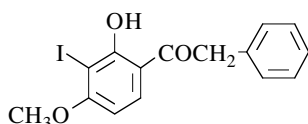
demethylation at 65-70° for 3 h (54%) [813].

-Also refer to: [812].

m.p. 74-75° [813]; ¹H NMR [813], IR [813].

1-(2-Hydroxy-3-iodo-4-methoxyphenyl)-2-phenylethanoneC₁₅H₁₃IO₃

mol.wt. 368.17

**Syntheses**

-Obtained by alkaline degradation of 8-iodo-7-methoxy-isoflavone (m.p. 169°) with 10% sodium hydroxide in refluxing ethanol for 4 h (81%) [307].

-Also obtained by Friedel-Crafts acylation of 2-iodoresorcinol dimethyl ether with phenylacetyl chloride in nitrobenzene in the presence of aluminium chloride and heating for 2 h [307].

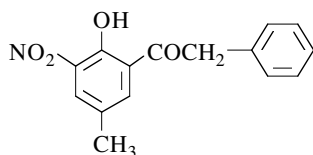
m.p. 217° [307].

1-(2-Hydroxy-5-methyl-3-nitrophenyl)-2-phenylethanone

[70978-50-6]

C₁₅H₁₃NO₄

mol.wt. 271.27

**Synthesis**

-Obtained by nitration of 2-hydroxy-5-methylphenyl benzyl ketone,

*using standard reagents at -20°(81%) [506];

*with fuming nitric acid in acetic acid/methylene chloride at r.t. [1215].

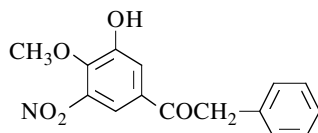
m.p. 80-82° [506] [1215].

1-(3-Hydroxy-4-methoxy-5-nitrophenyl)-2-phenylethanone

[473789-93-4]

C₁₅H₁₃NO₅

mol.wt. 287.27

**Synthesis**

-Obtained by partial methylation of 1-(3,4-dihydroxy-5-nitrophenyl)-2-phenylethanone with dimethyl sulfate in the presence of potassium carbonate in DMF for 1 h at 80° (25%) [886].

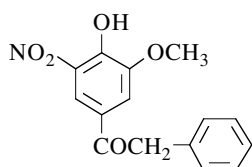
m.p. 121-123° [886]; ¹H NMR [886], ¹³C NMR [886], IR [886].

1-(4-Hydroxy-3-methoxy-5-nitrophenyl)-2-phenylethanone

[274925-97-2]

C₁₅H₁₃NO₅

mol.wt. 287.27

**Synthesis**

-Preparation by treatment of 1-(4-hydroxy-3-methoxy-phenyl)-2-phenylethanone with 70% nitric acid in acetic acid at r.t. for 30 min (72%) [885], (71%) [887].

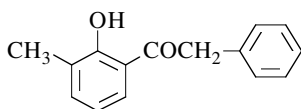
m.p. 129-130° [887];

¹H NMR [887], ¹³C NMR [887].**1-(2-Hydroxy-3-methylphenyl)-2-phenylethanone**

[7294-92-0]

C₁₅H₁₄O₂

mol.wt. 226.27

**Syntheses**

-Obtained by Fries rearrangement of o-cresyl phenylacetate, *in the presence of aluminium chloride,

-without solvent at 160-180° for 30 min (53%) [776], at 140° for 3 h (45%) [881] [883] or at 130° for 4 h (12%) [1552];

-in nitrobenzene at 60° for 4 h (10%) [1551];

*with alumina in methanesulfonic acid at 160° for 10 min (15%) [1332].

-Also obtained by Friedel-Crafts acylation of o-cresol with phenylacetic acid in the presence of alumina in methanesulfonic acid at 140° for 5 min (12%) [1332].

-Also obtained by photo-Fries rearrangement of o-tolyl phenylacetate,

*in the presence of α- or β-cyclodextrin in organic solvents [1475];

*included in a Nafion membrane at r.t. for 7 h (quantitative yield) [1476].

-Also refer to: [972].

m.p. 44° [881] [883]; b.p.₈ 176-180° [776];

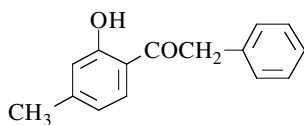
IR [881] [883], UV [881] [883]; GC [1476]; GC-MS [1476].

1-(2-Hydroxy-4-methylphenyl)-2-phenylethanone

[2491-34-1]

C₁₅H₁₄O₂

mol.wt. 226.27

**Syntheses**

-Preparation by Fries rearrangement of m-cresyl phenylacetate,

*with aluminium chloride,

-without solvent, for 3 h at 140° (50%) [881] [884];

-starting in carbon disulfide and, after solvent elimination,

for 1 h at 60-70°, then 24 h at r.t. (77%) [1010];

-in nitrobenzene for 4 h at 60° (65%) [1551] or in refluxing nitromethane for 3 h (49%) [1552];

*with alumina in methanesulfonic acid for 15 min at 160° (90%) [1332].

-Preparation by direct acylation of m-cresol with phenylacetic acid,

*with boron trifluoride for 2 h at 90° (93%) [798];

*with alumina in methanesulfonic acid for 5 min at 120° (83%) [1332].

-Also obtained by hydrolysis of 2-difluoroboryloxy-4-methylphenyl benzyl ketone (SM)

(m.p. 125-126°) with refluxing dilute ethanol for 15-20 min. SM was prepared by action of phenylacetic acid with m-cresol in the presence of boron trifluoride etherate for 30 min at 125-130° (50%) [1189].

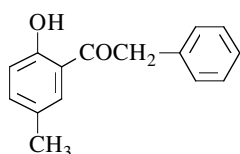
m.p. 52-53° [1189], 49° [1010], 32-33° [798].
 One of the reported melting points is obviously wrong.
 b.p.₅ 164° [881] [884], b.p.₄ 170-175° [798], b.p.₁₇ 218° [1010];
 IR [1189], UV [1189].

1-(2-Hydroxy-5-methylphenyl)-2-phenylethanone

[24258-63-7]

C₁₅H₁₄O₂

mol.wt. 226.27



Syntheses

- Preparation by Fries rearrangement of p-cresyl phenylacetate with aluminium chloride (68%) [1355].
- *without solvent at 120-140° for 20 min (82%) [776], at 130-135° for 30 min (80%) [281] or at 130-140° for 3 h (14%) [736];
- *in nitrobenzene at r.t. for 48 h (80%) [882] [883] [884]
- or at 60° for 4 h (64%) [1551];
- *in 1,2,4-trichlorobenzene at reflux for 30 min (78%) [1554];
- *in chlorobenzene at reflux for 4 h (23%) [1552] or for 30 min (86%) [1554].
- Preparation by Friedel-Crafts acylation of p-cresol with phenylacetic acid,
- *in the presence of boron trifluoride at 80° for 2 h (89%) [798];
- *in the presence of zinc chloride [1502].
- Also obtained by Friedel-Crafts acylation of p-cresol methyl ether with phenylacetyl chloride in the presence of aluminium chloride, first in refluxing carbon disulfide for 5 h, then, after solvent elimination, at 120-130° for 5 h (54-61%) [99].
- Also obtained by photo-Fries rearrangement of p-tolyl phenylacetate,
- *in the presence of α- or β-cyclodextrin in organic solvents [1475];
- *included in a Nafion membrane, at r.t. for 7 h (quantitative yield) [1476].
- Also obtained by reaction of N-diethylaniline with α-bromo-2-hydroxy-5-methyldeoxybenzoin [99].
- Also refer to: [1544].

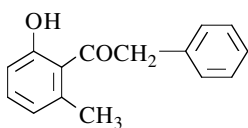
m.p. 65-66° [736] [1554], 65° [99] [882] [883] [884], 64° [798], 63°5-65° [1355],
 63° [281] [1502], 54-58° [776];
 b.p.₇ 169-174° [776], b.p._{0.6} 170° [798], b.p.₆ 195-199° [281],
 b.p.₁₃₋₁₄ 210-213° [99]; GC [1476]; GC-MS [1476];
 IR [882] [883] [884], UV [882] [883] [884].

1-(2-Hydroxy-6-methylphenyl)-2-phenylethanone

[137937-39-4]

C₁₅H₁₄O₂

mol.wt. 226.27



Synthesis

- Obtained (by-product) by Fries rearrangement of m-tolyl phenylacetate with aluminium chloride in chlorobenzene at 140° for 4 h (5%) [972].

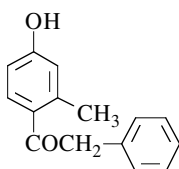
m.p. 85° [972];
¹H NMR (Sadtlar: standard n° 57893 M) [972],
 IR (Sadtlar: standard n° 84941 K) [972], UV [972], MS [972].

1-(4-Hydroxy-2-methylphenyl)-2-phenylethanone

[3669-50-9]

C₁₅H₁₄O₂

mol.wt. 226.27

**Syntheses**

-Obtained by reaction of phenylacetyl chloride with m-cresol in the presence of aluminium chloride in nitrobenzene for 30 min in a boiling water bath (26%) [352].

-Also obtained by reaction of phenylacetic acid with m-cresol, *in the presence of boron trifluoride at 90° for 2 h (3%) [798];

*in the presence of zinc chloride at reflux (200°) for 1 h [189] [352].

-Also obtained by Fries rearrangement of m-cresyl phenylacetate with aluminium chloride, *in refluxing chlorobenzene for 4 h (24%) [1552];

*in nitromethane or in nitroethane at r.t. for 12 h (18-21%) [1550];

*in nitrobenzene at 60° for 4 h (10%) [1550], (8%) [1551] or at r.t. for 10 h (10%) [1550];

*without solvent at 140° for 3 h (10%) [881] or first in carbon disulfide, then after elimination of the solvent, at 60-70° for 1 h and at r.t. for 24 h (2%) [1010].

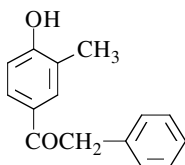
m.p. 142° [352], 138-139° [798], 138° [881] [1010].

1-(4-Hydroxy-3-methylphenyl)-2-phenylethanone

[7354-81-6]

C₁₅H₁₄O₂

mol.wt. 226.27

**Syntheses**

-Preparation by Fries rearrangement of o-cresyl phenylacetate with aluminium chloride,

*in nitroethane at r.t. for 12 h (73%) [1550];

*in nitrobenzene at 60° for 4 h (72%) [1551] or at 50° for 4 h (60%) [1552];

*in refluxing chlorobenzene for 4 h (58%) [1552];

*in refluxing nitromethane for 4 h (21%) [1552];

*without solvent at 130° for 4 h (49%) [1552] or at 140° for 3 h (30%) [881] [883].

-Preparation by Fries rearrangement of o-cresyl phenylacetate with alumina in methanesulfonic acid for 10 min at 160° (85%) [1332].

-Also obtained by photo-Fries rearrangement of o-cresyl phenylacetate in the presence of α- or β-cyclodextrin in organic solvents [1475].

-Also obtained by reaction of phenylacetic acid with o-cresol,

*in the presence of alumina in methanesulfonic acid at 140° for 5 min (88%) [1332];

*in the presence of aluminium chloride in nitrobenzene in a water bath for 1 h-1.25 h (60-70%) [189];

*in the presence of zinc chloride at reflux (180-200°) [1422], (< 20%) [189] (Nencki reaction).

-Also refer to: [972].

m.p. 156° [881] [883], 152° [189];

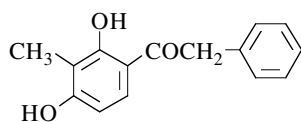
IR [881] [883], UV [881] [883].

1-(2,4-Dihydroxy-3-methylphenyl)-2-phenylethanone

[39581-98-1]

C₁₅H₁₄O₃

mol.wt. 242.27

**Syntheses**

-Preparation by demethylation of 2-hydroxy-4-methoxy-3-methylphenyl benzyl ketone with hydriodic acid in refluxing acetic anhydride (125-135°) for 2 h (64%) [1326].

-Also obtained by reaction of phenylacetic acid with 2-methylresorcinol in the presence of phosphorous oxychloride and zinc chloride, heating on a water bath for 3 h (45%) [1137].

-Also obtained by reaction of phenylacetonitrile with 2-methylresorcinol (Hoesch reaction) [1325].

-Also refer to: [1138] [1328].

m.p. 178° [1137], 157-159° [1325] [1326].

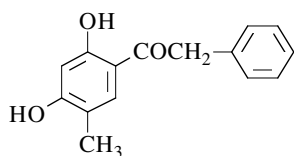
One of the reported melting points is obviously wrong.

1-(2,4-Dihydroxy-5-methylphenyl)-2-phenylethanone

[106737-29-5]

C₁₅H₁₄O₃

mol.wt. 242.27

**Syntheses**

-Preparation by reaction of phenylacetonitrile with 4-methylresorcinol (Hoesch reaction) [1052].

-Also obtained by demethylation of 4-hydroxy-2-methoxy-5-methylphenyl benzyl ketone with aluminium chloride in refluxing benzene for 4 h (74%) [1572].

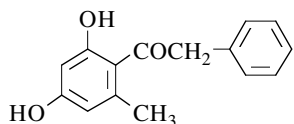
m.p. 98-99° [1052], 96° [1572].

1-(2,4-Dihydroxy-6-methylphenyl)-2-phenylethanone

[55338-29-9]

C₁₅H₁₄O₃

mol.wt. 242.27

**Syntheses**

-Preparation by Friedel-Crafts acylation of orcinol with phenylacetyl chloride in nitrobenzene in the presence of aluminium chloride [1259].

-Also refer to: [483] [678].

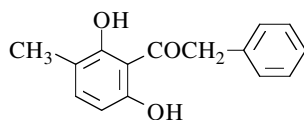
m.p. 148° [1259].

1-(2,6-Dihydroxy-3-methylphenyl)-2-phenylethanone

[15578-06-0]

C₁₅H₁₄O₃

mol.wt. 242.27

**Synthesis**

-Obtained by treatment of 5-carbomethoxy-2,6-dihydroxy-3-methyldeoxybenzoin (m.p. 168-170°) with potassium hydroxide in refluxing dilute ethanol for 4 h (38%) [964].

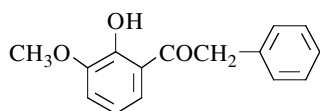
m.p. 135-136° [964].

1-(2-Hydroxy-3-methoxyphenyl)-2-phenylethanone

[93899-00-4]

C₁₅H₁₄O₃

mol.wt. 242.27

**Syntheses**

- Preparation from 2-acetoxy-3-methoxybenzonitrile and benzylmagnesium chloride (75-90%) [1161].
- Also obtained (by-product) by reaction of phenylacetic acid with guaiacol in the presence of zinc chloride and phosphorous oxychloride for 24 h at r.t. (5%) [391].

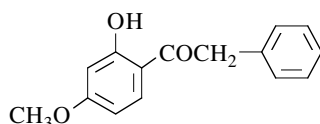
m.p. 165-168° [391], 78-79° [1161]. One of the reported melting points is obviously wrong.
UV [391].

1-(2-Hydroxy-4-methoxyphenyl)-2-phenylethanone

[18439-96-8]

C₁₅H₁₄O₃

mol.wt. 242.27

**Syntheses**

- Preparation by partial methylation of 2,4-dihydroxyphenyl benzyl ketone [1145],
- *with methyl iodide in the presence of potassium carbonate in refluxing acetone for 3 h (85%) [106] or for 12 h (91%) [627];

*with methyl bromide in the presence of potassium carbonate in refluxing acetone for 20 h [148];

*with dimethyl sulfate,

- in the presence of potassium carbonate in boiling benzene for 90 min (51%) [117] or in boiling acetone [1076];
- in the presence of alkali in boiling ethanol [1439].
- Also obtained by Friedel-Crafts acylation of resorcinol dimethyl ether with phenylacetyl chloride in the presence of aluminium chloride in boiling carbon disulfide for 1 h (50%) [158] or in boiling ethyl ether (33%) [1122].
- Also obtained by acylation of resorcinol monomethyl ether with phenylacetic acid in the presence of polyphosphoric acid at 95° for 30 min (40%) [1503].
- Also obtained by degradation of 4-hydroxy-7-methoxy-3-phenylcoumarin with refluxing 30% ethanolic hydrogen chloride (45%) [387].
- Also obtained from 4,7-dimethoxy-3-phenylcoumarin on heating with 5% aqueous sodium hydroxide for 2 h on a water bath (71%) [14].
- Also obtained by hydrolysis of ethyl 2,4-dimethoxybenzoyl-phenylacetate (m.p. 76-77°) in acetic acid with concentrated hydrochloric acid on a steam bath for 15 h (68%) [777].
- Also obtained by hydrolysis of 2,4-dimethoxybenzoyl-phenylacetonitrile (m.p. 108-109°) in acetic acid with concentrated hydrochloric acid on a steam bath for 15 h (47%) [777].
- Also obtained by condensation of phenylacetonitrile with resorcinol monomethyl ether (Hoesch reaction) (23%) [112].
- Also refer to: [11] [412] [462] [463] [701] [724] [949] [1076] [1140] [1271] [1291] [1364].

m.p. 92° [158], 90° [112] [627] [1439], 88-89° [777],
88° [106] [117], 87-88° [14], 86-87° [148], 86° [387], 75° [1503].

One of the reported melting points is obviously wrong.

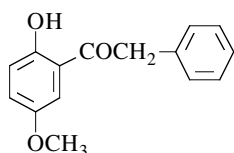
b.p._{0.001} 155-165° [777]; ¹H NMR [788] [1503].

1-(2-Hydroxy-5-methoxyphenyl)-2-phenylethanone

[80427-38-9]

C₁₅H₁₄O₃

mol.wt. 242.27

**Syntheses**

- Preparation by Fries rearrangement of p-methoxyphenyl phenylacetate with titanium tetrachloride at 120° for 1 h (60-74%) [969].
- Also obtained by Friedel-Crafts acylation of hydroquinone dimethyl ether with phenylacetyl chloride in the presence of aluminium chloride,

*in carbon disulfide at r.t. for 1 h (by-product) [772];

*in refluxing ethyl ether for 8 h [129], (43%) [585].

-Also obtained (poor yield) by partial degradation of 6-methoxy-3-phenyl-4-hydroxycoumarin with 30% ethanolic hydrogen chloride at reflux for 1 h [387].

-Also refer to: [149] [1413].

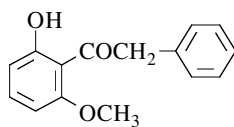
m.p. 45° [585], 44° [969]; IR [969], UV [969].

1-(2-Hydroxy-6-methoxyphenyl)-2-phenylethanone

[40584-06-3]

C₁₅H₁₄O₃

mol.wt. 242.27

**Syntheses**

- Obtained by partial methylation of benzyl 2,6-dihydroxyphenyl ketone with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone [585].

-Also obtained on heating 3-(6-methoxy-2-tosyloxyphenyl)-

3-oxo-2-phenylpropanal (m.p. 137-138°) with ethanolic potassium hydroxide (2N) at reflux for 2 h (88%) [574].

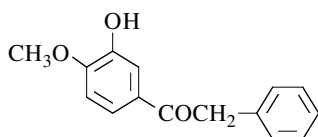
m.p. 71° [574], 66° [585]; IR [574].

1-(3-Hydroxy-4-methoxyphenyl)-2-phenylethanone

[58451-99-3]

C₁₅H₁₄O₃

mol.wt. 242.27

**Syntheses**

- Preparation from 2-methoxy-5-(phenylacetyl)phenyl phenylacetate (SM) with refluxing methanolic potassium hydroxide (91%) [966]. SM was obtained by acylation of 2-methoxyphenyl phenylacetate with phenylacetyl chloride in the presence of stannic chloride in nitromethane for 1 h at 20° (76%, m.p. 95°).

-Preparation from 3-benzyloxy-4-methoxybenzonitrile and benzylmagnesium chloride (75-90%) [1161].

-Preparation by treatment of 3-benzyloxy-4-methoxyphenyl benzyl ketone (SM) with a mixture of concentrated hydrochloric acid and acetic acid (1:2 v/v) and heating at 70° for 1 h (69%) [1557]. SM was obtained by oxidation of 1-(3-benzyloxy-4-methoxyphenyl)-2-phenylethanol (m.p. 79-82°) with potassium dichromate in dilute sulfuric acid at 50° for 1 h (80%, m.p. 105-106°).

m.p. 106-107° [1161] [1557], 101° [966];

¹H NMR (Sadtlar: standard n° 28214 M) [1557],

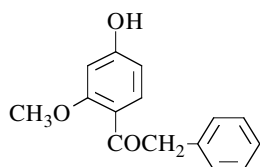
IR (Sadtlar: standard n° 55286) [966], UV [966], MS [1557].

1-(4-Hydroxy-2-methoxyphenyl)-2-phenylethanone

[85288-47-7]

C₁₅H₁₄O₃

mol.wt. 242.27

**Syntheses**

- Obtained by acylation of resorcinol monomethyl ether with phenylacetic acid in the presence of polyphosphoric acid at 95° for 30 min (30%) [1503].
- Also obtained (by-product) by condensation of phenylacetonitrile with resorcinol monomethyl ether (Hoesch reaction) (7%) [112].

m.p. 113° [112], 86° [1503].

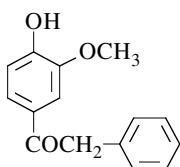
One of the reported melting points is obviously wrong.

b.p.₁₃ 260-265° [112]; ¹H NMR [788] [1503].**1-(4-Hydroxy-3-methoxyphenyl)-2-phenylethanone**

[66476-02-6]

C₁₅H₁₄O₃

mol.wt. 242.27

**Syntheses**

- Preparation by oxidation of 1-(4-hydroxy-3-methoxyphenyl)-2-phenylethanol with DDQ in dioxane at r.t. for 16 h (89%) [144].
- Preparation by reaction of benzylmagnesium chloride with 4-acetoxy-3-methoxybenzonitrile (72%) [1160].
- Preparation by reaction of phenylacetic acid with guaiacol in the presence of zinc chloride and phosphorous oxychloride for 24 h at r.t. (60%) [391].
- Preparation from 1-(4-benzyloxy-3-methoxyphenyl)-2-phenylethanone (m.p. 136-138°) by catalytic hydrogen transfer using ammonium formate as hydrogen donor and 10% Pd/C catalysis in refluxing methanol for 30 min (94%) [887].

N.B.: Na salt [1160].

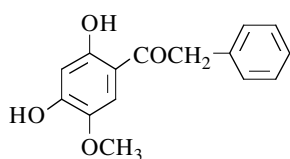
m.p. 110-111° [1160], 108-110° [144], 108° [391], 106-108° [887];

¹H NMR [144] [887], ¹³C NMR [887], UV [391].**1-(2,4-Dihydroxy-5-methoxyphenyl)-2-phenylethanone**

[79744-57-3]

C₁₅H₁₄O₄

mol.wt. 258.27

**Syntheses**

- Refer to: [246] [732].

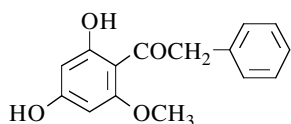
¹³C NMR [732].

1-(2,4-Dihydroxy-6-methoxyphenyl)-2-phenylethanone

[55607-18-6]

C₁₅H₁₄O₄

mol.wt. 258.27

**Syntheses**

-Obtained by reaction of phenylacetonitrile with phloroglucinol monomethyl ether (Hoesch reaction) (38%) [559].
 -Preparation by tosylation of 2,4,6-trihydroxyphenyl benzyl ketone with p-toluenesulfonyl chloride in the presence of potassium carbonate in refluxing acetone for 4 h, followed by methylation with dimethyl sulfate (reflux 30 h) and final detosylation with refluxing ethanolic sodium hydroxide for 45 min (19%) [14].
 -Also refer to: [715].

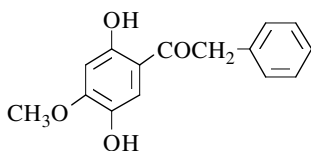
m.p. 146° [14], 145-146° [559].

1-(2,5-Dihydroxy-4-methoxyphenyl)-2-phenylethanone

[789-80-0]

C₁₅H₁₄O₄

mol.wt. 258.27

**Syntheses**

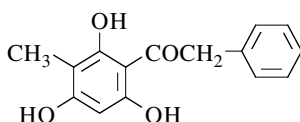
-Obtained by partial methylation of 2,4,5-trihydroxyphenyl benzyl ketone with excess diazomethane in ethyl ether at r.t. overnight (47%) [530].
 -Also obtained by alkaline oxidation of 2-hydroxy-4-methoxyphenyl benzyl ketone with potassium persulfate in aqueous potassium hydroxide/pyridine mixture (Elbs reaction) [129].
 -Also refer to: [585].

m.p. 153-154° [129], 150-152° [530]; ¹³C NMR [732].**2-Phenyl-1-(2,4,6-trihydroxy-3-methylphenyl)ethanone**

[3136-47-8]

C₁₅H₁₄O₄

mol.wt. 258.27

**Syntheses**

-Obtained by reaction of phenylacetonitrile with 2-methyl-phloroglucinol (Hoesch reaction) [672].
 -Also obtained by reduction of 2,4,6-trihydroxy-3-formylphenyl benzyl ketone with hydrogen in acetic acid using 5% Pd/C as catalyst [594].
 -Also refer to: [988] [1208] [1209].

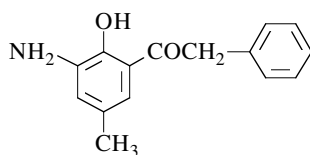
m.p. 200° [672], 198-199° [594].

1-(3-Amino-2-hydroxy-5-methylphenyl)-2-phenylethanone

[70977-87-6]

C₁₅H₁₅NO₂

mol.wt. 241.29

**Synthesis**

-Preparation by hydrogenation of 2-hydroxy-5-methyl-3-nitrophenyl benzyl ketone in ethanol using 5% Pd/C as catalyst at atmospheric pressure [1215], (74%) [506].

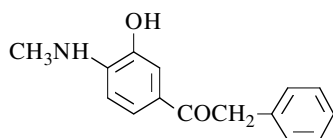
m.p. 74-76° [506] [1215].

1-[3-Hydroxy-4-(methylamino)phenyl]-2-phenylethanone

[54943-18-9]

C₁₅H₁₅NO₂

mol.wt. 241.29

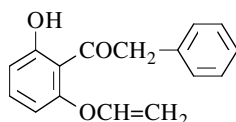
**Synthesis**

-Preparation from 3-methyl-6-phenylacetylbenzoxazolinone by alkaline hydrolysis with boiling 10% aqueous sodium hydroxide for 4 h (90-100%) [204].

m.p. 164-165° [204].

1-[2-(Ethenyloxy)-6-hydroxyphenyl]-2-phenylethanoneC₁₆H₁₄O₃

mol.wt. 254.29

**Synthesis**

-Obtained (by-product) by reaction of diethylaminochloroethane with 2,6-dihydroxydesoxybenzoin in the presence of sodium ethoxide in refluxing ethanol for 4 h (6%) [914].

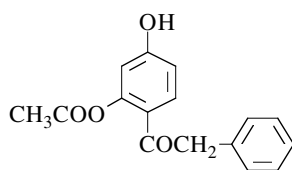
m.p. 85° [914].

1-[2-(Acetyloxy)-4-hydroxyphenyl]-2-phenylethanone

[145747-27-9]

C₁₆H₁₄O₄

mol.wt. 270.28

**Syntheses**

-Obtained by selective deacetylation catalyzed by porcine pancreas lipase in THF at 42-45° of,
 *1-acetoxy-1-(2,4-diacetoxyphenyl)-2-phenylethane during 72 h (20%) [1145];
 *2,4-diacetoxyphenyl benzyl ketone during 48 h (65%) [1145] or [1144] [1146] (in the table below):

lipase	solvent	time (h)	yields (%)
PPL	acetone/n-BuOH	40	35
PPL	CH ₃ CN/n-BuOH	50	35
PPL	THF/n-BuOH	42	65
CCL	DIPE/n-BuOH	45	60

PPL = porcine pancreas lipase; CCL = candida cylindracea lipase; DIPE = diisopropyl ether

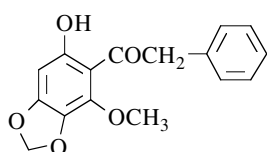
m.p. 140° [1145]; TLC [1145];
¹H NMR [1145], ¹³C NMR [1145], IR [1145], UV [1145], MS [1145].

1-(6-Hydroxy-4-methoxy-1,3-benzodioxol-5-yl)-2-phenylethanone

[2652-17-7]

C₁₆H₁₄O₅

mol.wt. 286.28



Synthesis

Obtained by reaction of phenylacetone nitrile with 3-methoxy-4,5-methylenedioxyphenol (Hoesch reaction) (24%) [533].

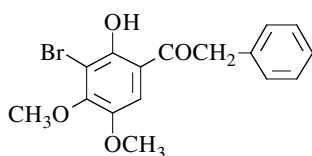
m.p. 162-164° [533]; UV [533].

1-(3-Bromo-2-hydroxy-4,5-dimethoxyphenyl)-2-phenylethanone

[54921-24-3]

C₁₆H₁₅BrO₄

mol.wt. 351.20



Synthesis

-Obtained by alkaline degradation of 6,7-dimethoxy-8-bromoisoflavone with 3% alcoholic potassium hydroxide at reflux for 30 min (41%) [960].

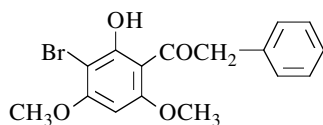
m.p. 146° [960].

1-(3-Bromo-2-hydroxy-4,6-dimethoxyphenyl)-2-phenylethanone

[28750-55-2]

C₁₆H₁₅BrO₄

mol.wt. 351.20



Syntheses

-Preparation by bromination of 2-acetoxy-4,6-dimethoxyphenyl benzyl ketone with bromine in acetic acid for 1 h at r.t. (69%) [412].
 -Also obtained by bromination of 2-hydroxy-4,6-dimethoxyphenyl benzyl ketone with bromine in chloroform under UV light at r.t. overnight (55%) [771].

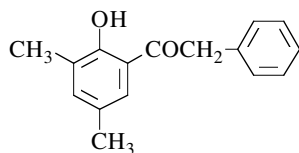
m.p. 205-206° [412], 200-202° [771]; TLC [771];
¹H NMR [412] [771], IR [771], UV [771].

1-(2-Hydroxy-3,5-dimethylphenyl)-2-phenylethanone

[93433-76-2]

C₁₆H₁₆O₂

mol.wt. 240.30



Syntheses

-Preparation by Fries rearrangement of 2,4-dimethylphenyl phenylacetate with aluminium chloride,
 *without solvent for 15 min at 140-145° (85%) [1569] or
 for 1 h at 120° (56%) [1502];
 *in refluxing chlorobenzene for 4 h (18%) [1552].

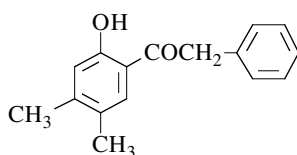
b.p._{0.01} 180-190° [1569], b.p.₁₀ 201-203° [1502].

1-(2-Hydroxy-4,5-dimethylphenyl)-2-phenylethanone

[18439-99-1]

C₁₆H₁₆O₂

mol.wt. 240.30

**Syntheses**

-Preparation by Fries rearrangement of 3,4-dimethylphenyl phenylacetate with aluminium chloride at 130° for 25 min (72%) [974].

-Also obtained (poor yield) by treatment of 6,7-dimethyl-3-phenyl-4-hydroxycoumarin with refluxing 30% ethanolic hydrogen chloride for 1 h [387].

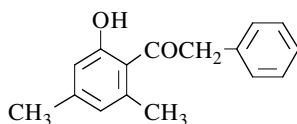
m.p. 69-70° [974], 68° [387]; ¹H NMR [974], IR [974].

1-(2-Hydroxy-4,6-dimethylphenyl)-2-phenylethanone

[38319-83-4]

C₁₆H₁₆O₂

mol.wt. 240.30

**Syntheses**

-Preparation by Friedel-Crafts acylation of 3,5-dimethylanisole with phenylacetyl chloride in the presence of aluminium chloride, first for 1 h at r.t., then for 1 h at reflux (43%) [1065].

-Also obtained by Fries rearrangement of 3,5-dimethylphenyl phenylacetate with aluminium chloride for 30 min on a water bath (10%) [1502].

b.p.₁ 168-173° [1065], b.p.₂₀ 220-225° [1502];

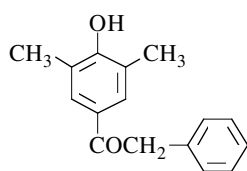
¹H NMR [1065], IR [1065]; n_D^{23.2} = 1.5921 [1065].

1-(4-Hydroxy-3,5-dimethylphenyl)-2-phenylethanone

[73049-13-5]

C₁₆H₁₆O₂

mol.wt. 240.30

**Syntheses**

-Preparation by oxidation of 1-(4-hydroxy-3,5-dimethylphenyl)-2-phenylethanol with DDQ in dioxane at r.t. for 16 h (83%) [144].

-Preparation by Fries rearrangement of 2,6-dimethylphenyl phenylacetate with aluminium chloride in refluxing chlorobenzene for 4 h (74%) [1552].

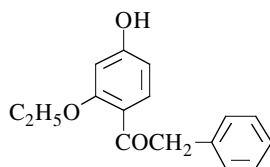
m.p. 117-118° [144]; ¹H NMR [144].

1-(2-Ethoxy-4-hydroxyphenyl)-2-phenylethanone

[50775-90-1]

C₁₆H₁₆O₃

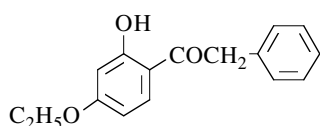
mol.wt. 256.30

**Syntheses**

-Refer to: [481] [482].

1-(4-Ethoxy-2-hydroxyphenyl)-2-phenylethanoneC₁₆H₁₆O₃

mol.wt. 256.30

**Syntheses**

-Obtained by partial ethylation of 2,4-dihydroxydeoxybenzoin with ethyl iodide in the presence of potassium carbonate in boiling acetone during 3 h (68%) [106].
 -Also refer to: [914].

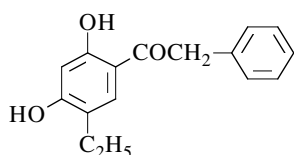
m.p. 86° [106].

1-(5-Ethyl-2,4-dihydroxyphenyl)-2-phenylethanone

[96643-95-7]

C₁₆H₁₆O₃

mol.wt. 256.30

**Syntheses**

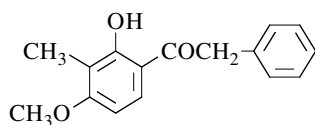
-Preparation by reaction of phenylacetone with 4-ethylresorcinol,
 *in the presence of boron trifluoride etherate (96%) [786]
 [936];
 *in the presence of zinc chloride (Hoesch reaction) [1052].

m.p. 105-105.5 [1052], 100-102° [786] [936]; ¹H NMR [786].**1-(2-Hydroxy-4-methoxy-3-methylphenyl)-2-phenylethanone**

[87538-40-7]

C₁₆H₁₆O₃

mol.wt. 256.30

**Synthesis**

-Obtained by reaction of methyl iodide with benzyl 2,4-dihydroxyphenyl ketone in methanol in the presence of potassium hydroxide, first at 0°, then standing overnight and refluxing for 6 h (45%) [1326].
 -Also refer to: [724] [1291].

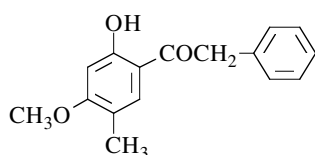
m.p. 110-111° [1326].

1-(2-Hydroxy-4-methoxy-5-methylphenyl)-2-phenylethanone

[87538-41-8]

C₁₆H₁₆O₃

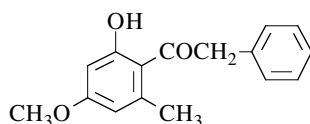
mol.wt. 256.30

**Syntheses**

-Refer to: [724] [1291].

1-(2-Hydroxy-4-methoxy-6-methylphenyl)-2-phenylethanoneC₁₆H₁₆O₃

mol.wt. 256.30

**Syntheses**

-Obtained by condensation of phenylacetone nitrile with orcinol monomethyl ether (1%) (Hoesch reaction) [112].
 -Also obtained by reaction of phenylacetyl chloride with orcinol dimethyl ether in the presence of aluminium chloride [814].

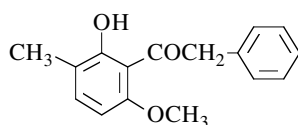
m.p. 110° [112].

1-(2-Hydroxy-6-methoxy-3-methylphenyl)-2-phenylethanone

[15578-05-9]

C₁₆H₁₆O₃

mol.wt. 256.30

**Synthesis**

-Obtained by partial methylation of 2,6-dihydroxy-3-methyldeoxybenzoin with dimethyl sulfate in the presence of potassium carbonate in boiling acetone (74%) [964].

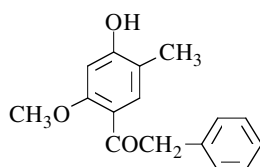
m.p. 80-82° [964].

1-(4-Hydroxy-2-methoxy-5-methylphenyl)-2-phenylethanone

[101169-10-2]

C₁₆H₁₆O₃

mol.wt. 256.30

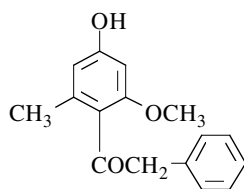
**Synthesis**

-Obtained by reaction of phenylacetone nitrile with 4-methyl-resorcinol dimethyl ether (Hoesch reaction) [1572].

m.p. 129° [1572].

1-(4-Hydroxy-2-methoxy-6-methylphenyl)-2-phenylethanoneC₁₆H₁₆O₃

mol.wt. 256.30

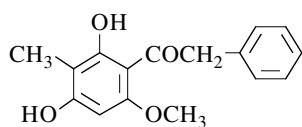
**Synthesis**

-Obtained (poor yield) by condensation of phenylacetone nitrile with orcinol monomethyl ether (7%) (Hoesch reaction) [112].

m.p. 93° [112].

1-(2,4-Dihydroxy-6-methoxy-3-methylphenyl)-2-phenylethanoneC₁₆H₁₆O₄

mol.wt. 272.30

**Synthesis**

-Obtained by reaction of phenylacetonitrile with 2,6-dihydroxy-4-methoxytoluene (Hoesch reaction) (52%) [672].

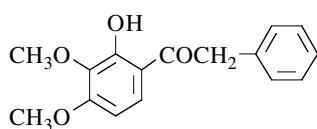
m.p. 141-143° [672].

1-(2-Hydroxy-3,4-dimethoxyphenyl)-2-phenylethanone

[24852-33-3]

C₁₆H₁₆O₄

mol.wt. 272.30

**Syntheses**

-Obtained by Friedel-Crafts acylation of pyrogallol trimethyl ether with phenylacetyl chloride in the presence of aluminium chloride,

*in boiling carbon disulfide for 30 min (39%) [758] or for 12 h [129];

*in ice-cold ethyl ether, then at r.t. overnight (57%) [681].

-Also refer to: [246] [704] [705] [706] [720] [722] [732] [1140].

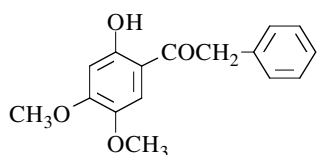
m.p. 113-114° [129], 112-113° [758], 106-107° [681]; ¹³C NMR [732].

1-(2-Hydroxy-4,5-dimethoxyphenyl)-2-phenylethanone

[24195-31-1]

C₁₆H₁₆O₄

mol.wt. 272.30

**Syntheses**

-Obtained by partial methylation of benzyl 2,5-dihydroxy-4-methoxyphenyl ketone with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone [585].

-Also obtained (by-product) by reaction of phenylacetyl chloride with hydroxyhydroquinone trimethyl ether in

the presence of aluminium chloride [129] [135] [136].

-Also obtained by reaction of phenylacetonitrile with 3,4-dimethoxyphenol (Hoesch reaction) (56%) [262].

-Also obtained (compound 7c) [699] according to the procedure [530].

m.p. 94-95° [262], 94° [135] [136], 93° [585];

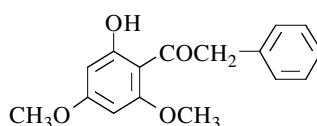
¹³C NMR [732], IR [262], UV [262], MS [262].

1-(2-Hydroxy-4,6-dimethoxyphenyl)-2-phenylethanone

[39604-66-5]

C₁₆H₁₆O₄

mol.wt. 272.30

**Syntheses**

-Obtained by partial methylation of benzyl 2,4,6-trihydroxyphenyl ketone [1145].

*with dimethyl sulfate in the presence of potassium carbonate in boiling acetone [771], for 1 h [12], (69%) [106] or for 14 h (68%) [686];

- *with methyl iodide in the presence of potassium carbonate in refluxing acetone for 6 h [672].
 -Also obtained by condensation of phenylacetonitrile with phloroglucinol dimethyl ether (Hoesch reaction) (28%) [1239], (19%) [1573].
 -Also obtained by Friedel-Crafts acylation of phloroglucinol trimethyl ether with phenylacetyl chloride in ethyl ether in the presence of aluminium chloride, first in an ice bath for 30 min and then at r.t. for 24 h [13].
 -Also obtained from 4,5,7-trimethoxy-3-phenylcoumarin on heating with 5% aqueous sodium hydroxide [14].
 -Also refer to: [11] [412] [559] [614] [699] [701] [720] [724] [747] [949] [1076] [1291] [1364].

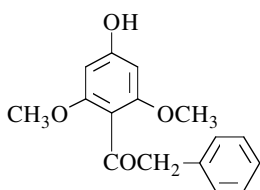
m.p. 118° [1573], 117-118° [13], 117° [106] [771] [1239], 116° [672] [686], 115-116° [14];
¹H NMR [788], IR [771], UV [771]; TLC [771].

1-(4-Hydroxy-2,6-dimethoxyphenyl)-2-phenylethanone

[131196-74-2]

C₁₆H₁₆O₄

mol.wt. 272.30



Syntheses

- Obtained (by-product) by condensation of phenylacetonitrile with phloroglucinol dimethyl ether (Hoesch reaction) [1239], (26%) [1573].
 -Also obtained by saponification of (4-acetoxy-2,6-dimethoxyphenyl) benzyl ketone (m.p. 108-110°) in ethanol with 3% aqueous sodium hydroxide on a water bath (77%) [1573].

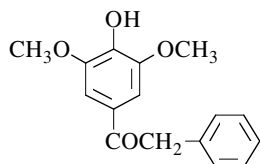
m.p. 77° [1573].

1-(4-Hydroxy-3,5-dimethoxyphenyl)-2-phenylethanone

[73049-12-4]

C₁₆H₁₆O₄

mol.wt. 272.30



Synthesis

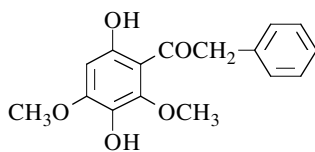
- Preparation by oxidation of 1-(3,5-dimethoxy-4-hydroxyphenyl)-2-phenylethanol with DDQ in dioxane at r.t. for 16 h (92%) [144].

m.p. 117-118° [144]; ¹H NMR [144].

1-(3,6-Dihydroxy-2,4-dimethoxyphenyl)-2-phenylethanone

C₁₆H₁₆O₅

mol.wt. 288.30



Syntheses

- Preparation by condensation of 2,6-dimethoxyhydroquinone with the complex phenylacetic acid and boron trifluoride (83%) [766], (quantitative yield) [765].
 -Also obtained by saponification of 6-hydroxy-2,4-dimethoxy-3-(phenylacetoxyl)phenyl benzyl ketone with 10% alcoholic potassium hydroxide for 2 h on a water bath [766].
 -Also obtained (poor yield) by persulfate oxidation of 2-hydroxy-4,6-dimethoxyphenyl benzyl ketone (Elbs reaction) (8%) [766].

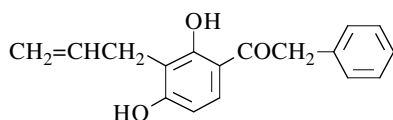
yellow oil [765]; m.p. 108° [766]; b.p.₁ 220-240° [766], b.p.₁ 230-250° [765].

1-[2,4-Dihydroxy-3-(2-propenyl)phenyl]-2-phenylethanone

[38987-02-9]

C₁₇H₁₆O₃

mol.wt. 268.31

**Syntheses**

-Obtained by Claisen rearrangement of 4-allyloxy-2-hydroxyphenyl benzyl ketone either using boiling dimethylaniline or heating up to 185-190° under reduced pressure [839].

-Also obtained by reaction of allyl bromide with 2,4-dihydroxydesoxybenzoin in the presence of methanolic potassium hydroxide (22%) [711].

-Also refer to: [1140].

m.p. 162-163° [711], 126° [839]. One of the reported melting points is obviously wrong.

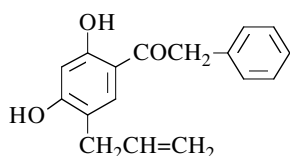
¹H NMR [711], IR [711], UV [711] [839].

1-[2,4-Dihydroxy-5-(2-propenyl)phenyl]-2-phenylethanone

[38987-03-0]

C₁₇H₁₆O₃

mol.wt. 268.31

**Synthesis**

-Obtained by demethylation of 5-allyl-4-hydroxy-2-methoxyphenyl benzyl ketone with aluminium chloride in ethyl ether or acetonitrile [839].

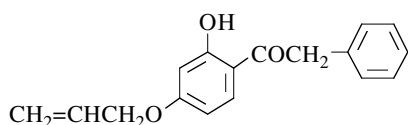
m.p. 99-100° [839]; UV [839].

1-[2-Hydroxy-4-(2-propenyloxy)phenyl]-2-phenylethanone

[78660-73-8]

C₁₇H₁₆O₃

mol.wt. 268.31

**Syntheses**

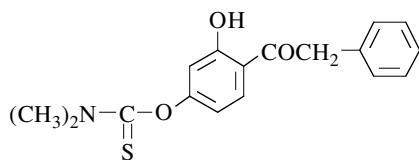
-Refer to: [839] [1328].

O-[3-Hydroxy-4-(phenylacetyl)phenyl] dimethylcarbamothioate

[142751-36-8]

C₁₇H₁₇NO₃S

mol.wt. 315.39

**Synthesis**

-Obtained by stirring a mixture of 2,4-dihydroxyphenyl benzyl ketone (1 mol), dimethylthiocarbamoyl chloride (2 mol), 1,4-diazabicyclo[2.2.2]octane (2 mol) and DMF at r.t. for 2 h (95%) [907].

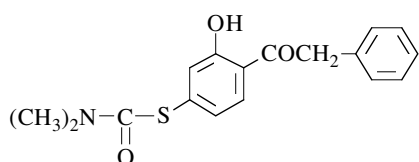
m.p. 94-95° [907]; ¹H NMR [907], MS [907].

S-[3-Hydroxy-4-(phenylacetyl)phenyl] dimethylcarbamothioate

[142751-40-4]

C₁₇H₁₇NO₃S

mol.wt. 315.39

**Synthesis**

-Obtained by refluxing a solution of O-[3-hydroxy-4-(phenylacetyl)phenyl] dimethylcarbamothioate [142751-36-8] in N,N-dimethylaniline for 1 h (87%) (Newman-Kwart rearrangement) [907].

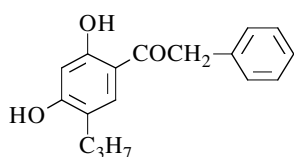
m.p. 100-101° [907]; ¹H NMR [907], MS [907].

1-(2,4-Dihydroxy-5-propylphenyl)-2-phenylethanone

[96661-12-0]

C₁₇H₁₈O₃

mol.wt. 270.33

**Syntheses**

-Preparation by reaction of phenylacetone nitrile with 4-propyl-resorcinol,
*in the presence of boron trifluoride etherate (88%) [786]
[936];
*in the presence of zinc chloride (Hoesch reaction) [1052].

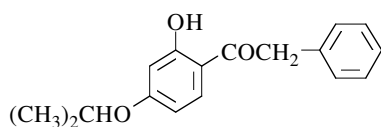
m.p. 95-96° [1052], 92-93° [786] [936]; ¹H NMR [786].

1-[2-Hydroxy-4-(1-methylethoxy)phenyl]-2-phenylethanone

[50561-04-1]

C₁₇H₁₈O₃

mol.wt. 270.33

**Syntheses**

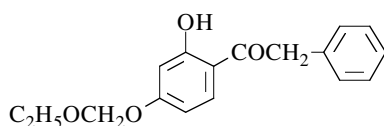
-Obtained by partial alkylation of benzyl 2,4-dihydroxyphenyl ketone with isopropyl bromide in DMF in the presence of potassium carbonate (79%) [1345].
-Also obtained by alkali degradation of *ipriflavone* (7-(1-methylethoxy)-3-phenyl-[4H]-1-benzopyran-4-one) (m.p. 115-117°) at high pH (pH > 9) (main degradation product) [1509].
-Also refer to: [481] [482] [484] [485] [486].

1-[4-(Ethoxymethoxy)-2-hydroxyphenyl]-2-phenylethanone

[97714-79-9]

C₁₇H₁₈O₄

mol.wt. 286.33

**Syntheses**

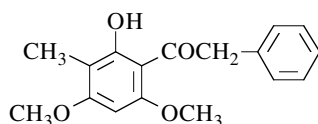
-Obtained by reaction of chloromethyl ethyl ether with benzyl 2,4-dihydroxyphenyl ketone in acetone in the presence of potassium carbonate at r.t. for 15-45 min [710].
-Also refer to: [701].

1-(2-Hydroxy-4,6-dimethoxy-3-methylphenyl)-2-phenylethanone

[39604-67-6]

C₁₇H₁₈O₄

mol.wt. 286.33

**Syntheses**

-Preparation by partial methylation of 2,4-dihydroxy-3-methyl-6-methoxyphenyl benzyl ketone with methyl iodide in the presence of potassium carbonate in boiling acetone for 4 h (82%) [672].

-Also obtained by O and nuclear methylations of 2,4,6-trihydroxyphenyl benzyl ketone with methyl iodide in the presence of potassium carbonate in refluxing acetone for 6 h (11%) [672].

-Also obtained by partial methylation of 2,4,6-trihydroxy-3-methylphenyl benzyl ketone with dimethyl sulfate or with an excess methyl iodide in the presence of potassium carbonate in refluxing acetone for 3 h [672].

-Also obtained by reduction of 2-hydroxy-3-formyl-4,6-dimethoxyphenyl benzyl ketone with hydrogen in acetic acid using 5% Pd/C as catalyst (90%) [594].

-Also refer to: [12].

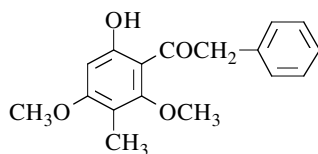
m.p. 153-155° [672], 153-154° [594].

1-(6-Hydroxy-2,4-dimethoxy-3-methylphenyl)-2-phenylethanone

[22080-99-5]

C₁₇H₁₈O₄

mol.wt. 286.33

**Syntheses**

-Obtained (poor yield) by reaction of phenylacetyl chloride with 4-hydroxy-2,6-dimethoxytoluene in ethyl ether in the presence of aluminium chloride for 3 days at r.t. (8%) [717].

-Also refer to: [12].

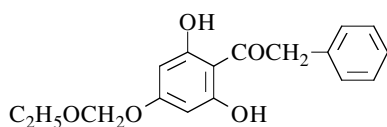
m.p. 47-48° [717]; IR [717].

1-[4-(Ethoxymethoxy)-2,6-dihydroxyphenyl]-2-phenylethanone

[97714-81-3]

C₁₇H₁₈O₅

mol.wt. 302.33

**Synthesis**

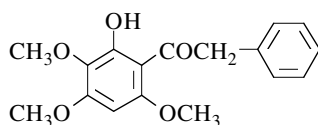
-Obtained by reaction of chloromethyl ethyl ether with benzyl 2,4,6-trihydroxyphenyl ketone in acetone in the presence of potassium carbonate at r.t. for 15-45 min [710].

1-(2-Hydroxy-3,4,6-trimethoxyphenyl)-2-phenylethanone

[55742-64-8]

C₁₇H₁₈O₅

mol.wt. 302.33

**Syntheses**

-Obtained by reaction of phenylacetyl chloride with 1,2,3,5-tetramethoxybenzene in the presence of aluminium chloride,

*in nitrobenzene on a water bath for 6 h (13%) [1329].

*in ethyl ether for 8 h on a water bath [129].

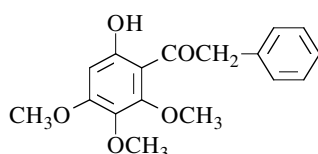
m.p. 89° [1329], 85-86° [129].

1-(6-Hydroxy-2,3,4-trimethoxyphenyl)-2-phenylethanone

[22137-59-3]

C₁₇H₁₈O₅

mol.wt. 302.33



Synthesis

-Preparation by Friedel-Crafts acylation of antiarol with phenylacetyl chloride in ethyl ether in the presence of aluminium chloride at r.t. for 12 h (45%) [842] or for 24 h (59%) [601].

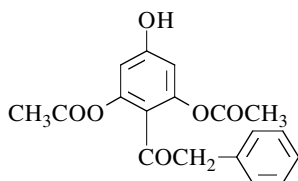
m.p. 64° [842], 63° [601].

1-[2,6-Bis(acetyloxy)-4-hydroxyphenyl]-2-phenylethanone

[145747-29-1]

C₁₈H₁₆O₆

mol.wt. 328.32



Syntheses

-Obtained by regioselective enzyme-catalyzed deacetylation of benzyl 2,4,6-triacetoxyphenyl ketone in various solvents containing n-butanol with two different lipases at 42-45° for 40 h,

*using porcine pancreas lipase in acetone or in acetonitrile (40%), in THF (70%) [1144] [1146], in diisopropyl ether (65%) [1144];

*using candida cylindracea lipase in diisopropyl ether

(40%) [1146].

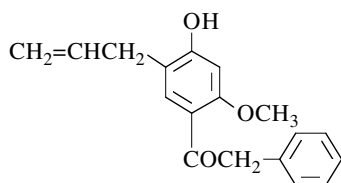
-Also obtained (small amount) by selective deacetylation of 1-acetoxy-1-(2,4,6-triacetoxyphenyl)-2-phenylethane (m.p. 67°) using porcine pancreas lipase in THF at 42-45° for 72 h [1145].

1-[4-Hydroxy-2-methoxy-5-(2-propenyl)phenyl]-2-phenylethanone

[39022-25-8]

C₁₈H₁₈O₃

mol.wt. 282.34



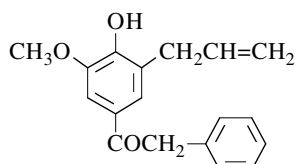
Synthesis

-Obtained by Claisen rearrangement of 4-allyloxy-2-methoxyphenyl benzyl ketone (m.p. 126-127°) either using boiling dimethylaniline or heating up to 185-190° under reduced pressure [839].

m.p. 127-128° [839]; UV [839].

1-[4-Hydroxy-3-methoxy-5-(2-propenyl)phenyl]-2-phenylethanoneC₁₈H₁₈O₃

mol.wt. 282.34

**Synthesis**

-Obtained by DDQ oxidation of 1-(3-allyl-4-hydroxy-5-methoxyphenyl)-2-phenylethanol in dioxane at r.t. for 16 h (88%) [144].

m.p. 140-142° [144]; ¹H NMR [144].

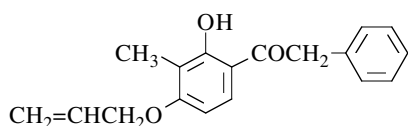
N.B.: In the original paper -page 1600- [144], the authors point out a registry N° [73049-14-6] for the title compound (**4e**) (benzyl 3-allyl-4-hydroxy-5-methoxyphenyl ketone) C₁₈H₁₈O₃. Nevertheless, the same registry number was assigned, undoubtedly by mistake, to 1-[4-hydroxy-3-methoxy-5-(2-propenyloxy)phenyl]-2-phenylethanone C₁₈H₁₈O₄, Chem. Abstr., Formula Index **92**, 215017w (1980). Actually, this ketone is not represented in [144]. The assigning of this registry number for the ketone C₁₈H₁₈O₄ by Chem. Abstr. is definitive.

1-[2-Hydroxy-3-methyl-4-(2-propenyloxy)phenyl]-2-phenylethanone

[57097-17-3]

C₁₈H₁₈O₃

mol.wt. 282.34

**Syntheses**

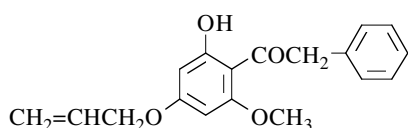
-Refer to: [1138] [1328].

1-[2-Hydroxy-6-methoxy-4-(2-propenyloxy)phenyl]-2-phenylethanone

[66541-26-2]

C₁₈H₁₈O₄

mol.wt. 298.34

**Synthesis**

-Obtained by treatment of 2,4-dihydroxy-6-methoxyphenyl benzyl ketone with allyl bromide in the presence of potassium carbonate in refluxing acetone for 4 h [14].

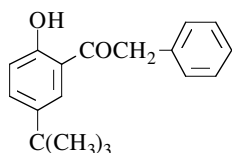
m.p. 81-82° [14].

1-[5-(1,1-Dimethylethyl)-2-hydroxyphenyl]-2-phenylethanone

[75060-51-4]

C₁₈H₂₀O₂

mol.wt. 268.36

**Synthesis**

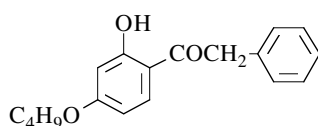
-Obtained by demethylation of 2-phenylacetyl-4-tert-butyl-anisole with a 47% hydrobromic acid/57% hydriodic acid mixture in refluxing acetic acid (63%) [685].

1-(4-Butoxy-2-hydroxyphenyl)-2-phenylethanone

[50775-75-2]

C₁₈H₂₀O₃

mol.wt. 284.36

**Syntheses**

-Preparation by partial alkylation of 2,4-dihydroxyphenyl benzyl ketone with butyl bromide in the presence of potassium carbonate in refluxing acetone for 20 h [148].
 -Also refer to: [481] [482] [484] [486].

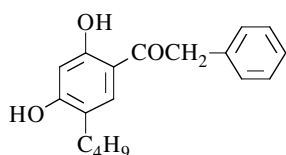
m.p. 72-75° [148].

1-(5-Butyl-2,4-dihydroxyphenyl)-2-phenylethanone

[96643-96-8]

C₁₈H₂₀O₃

mol.wt. 284.36

**Syntheses**

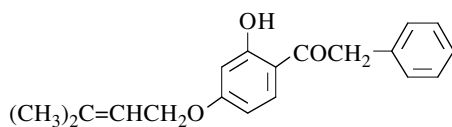
-Preparation by reaction of phenylacetone nitrile with 4-butyl-resorcinol,
 *in the presence of boron trifluoride etherate (92%) [786] [936];
 *in the presence of zinc chloride (Hoesch reaction) [1052].

m.p. 91° [1052], 79-80° [786] [936]; ¹H NMR [786].**1-[2-Hydroxy-4-[(3-methyl-2-butenyl)oxy]phenyl]-2-phenylethanone**

[35486-77-2]

C₁₉H₂₀O₃

mol.wt. 296.37

**Synthesis**

-Refer to: [393].

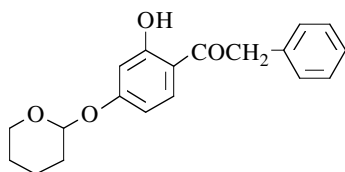
paper chromatography [393].

1-[2-Hydroxy-4-[(tetrahydro-2H-pyran-2-yl)oxy]phenyl]-2-phenylethanone

[130064-20-9]

C₁₉H₂₀O₄

mol.wt. 312.37

**Synthesis**

-Preparation by reaction of 3,4-dihydro-2H-pyran with 1-(2,4-dihydroxyphenyl)-2-phenylethanone in dioxane in the presence of PTSA (p-toluenesulfonic acid) at r.t. for 4 h (80%) [1335].

m.p. 89° [1335];

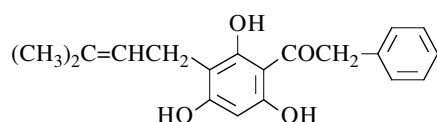
¹H NMR [1335], IR [1335], MS [1335].

2-Phenyl-1-[2,4,6-trihydroxy-3-(3-methyl-2-butenyl)phenyl]ethanone

[85602-17-1]

C₁₉H₂₀O₄

mol.wt. 312.37



Synthesis

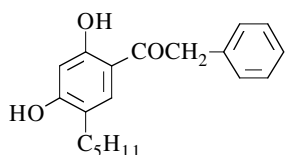
-Refer to: [1491].

1-(2,4-Dihydroxy-5-pentylphenyl)-2-phenylethanone

[96643-97-9]

C₁₉H₂₂O₃

mol.wt. 298.38



Syntheses

-Preparation by reaction of phenylacetone with 4-pentyl-resorcinol,

*in the presence of boron trifluoride etherate (81%) [786] [936];

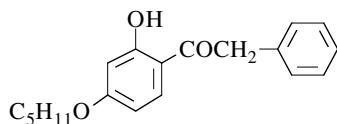
*in the presence of zinc chloride (Hoesch reaction) [1052].

m.p. 94-95° [786] [936], 89-90° [1052]; ¹H NMR [786].**1-[2-Hydroxy-4-(pentyloxy)phenyl]-2-phenylethanone**

[50775-76-3]

C₁₉H₂₂O₃

mol.wt. 298.38



Synthesis

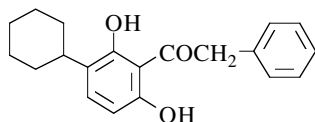
-Preparation by partial alkylation of benzyl 2,4-dihydroxyphenyl ketone with pentyl bromide in the presence of potassium carbonate in refluxing acetone for 20 h [148].

-Also refer to: [481] [482] [484] [486].

m.p. 70-73° [148].

1-(3-Cyclohexyl-2,6-dihydroxyphenyl)-2-phenylethanoneC₂₀H₂₂O₃

mol.wt. 310.39



Synthesis

-Obtained by reaction of phenylacetone with 4-cyclohexylresorcinol (Hoesch reaction) [914].

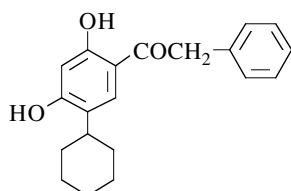
m.p. 221° [914].

1-(5-Cyclohexyl-2,4-dihydroxyphenyl)-2-phenylethanone

[159977-40-9]

C₂₀H₂₂O₃

mol.wt. 310.39

**Syntheses**

-Preparation by reaction of phenylacetic acid with 4-cyclohexylresorcinol in the presence of boron trifluoride etherate at 125° for 30 min, followed by hydrolysis of the complex obtained (m.p. 165-166°) with boiling dilute ethanol for 15-20 min (39%) [1133].
 -Also obtained by reaction of phenylacetonitrile with 4-cyclohexylresorcinol (Hoesch reaction) [914].

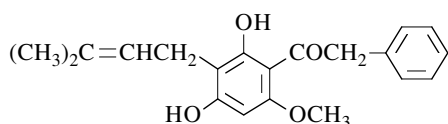
m.p. 133° [914], 132-133° [1133]; IR [1133], UV [1133].

1-[2,4-Dihydroxy-6-methoxy-3-(3-methyl-2-butenyl)phenyl]-2-phenylethanone

[55607-21-1]

C₂₀H₂₂O₄

mol.wt. 326.39

**Syntheses**

-Obtained by reaction of 2-hydroxy-2-methyl-3-butene with 2,4-dihydroxy-6-methoxyphenyl benzyl ketone in dioxane in the presence of boron trifluoride etherate for 1 h at r.t. (14%) [715].
 -Also obtained by reaction of prenyl bromide with 2,4-dihydroxy-6-methoxyphenyl benzyl ketone in methanolic potassium hydroxide for 20 h at r.t. (20%) [715].

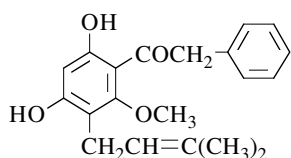
m.p. 133-134° [715]; ¹H NMR [715]; TLC [715].

1-[4,6-Dihydroxy-2-methoxy-3-(3-methyl-2-butenyl)phenyl]-2-phenylethanone

[55607-22-2]

C₂₀H₂₂O₄

mol.wt. 326.39

**Syntheses**

-Obtained by reaction of 2-hydroxy-2-methyl-3-butene with 2,4-dihydroxy-6-methoxyphenyl benzyl ketone in dioxane in the presence of boron trifluoride etherate for 1 h at r.t. (19%) [715].
 -Also obtained by reaction of prenyl bromide with 2,4-dihydroxy-6-methoxyphenyl benzyl ketone in methanolic potassium hydroxide for 20 h at r.t. (13%) [715].

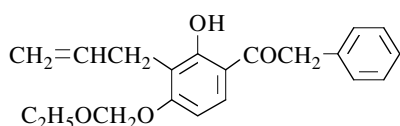
m.p. 93-94° [715]; ¹H NMR [715]; TLC [715].

1-[4-(Ethoxymethoxy)-2-hydroxy-3-(2-propenyl)phenyl]-2-phenylethanone

[117951-95-8]

C₂₀H₂₂O₄

mol.wt. 326.39

**Synthesis**

-Obtained (poor yield) by reaction of ethoxymethyl chloride with 3-allyl-2,4-dihydroxydesoxybenzoin in the presence of potassium carbonate in acetone (9%) [711].

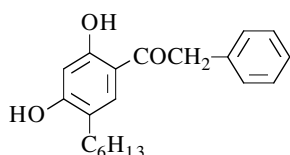
light brown oil [711]; ¹H NMR [711], IR [711], UV [711].

1-(5-Hexyl-2,4-dihydroxyphenyl)-2-phenylethanone

[96643-98-0]

C₂₀H₂₄O₃

mol.wt. 312.41

**Syntheses**

-Preparation by reaction of phenylacetone nitrile with 4-hexylresorcinol,
*in the presence of boron trifluoride etherate under hydrogen chloride atmosphere (8-10 h) and at r.t. overnight (83%) [786] [936];
*in the presence of zinc chloride (Hoesch reaction) [1052].

-Also obtained (poor yield) by Friedel-Crafts acylation of 4-hexylresorcinol with phenylacetyl chloride in the presence of aluminium chloride in nitrobenzene at 80° for 2 days [913].

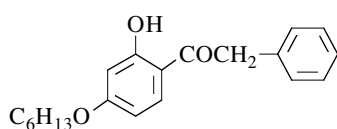
m.p. 90° [913], 86-87° [1052], 83-84° [786] [936]; ¹H NMR [786].

1-[4-(Hexyloxy)-2-hydroxyphenyl]-2-phenylethanone

[50776-01-7]

C₂₀H₂₄O₃

mol.wt. 312.41

**Syntheses**

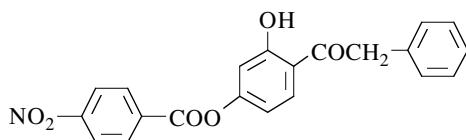
-Preparation by partial alkylation of benzyl 2,4-dihydroxyphenyl ketone with hexyl bromide in the presence of potassium carbonate in refluxing acetone for 20 h [148].

-Also refer to: [481] [482].

m.p. 60-62° [148].

1-[2-Hydroxy-4-(4-nitrobenzoyloxy)phenyl]-2-phenylethanoneC₂₁H₁₅NO₆

mol.wt. 377.35

**Synthesis**

-Obtained by partial esterification of benzyl 2,4-dihydroxyphenyl ketone [106] with p-nitrobenzoyl chloride in the presence of pyridine [585].

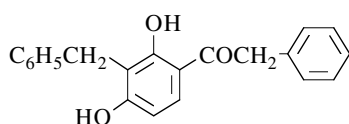
m.p. 178-180° [585].

1-[2,4-Dihydroxy-3-(phenylmethyl)phenyl]-2-phenylethanone

[95832-51-2]

C₂₁H₁₈O₃

mol.wt. 318.37

**Syntheses**

-Obtained by reaction of benzyl alcohol with 2,4-dihydroxydesoxybenzoin in dioxane in the presence of boron trifluoride etherate at 60-70° for 7 h (21%) [713].

-Also obtained by rearrangement of 2-hydroxy-4-(benzyloxy)desoxybenzoin in TFA at r.t. for 70 h (16%) [713].

-Obtained by reaction of benzyl bromide with 2,4-dihydroxydesoxybenzoin in methanol in the presence of potassium hydroxide at r.t. for 24 h (11%) [718].

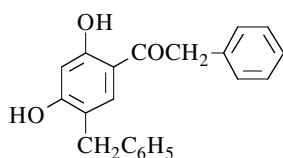
m.p. 122-124° [718], 121-122° [713];
column chromatography [713]; TLC [713];
¹H NMR [713], IR [713], UV [713].

1-[2,4-Dihydroxy-5-(phenylmethyl)phenyl]-2-phenylethanone

[95832-52-3]

C₂₁H₁₈O₃

mol.wt. 318.37

**Syntheses**

-Obtained by reaction of benzyl alcohol with 2,4-dihydroxydesoxybenzoin in dioxane in the presence of boron trifluoride etherate at 60-70° for 7 h (31%) [713].

-Also obtained by rearrangement of 2-hydroxy-4-(benzyloxy)desoxybenzoin in TFA at r.t. for 70 h (31%) [713].

-Also obtained by reaction of benzyl bromide with 2,4-dihydroxydesoxybenzoin in methanol in the presence of potassium hydroxide at r.t. for 24 h (< 3%) [718].

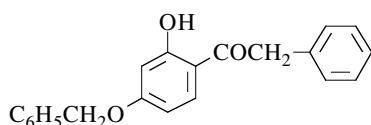
m.p. 128-129° [713], 126-128° [718];
column chromatography [713]; TLC [713];
¹H NMR [713], IR [713], UV [713].

1-[2-Hydroxy-4-(phenylmethoxy)phenyl]-2-phenylethanone

[39604-80-3]

C₂₁H₁₈O₃

mol.wt. 318.37

**Syntheses**

-Preparation by partial benzylation of 2,4-dihydroxyphenyl benzyl ketone,

*with benzyl chloride in the presence of potassium carbonate in refluxing acetone [1145], (72%) [12];

*with benzyl bromide in the presence of potassium carbonate in refluxing acetone [148] or in the presence of potassium hydroxide at r.t. for 24 h (29%) [718].

-Also refer to: [11] [953].

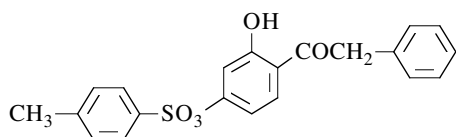
m.p. 105-106° [718], 104-108° [148], 104-105° [12].

1-[2-Hydroxy-4-[[4-methylphenyl)sulfonyl]oxy]phenyl]-2-phenylethanone

[102478-26-2]

C₂₁H₁₈O₅S

mol.wt. 382.44

**Synthesis**

-Obtained by partial esterification of benzyl 2,4-dihydroxyphenyl ketone with p-toluenesulfonyl chloride in acetone in the presence of potassium carbonate [585].

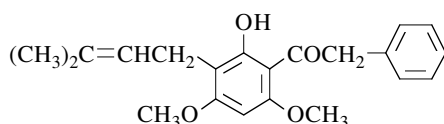
m.p. 117° [585].

1-[2-Hydroxy-4,6-dimethoxy-3-(3-methyl-2-butenyl)phenyl]-2-phenylethanone

[55607-23-3]

C₂₁H₂₄O₄

mol.wt. 340.42

**Synthesis**

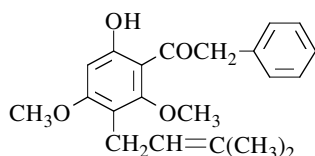
-Obtained by partial methylation of 2,4-dihydroxy-6-methoxy-3-prenylphenyl benzyl ketone with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone for 3.5 h (96%) [715].

m.p. 113-114° [715]; ¹H NMR [715]; TLC [715].**1-[6-Hydroxy-2,4-dimethoxy-3-(3-methyl-2-butenyl)phenyl]-2-phenylethanone**

[55607-25-5]

C₂₁H₂₄O₄

mol.wt. 340.42

**Synthesis**

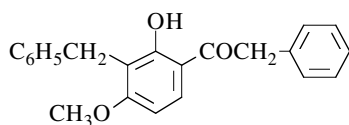
-Obtained by partial methylation of 2,4-dihydroxy-6-methoxy-5-prenylphenyl benzyl ketone with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone for 4 h [715].

m.p. 80-81° [715]; ¹H NMR [715]; TLC [715].**1-[2-Hydroxy-4-methoxy-3-(phenylmethyl)phenyl]-2-phenylethanone**

[95832-54-5]

C₂₂H₂₀O₃

mol.wt. 332.40

**Synthesis**

-Preparation by reaction of dimethyl sulfate with 3-benzyl-2,4-dihydroxydeoxybenzoin in the presence of potassium carbonate in refluxing acetone for 3 h [713].

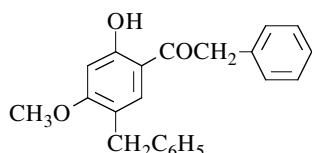
oil [713]; TLC [713]; ¹H NMR [713].

1-[2-Hydroxy-4-methoxy-5-(phenylmethyl)phenyl]-2-phenylethanone

[95832-53-4]

C₂₂H₂₀O₃

mol.wt. 332.40

**Synthesis**

-Preparation by reaction of dimethyl sulfate with 5-benzyl-2,4-dihydroxydeoxybenzoin in the presence of potassium carbonate in refluxing acetone for 3 h (84%) [713].

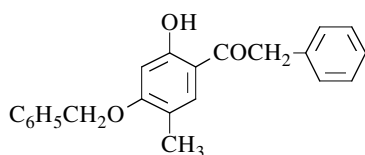
m.p. 80-81° [713]; TLC [713]; ¹H NMR [713].

1-[2-Hydroxy-5-methyl-4-(phenylmethoxy)phenyl]-2-phenylethanone

[112198-28-4]

C₂₂H₂₀O₃

mol.wt. 332.40

**Synthesis**

-Preparation by reaction of benzyl chloride with 2,4-dihydroxy-5-methylphenyl benzyl ketone in the presence of potassium carbonate in refluxing acetone for 7 h (73%) [1572].

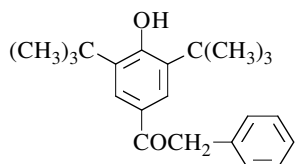
m.p. 108° [1572].

1-[3,5-Bis(1,1-dimethylethyl)-4-hydroxyphenyl]-2-phenylethanone

[14035-39-3]

C₂₂H₂₈O₂

mol.wt. 324.46

**Syntheses**

-Preparation by Friedel-Crafts acylation of 2,6-di-tert-butylphenol with phenylacetyl chloride in the presence of aluminium chloride for 15 min at -10° (84%) [1192], (75%) [1316].

-Preparation by oxidation of 1-(3,5-di-tert-butyl-4-hydroxyphenyl)-2-phenylethanol with DDQ in

dioxane at r.t. for 16 h (90%) [144].
-Also refer to: [380] [1469].

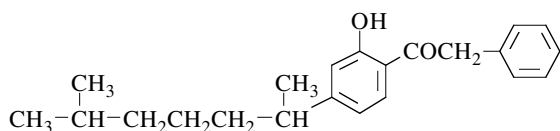
m.p. 129-130° [144], 120-122° [1192] [1316]; ¹H NMR [144].

1-[4-(1,5-Dimethylhexyl)-2-hydroxyphenyl]-2-phenylethanone

[146935-09-3]

C₂₂H₂₈O₂

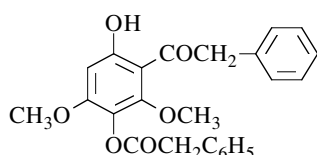
mol.wt. 324.46

**Synthesis**

-Refer to: [1546] (Japanese patent).

1-[6-Hydroxy-2,4-dimethoxy-3-[(phenylacetyl)oxy]phenyl]-2-phenylethanoneC₂₄H₂₂O₆

mol.wt. 406.44

**Synthesis**

-Obtained (by-product) by condensation of 2,6-dimethoxyhydroquinone with the complex phenylacetic acid and boron trifluoride [766].

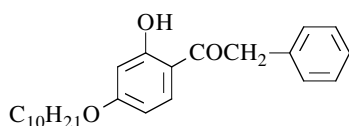
m.p. 105° [766].

1-[4-(Decyloxy)-2-hydroxyphenyl]-2-phenylethanone

[143287-02-9]

C₂₄H₃₂O₃

mol.wt. 368.52

**Synthesis**

-Preparation by partial alkylation of benzyl 2,4-dihydroxyphenyl ketone with decyl bromide in the presence of potassium carbonate in refluxing acetone for 20 h [148].

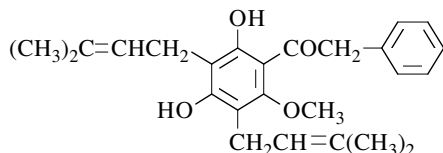
m.p. 66-69° [148].

1-[2,4-Dihydroxy-6-methoxy-3,5-bis(3-methyl-2-butenyl)phenyl]-2-phenylethanone

[55607-20-0]

C₂₅H₃₀O₄

mol.wt. 394.51

**Syntheses**

-Obtained (poor yield) by reaction of 2-hydroxy-2-methyl-3-butene with 2,4-dihydroxy-6-methoxyphenyl benzyl ketone in dioxane in the presence of boron trifluoride etherate for 1 h at r.t. (4%) [715].

-Also obtained (poor yield) by reaction of prenyl bromide with 2,4-dihydroxy-6-methoxyphenyl benzyl ketone in methanolic potassium hydroxide for 20 h at r.t. (5%) [715].

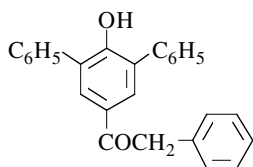
oil [715]; TLC [715].

1-[(4-Hydroxy-3,5-diphenyl)phenyl]-2-phenylethanone*1-(2'-Hydroxy[1,1':3',1''-terphenyl]-5'-yl)-2-phenylethanone*

[73048-87-0]

C₂₆H₂₀O₂

mol.wt. 364.45

**Synthesis**

-Obtained by DDQ oxidation of 1-[4-hydroxy-3,5-(diphenyl)phenyl]-2-phenylethanol in dioxane at r.t. for 76 h (89%) [144].

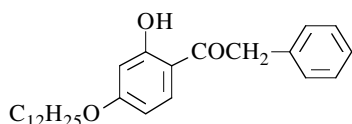
m.p. 155-156° [144]; ¹H NMR [144].

1-[4-(Dodecyloxy)-2-hydroxyphenyl]-2-phenylethanone

[143287-03-0]

C₂₆H₃₆O₃

mol.wt. 396.57

**Synthesis**

-Preparation by partial alkylation of 2,4-dihydroxyphenyl benzyl ketone with dodecyl bromide in the presence of potassium carbonate in refluxing acetone for 20 h [148].

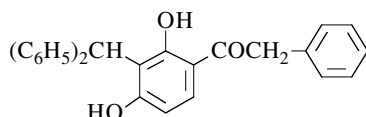
m.p. 68-71° [148].

1-[3-(Diphenylmethyl)-2,4-dihydroxyphenyl]-2-phenylethanone

[98497-96-2]

C₂₇H₂₂O₃

mol.wt. 394.47

**Synthesis**

-Obtained by reaction of 2,4-dihydroxydesoxybenzoin with diphenylcarbinol in dioxane in the presence of boron trifluoride etherate at 60-70° for 3 h (17%) [712].

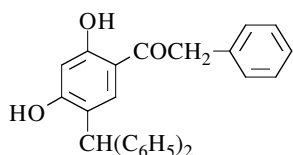
m.p. 133-134° [712]; column chromatography [712]; TLC [712];

¹H NMR [712], IR [712], UV [712].**1-[5-(Diphenylmethyl)-2,4-dihydroxyphenyl]-2-phenylethanone**

[98497-97-3]

C₂₇H₂₂O₃

mol.wt. 394.47

**Synthesis**

-Obtained by reaction of 2,4-dihydroxydesoxybenzoin with diphenylcarbinol in dioxane in the presence of boron trifluoride etherate at 60-70° for 3 h (24%) [712].

m.p. 142-143° [712];

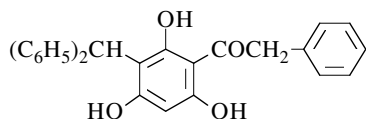
column chromatography [712]; TLC [712];

¹H NMR [712], IR [712], UV [712].**1-[3-(Diphenylmethyl)-2,4,6-trihydroxyphenyl]-2-phenylethanone**

[104310-95-4]

C₂₇H₂₂O₄

mol.wt. 410.47

**Synthesis**

-Obtained by reaction of diphenylcarbinol with 2,4,6-trihydroxyphenyl benzyl ketone in dioxane in the presence of boron trifluoride etherate at 60-70° for 3.5 h (24%) [719].

m.p. 160-162° [719]; TLC [719];

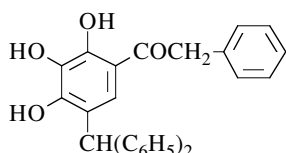
¹H NMR [719], IR [719], UV [719].

1-[5-(Diphenylmethyl)-2,3,4-trihydroxyphenyl]-2-phenylethanone

[106556-47-2]

C₂₇H₂₂O₄

mol.wt. 410.47

**Synthesis**

-Obtained by reaction of diphenylcarbinol with 2,3,4-trihydroxyphenyl benzyl ketone in dioxane in the presence of boron trifluoride etherate for 4 h at r.t. (39%) [698].

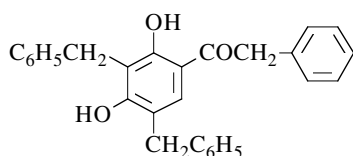
m.p. 177-178° [698]; TLC [698];
¹H NMR [698], IR [698], UV [698].

1-[2,4-Dihydroxy-3,5-bis(phenylmethyl)phenyl]-2-phenylethanone

[95832-50-1]

C₂₈H₂₄O₃

mol.wt. 408.50

**Syntheses**

-Obtained by reaction of benzyl alcohol with 2,4-dihydroxydesoxybenzoin in dioxane in the presence of boron trifluoride etherate at 60-70° for 7 h (10%) [713].

-Also obtained (trace) by reaction of benzyl bromide with 2,4-dihydroxydesoxybenzoin in methanol in the presence of potassium hydroxide at r.t. for 24 h (< 2%) [718].

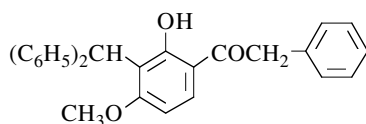
m.p. 111-112° [713], 110-112° [718]; column chromatography [713];
¹H NMR [713], ¹³C NMR [718], IR [713], UV [713].

1-[3-(Diphenylmethyl)-2-hydroxy-4-methoxyphenyl]-2-phenylethanone

[98498-01-2]

C₂₈H₂₄O₃

mol.wt. 408.50

**Synthesis**

-Preparation by reaction of dimethyl sulfate with 2,4-dihydroxy-3-(diphenylmethyl)desoxybenzoin in the presence of potassium carbonate in refluxing acetone for 3 h (93%) [712].

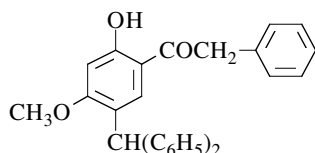
m.p. 126-127° [712]; TLC [712]; ¹H NMR [712].

1-[5-(Diphenylmethyl)-2-hydroxy-4-methoxyphenyl]-2-phenylethanone

[98498-02-3]

C₂₈H₂₄O₃

mol.wt. 408.50

**Synthesis**

-Preparation by reaction of dimethyl sulfate with 2,4-dihydroxy-5-(diphenylmethyl)desoxybenzoin in the presence of potassium carbonate in refluxing acetone for 3 h (93%) [712].

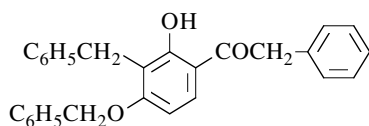
m.p. 110-111° [712]; TLC [712]; ¹H NMR [712].

1-[2-Hydroxy-4-(phenylmethoxy)-3-(phenylmethyl)phenyl]-2-phenylethanone

[107044-42-8]

C₂₈H₂₄O₃

mol.wt. 408.50

**Syntheses**

-Obtained by reaction of benzyl chloride (1 mol) with 3-benzyl-2,4-dihydroxydesoxybenzoin in the presence of potassium carbonate (4 mol) in boiling acetone for 1.5 h [718].

-Also obtained (trace) by reaction of benzyl bromide with 2,4-dihydroxydesoxybenzoin in methanol in the presence of potassium hydroxide at r.t. for 24 h (< 1%) [718].

m.p. 97-98° [718]; column chromatography [718];

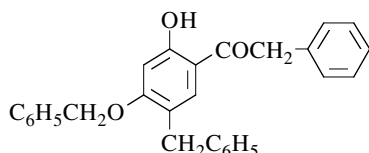
¹H NMR [718], IR [718], UV [718].

1-[2-Hydroxy-4-(phenylmethoxy)-5-(phenylmethyl)phenyl]-2-phenylethanone

[107044-44-0]

C₂₈H₂₄O₃

mol.wt. 408.50

**Synthesis**

-Obtained by reaction of benzyl bromide (1 mol) with 5-benzyl-2,4-dihydroxydesoxybenzoin in the presence of potassium carbonate (4 mol) in boiling acetone for 1.5 h (19%) [718].

m.p. 90-92° [718]; column chromatography [718];

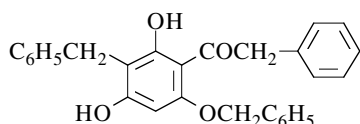
¹H NMR [718], IR [718].

1-[2,4-Dihydroxy-6-(phenylmethoxy)-3-(phenylmethyl)phenyl]-2-phenylethanone

[39548-97-5]

C₂₈H₂₄O₄

mol.wt. 424.50

**Synthesis**

-Obtained (by-product) by benzylation of 2,4,6-trihydroxyphenyl benzyl ketone with benzyl chloride in the presence of potassium carbonate in refluxing acetone for 7 h (9%) [714].

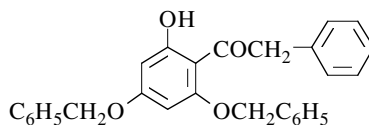
m.p. 170-171° [714]; ¹H NMR [714], UV [714].

1-[2-Hydroxy-4,6-bis(phenylmethoxy)phenyl]-2-phenylethanone

[39548-96-4]

C₂₈H₂₄O₄

mol.wt. 424.50

**Syntheses**

-Obtained by reaction of benzyl chloride with 2,4,6-trihydroxyphenyl benzyl ketone in the presence of potassium carbonate in refluxing acetone for 5 h (34%) [12] or for 7 h (21%) [714].

-Also refer to: [953].

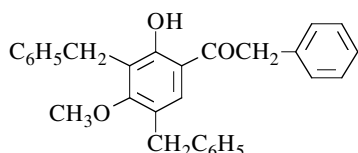
m.p. 99-100° [12], 95-96° [714]; ¹H NMR [714], UV [714].

1-[2-Hydroxy-4-methoxy-3,5-bis(phenylmethyl)phenyl]-2-phenylethanone

[95832-55-6]

C₂₉H₂₆O₃

mol.wt. 422.52

**Synthesis**

-Obtained by reaction of dimethyl sulfate with 3,5-dibenzyl-2,4-dihydroxyphenyl benzyl ketone in the presence of potassium carbonate in refluxing acetone for 3 h (23%) [713].

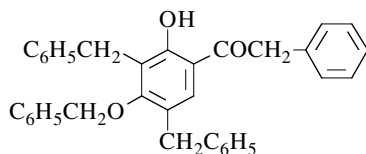
oil [713]; TLC [713]; ¹H NMR [713].

1-[2-Hydroxy-4-(phenylmethoxy)-3,5-bis(phenylmethyl)phenyl]-2-phenylethanone

[107044-43-9]

C₃₅H₃₀O₃

mol.wt. 498.62

**Synthesis**

-Obtained by reaction of benzyl chloride (1 mol) with 3,5-dibenzyl-2,4-dihydroxydesoxybenzoin in the presence of potassium carbonate (4 mol) in boiling acetone for 1.5 h (33%) [718].

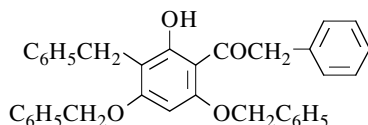
m.p. 51-52° [718]; TLC [718];
¹H NMR [718], IR [718], UV [718].

1-[2-Hydroxy-4,6-bis(phenylmethoxy)-3-(phenylmethyl)phenyl]-2-phenylethanone

[39548-95-3]

C₃₅H₃₀O₄

mol.wt. 514.62

**Synthesis**

-Obtained (by-product) by benzylation of 2,4,6-trihydroxyphenyl benzyl ketone with benzyl chloride in the presence of potassium carbonate in refluxing acetone for 7 h (6%) [714].

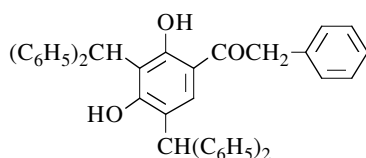
m.p. 131-132° [714]; ¹H NMR [714], UV [714].

1-[3,5-Bis(diphenylmethyl)-2,4-dihydroxyphenyl]-2-phenylethanone

[98497-95-1]

C₄₀H₃₂O₃

mol.wt. 560.69

**Synthesis**

-Obtained by reaction of 2,4-dihydroxydesoxybenzoin with diphenylcarbinol in dioxane in the presence of boron trifluoride etherate at 60-70° for 3 h (15%) [712].

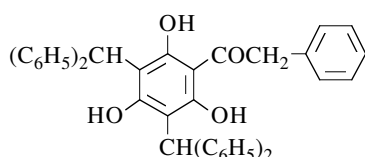
m.p. 136-137° [712]; column chromatography [712]; TLC [712];
¹H NMR [712], IR [712], UV [712].

1-[3,5-Bis(diphenylmethyl)-2,4,6-trihydroxyphenyl]-2-phenylethanone

[104310-93-2]

C₄₀H₃₂O₄

mol.wt. 576.69

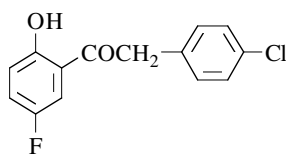
**Synthesis**

-Obtained by reaction of diphenylcarbinol with 2,4,6-trihydroxyphenyl benzyl ketone in dioxane in the presence of boron trifluoride etherate at 60-70° for 3.5 h (21%) [719].

m.p. 122-124° [719]; TLC [719];
¹H NMR [719], IR [719], UV [719].

9.2. Compounds derived from substituted phenylacetic acids**2-(4-Chlorophenyl)-1-(5-fluoro-2-hydroxyphenyl)ethanone**C₁₄H₁₀ClFO₂

mol.wt. 264.68

**Synthesis**

-Preparation by Fries rearrangement of p-fluorophenyl p-chlorophenylacetate with aluminium chloride at 150-180° for 20 min (32%) [838].

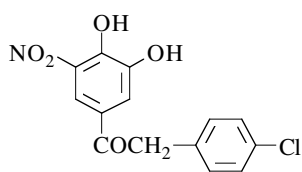
m.p. 124-126° [838]; ¹H NMR [838], MS [838].

2-(4-Chlorophenyl)-1-(3,4-dihydroxy-5-nitrophenyl)ethanone

[274925-89-2]

C₁₄H₁₀ClNO₅

mol.wt. 307.69

**Synthesis**

-Preparation by treatment of 2-(4-chlorophenyl)-1-(4-hydroxy-3-methoxy-5-nitrophenyl)ethanone with aluminium chloride in refluxing ethyl acetate/pyridine mixture for 2 h (94%) [885], (90-96%) [887].

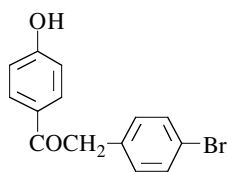
m.p. 162-164° [885] [887]; HPLC [885];
¹H NMR [885] [887], ¹³C NMR [885] [887], IR [885] [887].

2-(4-Bromophenyl)-1-(4-hydroxyphenyl)ethanone

[63186-92-5]

C₁₄H₁₁BrO₂

mol.wt. 291.14

**Synthesis**

-Preparation by demethylation of 2-(4-bromophenyl)-1-(4-methoxyphenyl)ethanone with 48% hydrobromic acid in refluxing acetic acid for 7 h (89%) [505], (82%) [420].

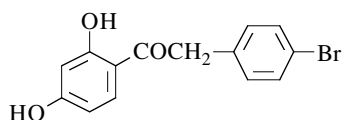
m.p. 186° [420] [505];
¹H NMR [505], IR [505].

2-(4-Bromophenyl)-1-(2,4-dihydroxyphenyl)ethanone

[92152-60-8]

C₁₄H₁₁BrO₃

mol.wt. 307.14

**Syntheses**

-Preparation by reaction of p-bromophenylacetonitrile with resorcinol,
*in the presence of boron trifluoride etherate under hydrogen chloride atmosphere (8-10 h) and at r.t. overnight (90%) [786] [936];

*in the presence of zinc chloride and hydrogen chloride (Hoesch reaction) [282].

-Preparation by Friedel-Crafts acylation of resorcinol with p-bromophenylacetyl chloride in nitrobenzene in the presence of aluminium chloride at 50° (54%) [914].

-Also refer to: [1182] [1449].

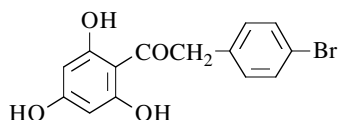
m.p. 176-177° [786] [936], 176° [914], 100-101° [282]. One of the reported melting points is obviously wrong. ¹H NMR [786].

2-(4-Bromophenyl)-1-(2,4,6-trihydroxyphenyl)ethanone

[147220-80-2]

C₁₄H₁₁BrO₄

mol.wt. 323.15

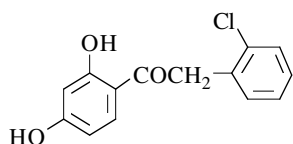
**Synthesis**

-Refer to: [1182] (compound IIg), preparation according to reported procedures [5] [1420].

m.p. 231° [1182]; ¹H NMR [1182], IR [1182].

2-(2-Chlorophenyl)-1-(2,4-dihydroxyphenyl)ethanoneC₁₄H₁₁ClO₃

mol.wt. 262.69

**Synthesis**

-Obtained by reaction of o-chlorophenylacetonitrile with resorcinol (Hoesch reaction) (20%) [1125].

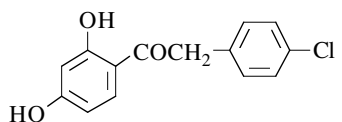
m.p. 142° [1125].

2-(4-Chlorophenyl)-1-(2,4-dihydroxyphenyl)ethanone

[15485-64-0]

C₁₄H₁₁ClO₃

mol.wt. 262.69

**Syntheses**

-Preparation by Friedel-Crafts acylation of resorcinol with p-chlorophenylacetyl chloride in nitrobenzene in the presence of aluminium chloride for some hours at 40-50° (64%) [914].

-Obtained by reaction of p-chlorophenylacetonitrile with resorcinol (Hoesch reaction) [285] [1019].
-Also refer to: [467] [1182] [1183] [1449].

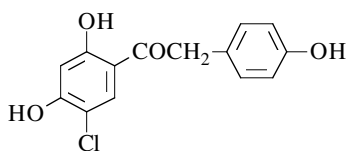
m.p. 159°-160° [1019], 156° [914], 153-154° [285]; UV [1019].

1-(5-Chloro-2,4-dihydroxyphenyl)-2-(4-hydroxyphenyl)ethanone

[139256-02-3]

C₁₄H₁₁ClO₄

mol.wt. 278.69

**Synthesis**

-Obtained by reaction of p-hydroxyphenylacetic acid with 4-chlororesorcinol in the presence of boron trifluoride etherate under argon, on a water bath for 1 h (67%) [1516].

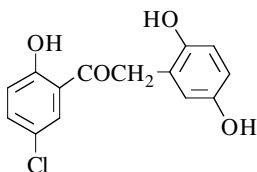
m.p. 196-197° [1516]; ¹H NMR [1516], ¹³C NMR [1516], MS [1516].

1-(5-Chloro-2-hydroxyphenyl)-2-(2,5-dihydroxyphenyl)ethanone

[115781-55-0]

C₁₄H₁₁ClO₄

mol.wt. 278.69

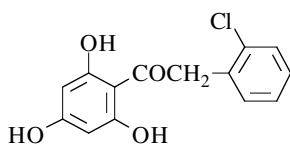
**Synthesis**

-Obtained by alkali cleavage of 6-chloro-3-(2',5'-dihydroxyphenyl)-4-hydroxycoumarin with refluxing 2% methanolic potassium hydroxide for 4 h (73%) [1218].

m.p. 219° [1218]; IR [1218], UV [1218].

2-(2-Chlorophenyl)-1-(2,4,6-trihydroxyphenyl)ethanoneC₁₄H₁₁ClO₄

mol.wt. 278.69

**Synthesis**

-Obtained by reaction of o-chlorophenylacetonitrile with phloroglucinol (20%) (Hoesch reaction) [1125].

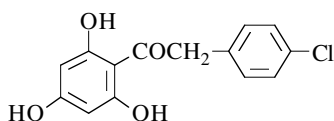
m.p. 172-172°5 [1125].

2-(4-Chlorophenyl)-1-(2,4,6-trihydroxyphenyl)ethanone

[15485-68-4]

C₁₄H₁₁ClO₄

mol.wt. 278.69

**Syntheses**

-Obtained by reaction of p-chlorophenylacetonitrile with phloroglucinol (Hoesch reaction) [285] [1019].
-Also refer to: [1182] [1183] [1188].

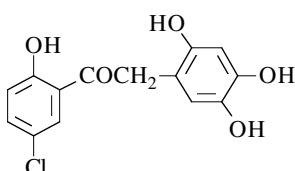
m.p. 224-225° [1019], 221-222° [285]; UV [1019].

1-(5-Chloro-2-hydroxyphenyl)-2-(2,4,5-trihydroxyphenyl)ethanone

[115781-51-6]

C₁₄H₁₁ClO₅

mol.wt. 294.69

**Synthesis**

-Obtained from 6-chloro-4-hydroxy-3-(2',4',5'-trihydroxyphenyl)coumarin with refluxing 2% methanolic potassium hydroxide for 4 h (72%) [1218].

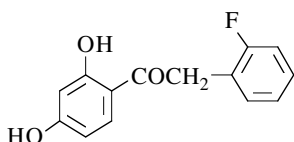
m.p. 189° [1218]; IR [1218], UV [1218].

1-(2,4-Dihydroxyphenyl)-2-(2-fluorophenyl)ethanone

[121060-02-4]

C₁₄H₁₁FO₃

mol.wt. 246.24

**Syntheses**

-Refer to: [1182] (compound Id), preparation according to reported procedures [5] [1420].
-Also refer to: [1185] [1186] [1497].

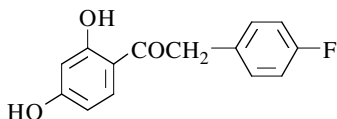
m.p. 138° [1182]; ¹H NMR [1182], IR [1182].

1-(2,4-Dihydroxyphenyl)-2-(4-fluorophenyl)ethanone

[15485-70-8]

C₁₄H₁₁FO₃

mol.wt. 246.24

**Syntheses**

-Preparation by reaction of p-fluorophenylacetonitrile with resorcinol (Hoesch reaction) [1019], (70%) [1490], (45%) [1448].
-Also refer to: [1182] [1183] [1185] [1186] [1497].

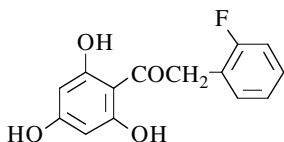
m.p. 149-150° [1019], 144-145° [1448], 143-144° [1490];
¹H NMR [1448] [1490], UV [1019], MS [1448].

2-(2-Fluorophenyl)-1-(2,4,6-trihydroxyphenyl)ethanone

[101068-28-4]

C₁₄H₁₁FO₄

mol.wt. 262.24

**Synthesis**

-Refer to: [1182] (compound IIId), preparation according to reported procedures [5] [1420].

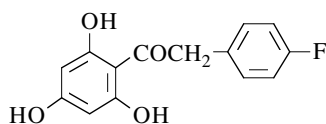
m.p. 182° [1182]; ¹H NMR [1182], IR [1182].

2-(4-Fluorophenyl)-1-(2,4,6-trihydroxyphenyl)ethanone

[15485-69-5]

C₁₄H₁₁FO₄

mol.wt. 262.24

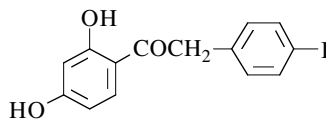
**Syntheses**

-Obtained by reaction of p-fluorophenylacetonitrile with phloroglucinol (Hoesch reaction) [141] [1019].
 -Also refer to: [1182] [1183].

m.p. 199-200° [1019]; UV [1019].

1-(2,4-Dihydroxyphenyl)-2-(4-iodophenyl)ethanoneC₁₄H₁₁IO₃

mol.wt. 354.14

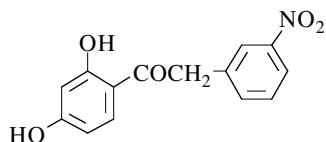
**Syntheses**

-Obtained by reaction of resorcinol with p-iodophenylacetyl chloride in nitrobenzene in the presence of aluminium chloride at 50-60° (27%) [914].
 -Also refer to: [915].

m.p. 186° [914] [915].

1-(2,4-Dihydroxyphenyl)-2-(3-nitrophenyl)ethanoneC₁₄H₁₁NO₅

mol.wt. 273.25

**Synthesis**

-Preparation by reaction of m-nitrophenylacetonitrile with resorcinol (Hoesch reaction) (46%) [1556].

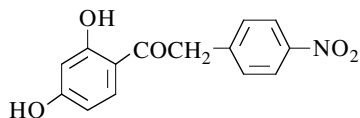
m.p. 156°5 [1556].

1-(2,4-Dihydroxyphenyl)-2-(4-nitrophenyl)ethanone

[15485-63-9]

C₁₄H₁₁NO₅

mol.wt. 273.25

**Syntheses**

-Obtained by reaction of p-nitrophenylacetonitrile with resorcinol (Hoesch reaction) [1019], (65%) [913], (60%) [992], (40%) [430], (35%) [743], (27%) [1556].

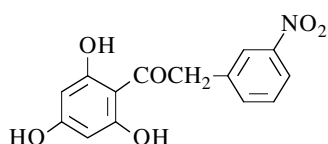
-Also obtained by reaction of p-nitrophenylacetic acid with resorcinol in the presence of boron trifluoride in chloroform, first cooling in ice, then at r.t. overnight (12%) [764].

-Also refer to: [467] [585] [1182].

m.p. 295-297° [1019], 210° [743] [764], 205° [913], 204° [430], 202° [1556]. One of the reported melting points is obviously wrong. ¹H NMR [992], UV [1019], MS [992].

2-(3-Nitrophenyl)-1-(2,4,6-trihydroxyphenyl)ethanoneC₁₄H₁₁NO₆

mol.wt. 289.25

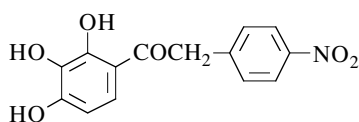
**Synthesis**

-Preparation by reaction of m-nitrophenylacetonitrile with phloroglucinol (Hoesch reaction) (63%) [1556].

m.p. 211-212° [1556].

2-(4-Nitrophenyl)-1-(2,3,4-trihydroxyphenyl)ethanoneC₁₄H₁₁NO₆

mol.wt. 289.25

**Synthesis**

-Obtained by reaction of p-nitrophenylacetic acid with pyrogallol in the presence of boron trifluoride in chloroform, first cooling in ice, then at r.t. overnight (93%) [764].

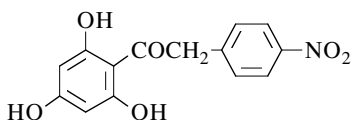
m.p. 227-228° [764].

2-(4-Nitrophenyl)-1-(2,4,6-trihydroxyphenyl)ethanone

[15485-67-3]

C₁₄H₁₁NO₆

mol.wt. 289.25

**Syntheses**

-Obtained by reaction of p-nitrophenylacetonitrile with phloroglucinol (Hoesch reaction) [1019], (quantitative yield) [430], (56%) [1556].

-Also refer to: [585] [764] [1418].

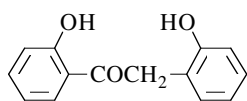
m.p. 249-250° [1019], 247° [1556], 245° [430]; UV [1019].

1,2-Bis(2-hydroxyphenyl)ethanone

[7622-42-6]

C₁₄H₁₂O₃

mol.wt. 228.25

**Syntheses**

-Preparation by reduction of 2,2'-dihydroxybenzoin with zinc dust and 15% potassium hydroxide in boiling ethanol for 8 h [344], (70-75%) [868].

-Also refer to: [1459].

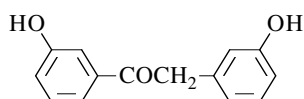
m.p. 104° [868].

1,2-Bis(3-hydroxyphenyl)ethanone

[63192-59-6]

C₁₄H₁₂O₃

mol.wt. 228.25

**Syntheses**

-Obtained by reductive coupling of methyl m-hydroxybenzoate using TiCl₃/LiAlH₄ in refluxing tetrahydrofuran for 3 h under nitrogen (20%) [359].
 -Also refer to: [659].

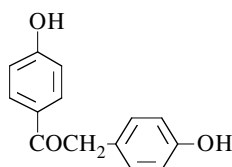
GC [359]; GC-MS [359];
¹H NMR [359], ¹³C NMR [359], IR [359], MS [359].

1,2-Bis(4-hydroxyphenyl)ethanone

[3669-47-4]

C₁₄H₁₂O₃

mol.wt. 228.25

**Syntheses**

-Preparation by total demethylation of 4-methoxyphenyl 4-methoxybenzyl ketone (4,4'-dimethoxydeoxybenzoin),
 *with refluxing pyridinium chloride (4 equiv) for 1 h (80-85%) [250];
 *with boiling a mixture of 50% aqueous hydriodic acid and phenol for 30 min (94%) [1351];
 *with hydriodic acid (d = 1.7) in acetic acid at 135-140° for 10 min (quantitative yield) [1351];
 *with aluminium chloride in refluxing benzene for 1.5 h (25%) [889].
 -Also obtained by diazotization of 4,4'-diaminodeoxybenzoin, followed by hydrolysis of the diazonium salt formed [1582].
 -Also obtained (by-product) by Fries rearrangement of phenyl p-methoxyphenylacetate with aluminium chloride for 1.5 h at 145° (31%) [1335].
 -Also refer to: [866].

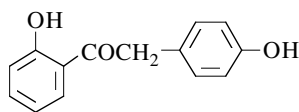
m.p. 217° [1351], 215-219° [889], 215° [250], 214-215° [1582], 212° [1335].

1-(2-Hydroxyphenyl)-2-(4-hydroxyphenyl)ethanone

[109561-92-4]

C₁₄H₁₂O₃

mol.wt. 228.25

**Syntheses**

-Obtained by treatment of ethyl [(2-methoxybenzoyl)-(4-methoxyphenyl)]acetate with boiling pyridinium chloride for 20 min (ca. 220°) (48%) [779].
 -Also obtained (by-product) by Fries rearrangement of phenyl p-methoxyphenylacetate with aluminium chloride for 1.5 h at 145° (12%) [1335].
 -Also obtained by demethylation of 2-hydroxyphenyl 4-methoxybenzyl ketone with pyridinium chloride at 220° for 1 h (79%) [1335].
 -Also refer to: [762] [763].

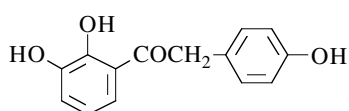
m.p. 140° [1335], 106-107° [779]. One of the reported melting points is obviously wrong.

1-(2,3-Dihydroxyphenyl)-2-(4-hydroxyphenyl)ethanone

[139256-01-2]

C₁₄H₁₂O₄

mol.wt. 244.25

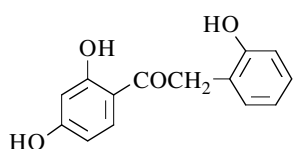


Synthesis

-Refer to: [1516].

1-(2,4-Dihydroxyphenyl)-2-(2-hydroxyphenyl)ethanoneC₁₄H₁₂O₄

mol.wt. 244.25



Synthesis not yet described

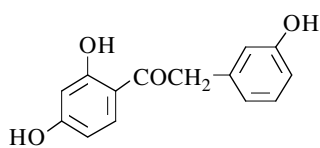
N.B.: This ketone (XIII) cannot be prepared by condensation of o-hydroxyphenylacetonitrile with resorcinol (Hoesch reaction) [1321].

1-(2,4-Dihydroxyphenyl)-2-(3-hydroxyphenyl)ethanone

[89019-84-1]

C₁₄H₁₂O₄

mol.wt. 244.25



Syntheses

-Preparation by reaction of m-hydroxyphenylacetic acid with resorcinol in the presence of boron trifluoride etherate under argon on a water bath for 1 h (93%) [1516].

-Also obtained by demethylation of 1-(2,4-dihydroxyphenyl)-2-(3-methoxyphenyl)ethanone with concentrated hydrobromic acid in refluxing acetic acid for 4 h under an argon atmosphere (89%) [937].

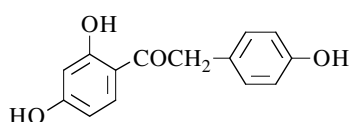
m.p. 214-216° [937]; ¹H NMR [937], IR [937], UV [937], MS [937].

1-(2,4-Dihydroxyphenyl)-2-(4-hydroxyphenyl)ethanone

[17720-60-4]

C₁₄H₁₂O₄

mol.wt. 244.25



Syntheses

-Preparation by reaction of p-hydroxyphenylacetic acid with resorcinol [871] in the presence of boron trifluoride etherate under argon on a water bath for 1 h (98%) [1516], at 100° for 1 h (70%) [549] or for 15 min (40%) [992].

-Preparation by demethylation of 2,4-dihydroxy-4'-methoxydesoxybenzoin with pyridinium bromide, kept at the melting stage for 1 min (quantitative yield) [703].

-Preparation by catalytic hydrogenation of 2,4-dihydroxy-4'-(benzyloxy)desoxybenzoin [1564].

-Also obtained by treatment of ethyl 2,4-dimethoxybenzoyl-4-methoxyphenylacetate with boiling pyridinium chloride for 20 min (ca. 220°) (49%) [779].

-Also obtained by alkaline degradation of *daidzein* (m.p. 315-320°) (7,4'-dihydroxyisoflavone) with refluxing 30% potassium hydroxide for 5 min (99%) [1520].

-Also obtained by reaction of p-hydroxyphenylacetonitrile with resorcinol (Hoesch reaction) (26%) [1520].

-Also refer to: [9] [461] [462] [463] [762] [870] [1165] [1182] [1184] [1335] [1527].

m.p. 192° [1520] [1564], 190-191° [703], 183-184° [779];

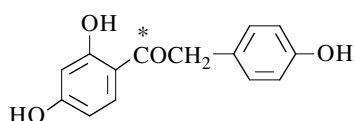
¹H NMR [992], ¹³C NMR [732] [1167], MS [992].

1-(2,4-Dihydroxyphenyl)-2-(4-hydroxyphenyl)ethanone-1-¹³C

[215653-80-8]

C₁₄H₁₂O₄

mol.wt. 245.25



Synthesis

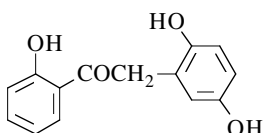
-Preparation by reaction of 4-benzyloxyphenylacetonitrile [1-¹³C] with resorcinol (Hoesch reaction) (96%) [159].

2-(2,5-Dihydroxyphenyl)-1-(2-hydroxyphenyl)ethanone

[115781-54-9]

C₁₄H₁₂O₄

mol.wt. 244.25



Synthesis

-Obtained by alkali cleavage of 3-(2',5'-dihydroxyphenyl)-4-hydroxycoumarin with refluxing 2% methanolic potassium hydroxide for 4 h (62%) [1218].

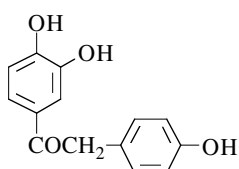
m.p. 203° [1218]; IR [1218], UV [1218].

1-(3,4-Dihydroxyphenyl)-2-(4-hydroxyphenyl)ethanone

[150295-88-8]

C₁₄H₁₂O₄

mol.wt. 244.25



Synthesis

-Obtained by reaction of p-hydroxyphenylacetic acid with pyrocatechol in the presence of boron trifluoride etherate under argon on a water bath for 2 h (78%) [1516].

m.p. 211° [1516];

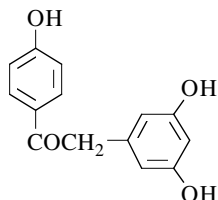
¹H NMR [1516], ¹³C NMR [1516], MS [1516].

2-(3,5-Dihydroxyphenyl)-1-(4-hydroxyphenyl)ethanone

[402490-73-7]

C₁₄H₁₂O₄

mol.wt. 244.25



Synthesis

-Obtained by treatment of fluororesveratrol blocked by three MOM groups using trifluoroacetic acid in methylene chloride at r.t. [441].

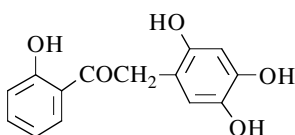
MS [441].

1-(2-Hydroxyphenyl)-2-(2,4,5-trihydroxyphenyl)ethanone

[115781-50-5]

C₁₄H₁₂O₅

mol.wt. 260.25

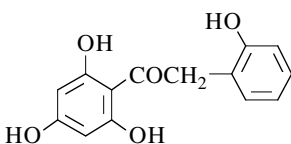
**Synthesis**

-Obtained from 4-hydroxy-3-(2',4',5'-trihydroxyphenyl)-coumarin with refluxing 2% methanolic potassium hydroxide for 4 h (75%) [1218].

m.p. 185° [1218]; IR [1218], UV [1218].

2-(2-Hydroxyphenyl)-1-(2,4,6-trihydroxyphenyl)ethanoneC₁₄H₁₂O₅

mol.wt. 260.25

**Syntheses**

-Obtained by alkaline degradation of *isogenistein* (5,7,2'-trihydroxyisoflavone) (SM) (m.p. 302°) [1118] with potassium hydroxide [119] [1117] [1118] [1319]. SM was obtained by hydrolysis of *isogenistin*, its glycoside, (m.p. 265°) [1117], isolated from soya bean [119] [1117] [1118].

-Also obtained by partial demethylation of 2-hydroxy-4,6-dimethoxyphenyl 2-methoxybenzyl ketone (m.p. 116-118°) with aluminium chloride in refluxing benzene for 2 h (35%) [1319].

-Also refer to: [118].

m.p. 217-220° [1319], 182-183° [1118].

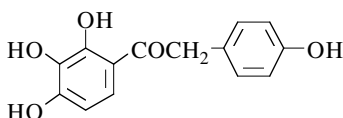
One of the reported melting points is obviously wrong.

2-(4-Hydroxyphenyl)-1-(2,3,4-trihydroxyphenyl)ethanone

[77316-95-1]

C₁₄H₁₂O₅

mol.wt. 260.25

**Syntheses**

-Obtained by reaction of p-hydroxyphenylacetic acid with pyrogallol in the presence of boron trifluoride etherate under argon on a water bath for 1 h (92%) [1516] or at 100° for 15 min (40%) [992].

-Also refer to: [1331] (Chinese paper).

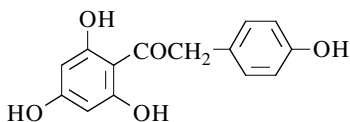
m.p. 208-209° [1516]; ¹H NMR [992] [1516], ¹³C NMR [1516], MS [992] [1516].

2-(4-Hydroxyphenyl)-1-(2,4,6-trihydroxyphenyl)ethanone

[15485-65-1]

C₁₄H₁₂O₅

mol.wt. 260.25

**Syntheses**

-Preparation by reaction of p-hydroxyphenyl-acetonitrile with phloroglucinol (Hoesch reaction) (58%) [113].

-Also obtained by alkaline degradation of *genistein* (5,7,4'-trihydroxyisoflavone) (m.p. 296-298°) with

refluxing 5% potassium hydroxide for 30 min [1520].

-Also obtained by reaction of p-hydroxyphenylacetic with phloroglucinol in the presence of boron trifluoride etherate under argon for 5 h at 0° (83%) [1516].
 -Also refer to: [559] [1140] [1166] [1168] [1169].

monohydrate [113];

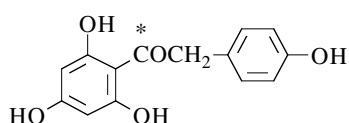
m.p. 259° (d) [113], 253-257° [1520]; ¹³C NMR [732].

2-(4-Hydroxyphenyl)-1-(2,4,6-trihydroxyphenyl)ethanone-1-¹³C

[262591-28-6]

C₁₄H₁₂O₅

mol.wt. 261.25



Synthesis

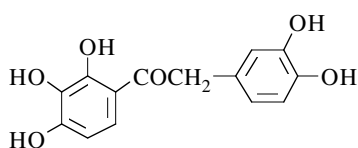
-Preparation by reaction of 4-benzyloxyphenylacetonitrile [1-¹³C] with phloroglucinol (Hoesch reaction) (75%) [159].

2-(3,4-Dihydroxyphenyl)-1-(2,3,4-trihydroxyphenyl)ethanone

[57165-58-9]

C₁₄H₁₂O₆

mol.wt. 276.25



Synthesis

-Preparation in two steps: First, reaction of 3,4-dimethoxyphenylacetyl chloride with 1,2,3-trimethoxybenzene in the presence of aluminium chloride at 30-40° for 16 h. Then, the formed 2,3,4,3',4'-penta-methoxydeoxybenzoin was demethylated by heating at reflux with pyridinium chloride [551].

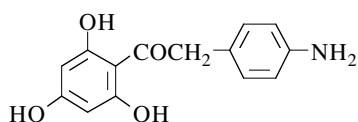
m.p. 155-156° [551].

2-(4-Aminophenyl)-1-(2,4,6-trihydroxyphenyl)ethanone

[64225-20-3]

C₁₄H₁₃NO₄

mol.wt. 259.26



Syntheses

-Preparation by reaction of p-acetamidophenylacetonitrile with phloroglucinol in ethyl ether in the presence of zinc chloride under hydrogen chloride atmosphere for 4 h. Then, hydrolysis of the obtained

ketimine hydrochloride in boiling water for 2 h (Hoesch reaction) [686].

-Preparation by hydrogenation of 2,4,6-trihydroxyphenyl 4-nitrobenzyl ketone in ethanol in the presence of Raney nickel as catalyst with hydrogen at 40 lb pressure for 6 h (67%) [686].

-Also refer to: [394].

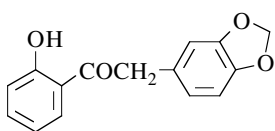
m.p. 240-242° [394], 197° [686]. One of the reported melting points is obviously wrong. IR [394].

2-(1,3-Benzodioxol-5-yl)-1-(2-hydroxyphenyl)ethanone

[142751-44-8]

C₁₅H₁₂O₄

mol.wt. 256.26

**Synthesis**

-Preparation by stirring a mixture of S-[4-(1,3-benzodioxol-5-ylacetyl)-3-hydroxyphenyl] dimethylcarbamothioate [142751-43-7], Raney nickel and ethanol at r.t. for 1 h (71%) [907].

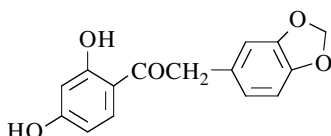
m.p. 62-63° [907]; ¹H NMR [907], MS [907].

2-(1,3-Benzodioxol-5-yl)-1-(2,4-dihydroxyphenyl)ethanone (*Pseudo-baptigenin*)

[5653-25-8]

C₁₅H₁₂O₅

mol.wt. 272.26

**Syntheses**

-Preparation by reaction of (3,4-methylenedioxy)-phenylacetyl chloride with resorcinol in nitromethane in the presence of aluminium chloride, under nitrogen, first at 0° for 3 h and at r.t. for 20 h (59%) [1301].

-Also obtained by reaction of (3,4-methylenedioxy)phenylacetonitrile with resorcinol (Hoesch reaction) [1383].

-Also obtained by alkaline degradation of *pseudo-baptigenin* (7-hydroxy-3',4'-methylenedioxy-isoflavone) (SM) (m.p. 298-299° [1383], 298° [575], 296-298° [1385], 293-295° [1217]) with 12% sodium hydroxide in refluxing dilute ethanol for 15 min [1217] or with refluxing 5% potassium hydroxide for 2 h (78%) [1385]. SM was obtained from *pseudo-baptisin* (isolated from *Baptisia tinctoria* RBr) whether by heating at 280° or by hydrolysis with various acids or emulsin [575].

-Also refer to: [467] [699] [848] [907] [1140].

m.p. 151° [1385], 148-149° [711], 146-148° [1217], 87-89° [1301]. One of the reported melting points is obviously wrong.

b.p._{0.03} 210-220° [1385]; TLC [1301];

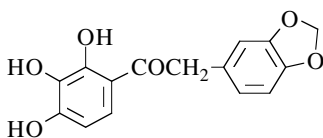
¹H NMR [1301], IR [1301].

2-(1,3-Benzodioxol-5-yl)-1-(2,3,4-trihydroxyphenyl)ethanone

[84018-72-4]

C₁₅H₁₂O₆

mol.wt. 288.26

**Synthesis**

-Obtained by reaction of 3,4-(methylenedioxy)phenylacetonitrile with pyrogallol (Hoesch reaction) (21%) [848].

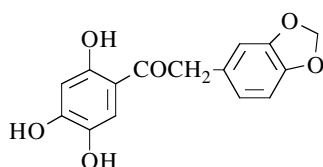
m.p. 185° [848].

2-(1,3-Benzodioxol-5-yl)-1-(2,4,5-trihydroxyphenyl)ethanone

[2828-14-0]

C₁₅H₁₂O₆

mol.wt. 288.26

**Synthesis**

-Obtained by reaction of 3,4-(methylenedioxy)phenyl-acetonitrile with hydroxyhydroquinone (Hoesch reaction) (73%) [707], (42%) [528].

m.p. 206-208° [528], 202-203° [707];

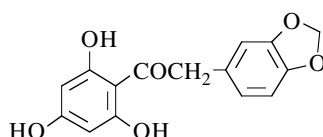
¹H NMR [707]. ¹³C NMR [732], UV [528];
TLC [707].

2-(1,3-Benzodioxol-5-yl)-1-(2,4,6-trihydroxyphenyl)ethanone

[39548-98-6]

C₁₅H₁₂O₆

mol.wt. 288.26

**Syntheses**

-Preparation by reaction of 3,4-(methylenedioxy)phenyl-acetonitrile with phloroglucinol (Hoesch reaction) (65-66%) [117] [687].
-Also refer to: [559].

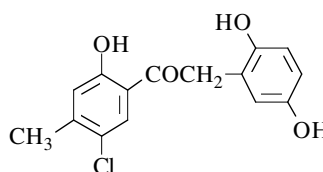
m.p. 202° [117] [687].

1-(5-Chloro-2-hydroxy-4-methylphenyl)-2-(2,5-dihydroxyphenyl)ethanone

[115781-56-1]

C₁₅H₁₃ClO₄

mol.wt. 292.74

**Synthesis**

-Obtained by alkali cleavage of 6-chloro-3-(2',5'-dihydroxyphenyl)-4-hydroxy-7-methylcoumarin with refluxing 2% methanolic potassium hydroxide for 4 h (65%) [1218].

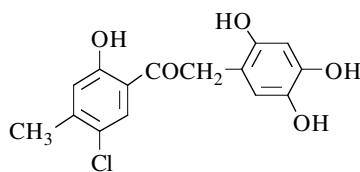
m.p. 222° [1218]; IR [1218], UV [1218].

1-(5-Chloro-2-hydroxy-4-methylphenyl)-2-(2,4,5-trihydroxyphenyl)ethanone

[115781-52-7]

C₁₅H₁₃ClO₅

mol.wt. 308.72

**Synthesis**

-Obtained from 6-chloro-4-hydroxy-7-methyl-3-(2',4',5'-trihydroxyphenyl)coumarin with refluxing 2% methanolic potassium hydroxide for 4 h (78%) [1218].

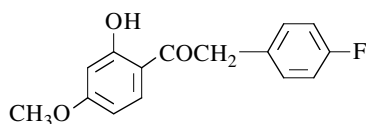
m.p. 201° [1218]; IR [1218], UV [1218].

1-(2-Hydroxy-4-methoxyphenyl)-2-(4-fluorophenyl)ethanone

[128040-46-0]

C₁₅H₁₃FO₃

mol.wt. 260.26

**Synthesis**

-Preparation by partial methylation of 4'-fluoro-2,4-dihydroxydeoxybenzoin with dimethyl sulfate in refluxing acetone for 6 h (90%) [1490] or in the presence of potassium carbonate in refluxing acetone for 4 h (60%) [1448].

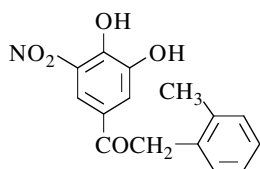
m.p. 90-92° [1448], 78-80° [1490]; ¹H NMR [1448] [1490], MS [1448].

1-(3,4-Dihydroxy-5-nitrophenyl)-2-(2-methylphenyl)ethanone

[274925-87-0]

C₁₅H₁₃NO₅

mol.wt. 287.27

**Synthesis**

-Preparation by treatment of 1-(4-hydroxy-3-methoxy-5-nitrophenyl)-2-(2-methylphenyl)ethanone with aluminium chloride in refluxing ethyl acetate/pyridine mixture for 2 h (90-96%) [887].

m.p. 163-165° [887];

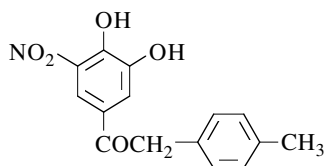
¹H NMR [887], ¹³C NMR [887], IR [887].

1-(3,4-Dihydroxy-5-nitrophenyl)-2-(4-methylphenyl)ethanone

[400871-10-5]

C₁₅H₁₃NO₅

mol.wt. 287.27

**Synthesis**

-Preparation by treatment of 1-(4-hydroxy-3-methoxy-5-nitrophenyl)-2-(4-methylphenyl)ethanone with aluminium chloride in refluxing ethyl acetate/pyridine mixture for 2 h (90-96%) [887].

m.p. 189-190° [887];

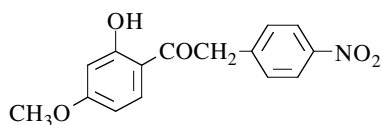
¹H NMR [887], ¹³C NMR [887], IR [887].

1-(2-Hydroxy-4-methoxyphenyl)-2-(4-nitrophenyl)ethanone

[57272-98-7]

C₁₅H₁₃NO₅

mol.wt. 287.27

**Syntheses**

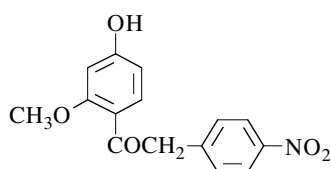
-Obtained (poor yield) by reaction of p-nitrophenyl-acetonitrile with resorcinol monomethyl ether (9%) (Hoesch reaction) [743].

-Also obtained by partial methylation of 2,4-dihydroxyphenyl 4-nitrobenzyl ketone with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone [585].

m.p. 136° [743], 134-136° [585].

1-(4-Hydroxy-2-methoxyphenyl)-2-(4-nitrophenyl)ethanoneC₁₅H₁₃NO₅

mol.wt. 287.27

**Synthesis**

-Obtained by reaction of p-nitrophenylacetonitrile with resorcinol monomethyl ether (Hoesch reaction) [743].

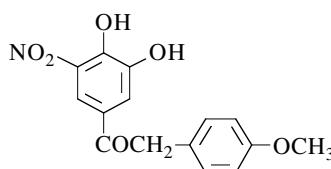
m.p. 149-150° [743].

1-(3,4-Dihydroxy-5-nitrophenyl)-2-(4-methoxyphenyl)ethanone

[440362-23-2]

C₁₅H₁₃NO₆

mol.wt. 303.27

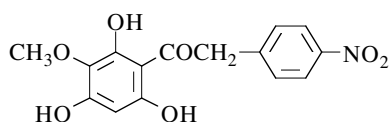
**Synthesis**

-Preparation by partial demethylation of 1-(4-hydroxy-3-methoxy-5-nitrophenyl)-2-(4-methoxyphenyl)-ethanone using aluminium chloride and pyridine in ethyl acetate at reflux for 2 h (91%) [885].

diacetate m.p. 88-89° [885].

2-(4-Nitrophenyl)-1-(2,4,6-trihydroxy-3-methoxyphenyl)ethanoneC₁₅H₁₃NO₇

mol.wt. 319.27

**Synthesis**

-Obtained by reaction of p-nitrophenylacetonitrile with iretol (Hoesch reaction) (50%) [746].

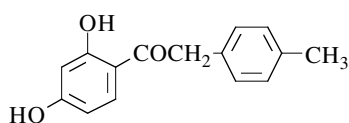
m.p. 220° [746].

1-(2,4-Dihydroxyphenyl)-2-(4-methylphenyl)ethanone

[59208-55-8]

C₁₅H₁₄O₃

mol.wt. 242.27

**Synthesis**

-Obtained by reaction of p-tolylacetonitrile with resorcinol (Hoesch reaction) [285].

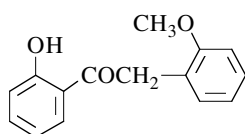
m.p. 114° [285].

1-(2-Hydroxyphenyl)-2-(2-methoxyphenyl)ethanone

[92549-19-4]

C₁₅H₁₄O₃

mol.wt. 242.27

**Syntheses**

-Preparation by stirring a mixture of S-[3-hydroxy-4-[(2-methoxyphenyl)acetyl]phenyl] dimethylcarbamothioate [142751-41-5], Raney nickel and ethanol at r.t. for 1 h (71%) [907].

-Also obtained by heating 2-methoxybenzoyl-2-methoxy-

phenylacetonitrile (m.p. 107-108°) in acetic acid with concentrated hydrochloric acid on a steam bath for 15 h (47%) [780].

-Also obtained by alkaline degradation of 2'-methoxyisoflavone (m.p. 184°) with potassium hydroxide in boiling aqueous methanol for 1.5 h (almost quantitative yield) [1530].

-Also obtained by heating ethyl 2-methoxybenzoyl-2-methoxyphenylacetate (m.p. 76-77°) in acetic acid with concentrated hydrochloric acid on a steam bath for 15 h (54%) [780].

-Also refer to: [388].

colourless oil [780]; b.p._{0.004} 140-150° [780];

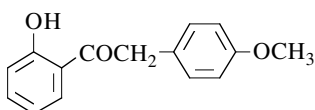
m.p. 64° [1530], 59-60° [907]; ¹H NMR [907], MS [907].

1-(2-Hydroxyphenyl)-2-(4-methoxyphenyl)ethanone

[79744-47-1]

C₁₅H₁₄O₃

mol.wt. 242.27



Syntheses

-Preparation by addition of p-methoxybenzylmagnesium chloride to a solution of 2-hydroxybenzonitrile in THF at r.t. overnight, then refluxing with aqueous hydrochloric acid for 4 h (90%) [1489].

-Also obtained by heating a solution of 2-methoxy-

benzoyl-4-methoxyphenylacetonitrile (m.p. 109-110°) in acetic acid containing hydrochloric acid on a steam bath for 15 h (47%) [778].

-Also obtained by stirring a mixture of S-[3-hydroxy-4-[(4-methoxyphenyl)acetyl]phenyl] dimethylcarbamothioate [142751-42-6], Raney nickel and ethanol at r.t. for 1 h (73%) [907].

-Also obtained by heating a solution of ethyl 2-methoxybenzoyl-4-methoxyphenylacetate (b.p._{0.004} 180-200°) in acetic acid containing hydrochloric acid on a steam bath for 15 h (54%) [778].

-Also obtained by Fries rearrangement of phenyl p-methoxyphenylacetate with aluminium chloride for 1.5 h at 145° (13%) [1335].

m.p. 86° [1335], 85-86° [907], 79-81° [1489]; b.p._{0.003} 160-180° [778];

¹H NMR [907] [1335], ¹³C NMR [732], IR [1335], MS [907] [1335] [1489];

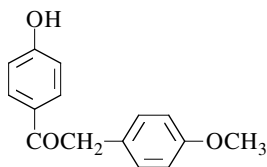
TLC [1489].

1-(4-Hydroxyphenyl)-2-(4-methoxyphenyl)ethanone

[3669-46-3]

C₁₅H₁₄O₃

mol.wt. 242.27



Syntheses

-Obtained by Fries rearrangement of phenyl p-methoxyphenylacetate in nitromethane,

*in the presence of aluminium chloride for 25 h at 20° (48%) [971] or for 1.5 h at 145° (12%) [1335];

*in the presence of titanium tetrachloride for 6 h at 20° (26%) [971].

-Also obtained by partial demethylation of 4,4'-dimethoxydeoxybenzoin,

*with aluminium chloride in refluxing benzene for 1.5 h (33%) [889];

*with sodium in refluxing ethylene glycol for 3 h (12%) [1424].

m.p. 175-178° [889], 175° [1335] [1424], 171° [971];

¹H NMR (Sadtlar: standard n° 44611 M),

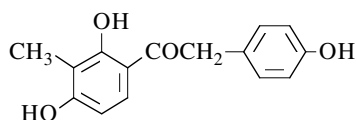
IR (Sadtlar: standard n° 71639 K) [971], UV [971], MS [971].

1-(2,4-Dihydroxy-3-methylphenyl)-2-(4-hydroxyphenyl)ethanone

[139256-03-4]

C₁₅H₁₄O₄

mol.wt. 258.27

**Synthesis**

-Obtained by reaction of p-hydroxyphenylacetic acid with 2-methylresorcinol in the presence of boron trifluoride etherate under argon, on a water bath for 5 h (97%) [1516].

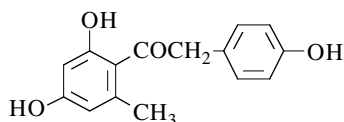
m.p. 187-188° [1516]; ¹H NMR [1516], ¹³C NMR [1516], MS [1516].

1-(2,4-Dihydroxy-6-methylphenyl)-2-(4-hydroxyphenyl)ethanone

[139256-04-5]

C₁₅H₁₄O₄

mol.wt. 258.27

**Synthesis**

-Obtained by reaction of p-hydroxyphenylacetic acid with orcinol in the presence of boron trifluoride etherate under argon on a water bath for 2 h (86%) [1516].

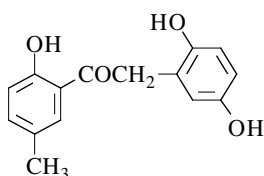
m.p. 186-187° [1516]; ¹H NMR [1516], ¹³C NMR [1516], MS [1516].

2-(2,5-Dihydroxyphenyl)-1-(2-hydroxy-5-methylphenyl)ethanone

[115781-53-8]

C₁₅H₁₄O₄

mol.wt. 258.27

**Synthesis**

-Obtained by alkali cleavage of 3-(2',5'-dihydroxyphenyl)-4-hydroxy-6-methylcoumarin with refluxing 2% methanolic potassium hydroxide for 4 h (79%) [1218].

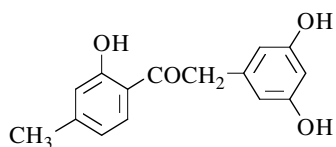
m.p. 223° [1218]; IR [1218], UV [1218].

2-(3,5-Dihydroxyphenyl)-1-(2-hydroxy-4-methylphenyl)ethanone

[111192-02-0]

C₁₅H₁₄O₄

mol.wt. 258.27

**Synthesis**

-Obtained by decarboxylation of 6,8-dihydroxy-3-(2-hydroxy-4-methylphenyl)isocoumarin (m.p. 201-202°) with refluxing 10% aqueous potassium hydroxide solution for 6 h (90%) [495].

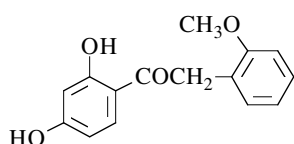
m.p. 89° [495]; ¹H NMR [495], IR [495], MS [495].

1-(2,4-Dihydroxyphenyl)-2-(2-methoxyphenyl)ethanone

[92549-46-7]

C₁₅H₁₄O₄

mol.wt. 258.27

**Syntheses**

-Preparation by reaction of o-methoxyphenylacetic acid with resorcinol in the presence of boron trifluoride etherate under argon on a water bath for 1 h (98%) [1516].
 -Also obtained by reaction of o-methoxyphenylacetonitrile with resorcinol (Hoesch reaction) (25%) [1321], (23%) [1536].

-Also refer to: [873] [1530].

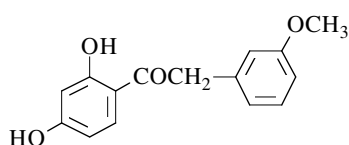
m.p. 164° [1536], 159-160° [1321].

1-(2,4-Dihydroxyphenyl)-2-(3-methoxyphenyl)ethanone

[89019-83-0]

C₁₅H₁₄O₄

mol.wt. 258.27

**Syntheses**

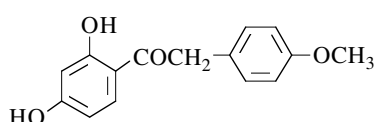
-Preparation by reaction of m-methoxyphenylacetic acid with resorcinol under argon atmosphere,
 *in the presence of boron trifluoride etherate on a water bath for 1 h (96%) [1516];
 *in ethylene dichloride in the presence of boron trifluoride, first at r.t., then at 60° for 2 h (63%) [937].

m.p. 109-110° [937]; ¹H NMR [937], IR [937], UV [937], MS [937].**1-(2,4-Dihydroxyphenyl)-2-(4-methoxyphenyl)ethanone (Ononetin)**

[487-49-0]

C₁₅H₁₄O₄

mol.wt. 258.27

**Syntheses**

-Preparation by condensation of p-methoxyphenylacetonitrile with resorcinol (Hoesch reaction) [13] [110] [1019] [1145], (64%) [1526], (50%) [992], (48%) [1520].
 -Preparation by Friedel-Crafts acylation of resorcinol with p-methoxyphenylacetyl chloride in the presence of aluminium chloride for 24 h at r.t., in nitrobenzene (50%) [106] or in ethyl ether (36%) [601].
 -Also obtained by reaction of p-methoxyphenylacetic anhydride with resorcinol in the presence of boron trifluoride etherate for 3.5 h at 75° (67%) [1024].
 -Also obtained by reaction of p-methoxyphenylacetic acid with resorcinol,
 *in the presence of boron trifluoride etherate under argon on a water bath for 1.5 h (98%) [1516] or at 100° for 1 h (77%) [937];
 *in the presence of boron trifluoride in chloroform (51%) [764].
 -Also obtained by alkaline degradation of *formononetin* (7-hydroxy-4'-methoxyisoflavone) (SM) (m.p. 265°) [121] [1520] [1526] [1528], (95%) [221], (51%) [1526].
 SM was prepared by hydrolysis of *ononin* with 4% sulfuric acid [1526].
 -Also obtained by degradation of *onospin* (m.p. 172°) (SM1) by heating with dilute sulfuric acid or by treatment with emulsin. SM1 was prepared from *ononin* by heating with 10% sodium hydroxide for 2 min [1526] [1528].
 -Also obtained by decarboxylation of 5-carboxy-2,4-dihydroxy-4'-methoxydeoxybenzoin

(m.p. 200°) in boiling quinoline containing copper bronze during 5 min (26%) [1534].
 -Also refer to: [282] [467] [585] [701] [703] [747] [769] [873] [907] [1140] [1165] [1182] [1183] [1188] [1328] [1419] [1527].

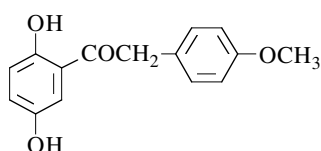
m.p. 161°5-162°5 [1019], 159°5 [1526], 159° [110] [764], 158-159° [601],
 158° [106] [221] [1520] [1534], 156-157° [711], 153-155° [937];
¹H NMR [937] [992], ¹³C NMR [732] [1167], IR [937],
 UV [937] [1019], MS [937] [992].

1-(2,5-Dihydroxyphenyl)-2-(4-methoxyphenyl)ethanone

[56308-07-7]

C₁₅H₁₄O₄

mol.wt. 258.27



Synthesis

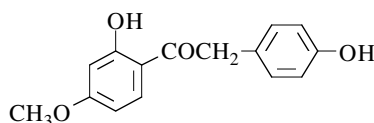
-Refer to: [1419] (Hungarian paper).

1-(2-Hydroxy-4-methoxyphenyl)-2-(4-hydroxyphenyl)ethanone

[60278-33-3]

C₁₅H₁₄O₄

mol.wt. 258.27



Syntheses

-Obtained by reaction of p-hydroxyphenylacetic acid with m-methoxyphenol,
 *in the presence of boron trifluoride in ethylene dichloride at 80° for 2 h under an argon atmosphere (47%) [937];

*in the presence of polyphosphoric acid at 95° for 30 min (57%) [1503].
 -Also refer to: [463] [735] [1165].

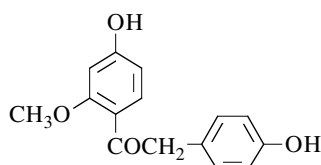
gum [1503]; m.p. 151-154° [937];
¹H NMR [937], ¹³C NMR [732], IR [937], UV [937], MS [937].

1-(4-Hydroxy-2-methoxyphenyl)-2-(4-hydroxyphenyl)ethanone

[89019-88-5]

C₁₅H₁₄O₄

mol.wt. 258.27



Synthesis

-Obtained by reaction of p-hydroxyphenylacetic acid with m-methoxyphenol in ethylene dichloride in the presence of boron trifluoride at 80° for 2 h under an argon atmosphere (23%) [937].

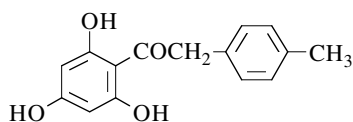
m.p. 147-151° [937]; ¹H NMR [937],
 IR [937], UV [937], MS [937].

2-(4-Methylphenyl)-1-(2,4,6-trihydroxyphenyl)ethanone

[59108-68-8]

C₁₅H₁₄O₄

mol.wt. 258.27

**Synthesis**

-Preparation by reaction of p-tolylacetonitrile with phloroglucinol (Hoesch reaction) [141] [285].

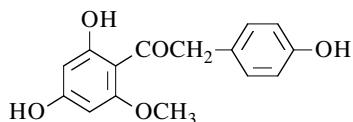
m.p. 205-206° (anhydrous) [285];
sesquihydrate [285].

1-(2,4-Dihydroxy-6-methoxyphenyl)-2-(4-hydroxyphenyl)ethanone

[56308-11-3]

C₁₅H₁₄O₅

mol.wt. 274.27

**Syntheses**

-Preparation by reaction of p-hydroxyphenylacetonitrile with phloroglucinol monomethyl ether (57%) (Hoesch reaction) [117].
-Also refer to: [559] [1419].

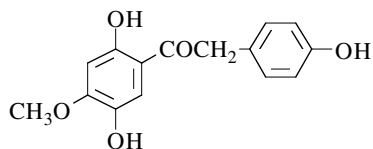
m.p. 186-188° [117].

1-(2,5-Dihydroxy-4-methoxyphenyl)-2-(4-hydroxyphenyl)ethanone

[79744-54-0]

C₁₅H₁₄O₅

mol.wt. 274.27

**Synthesis**

-Obtained by reaction of p-hydroxyphenylacetonitrile with 2-methoxyhydroquinone (Hoesch reaction) [246] [732].

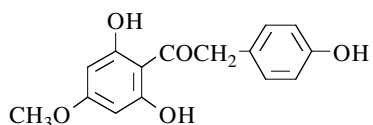
¹³C NMR [732].

1-(2,6-Dihydroxy-4-methoxyphenyl)-2-(4-hydroxyphenyl)ethanone

[101094-12-6]

C₁₅H₁₄O₅

mol.wt. 274.27

**Synthesis**

-Obtained by heating a mixture of 5,4'-dihydroxy-7-methoxyisoflavone and tribasic sodium phosphate in water at reflux for 1 h (83%) [559].

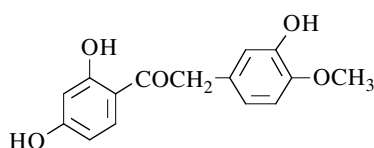
m.p. 247-249° [559].

1-(2,4-Dihydroxyphenyl)-2-(3-hydroxy-4-methoxyphenyl)ethanone

[36754-72-0]

C₁₅H₁₄O₅

mol.wt. 274.27

**Syntheses**

-Obtained by reaction of (3-hydroxy-4-methoxyphenyl)acetonitrile with resorcinol (Hoesch reaction) (41%) [471] [472].
 -Also refer to: [174] [699].

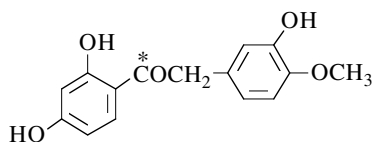
m.p. 161-162° [471] [472].

1-(2,4-Dihydroxyphenyl)-2-(3-hydroxy-4-methoxyphenyl)ethanone-1-¹⁴C

[142050-40-6]

C₁₅H₁₄O₅

mol.wt. 274.27

**Synthesis**

-Obtained by hydrolysis of 2,4-dihydroxyphenyl 3-benzoyloxy-4-methoxybenzyl [¹⁴C] ketone (SM) with sodium hydroxide in dilute methanol (31-35%). SM was obtained by reaction of 3-benzoyloxy-4-methoxybenzyl [¹⁴C] nitrile with resorcinol (Hoesch reaction) [174].

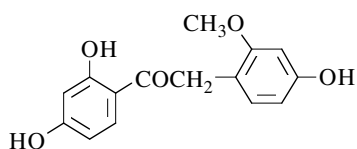
m.p. 166-168° [174].

1-(2,4-Dihydroxyphenyl)-2-(4-hydroxy-2-methoxyphenyl)ethanone

[175546-62-0]

C₁₅H₁₄O₅

mol.wt. 274.27

**Synthesis**

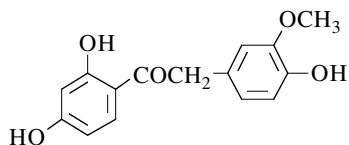
-Refer to: [1140].

1-(2,4-Dihydroxyphenyl)-2-(4-hydroxy-3-methoxyphenyl)ethanone

[40456-49-3]

C₁₅H₁₄O₅

mol.wt. 274.27

**Syntheses**

-Preparation by reaction of 4-hydroxy-3-methoxyphenyl-acetic acid with resorcinol in the presence of boron trifluoride etherate under argon on a water bath for 1 h (99%) [1516].
 -Also obtained by reaction of (4-acetoxy-3-methoxyphenyl)acetonitrile with resorcinol (Hoesch reaction) [1430].

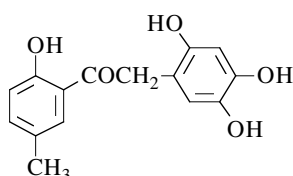
colourless granules [1430]; ¹H NMR [1430], IR [1430].

1-(2-Hydroxy-5-methylphenyl)-2-(2,4,5-trihydroxyphenyl)ethanone

[115781-49-2]

C₁₅H₁₄O₅

mol.wt. 274.27

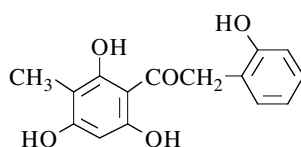
**Synthesis**

-Obtained from 4-hydroxy-6-methyl-3-(2',4',5'-trihydroxyphenyl)coumarin with refluxing 2% methanolic potassium hydroxide for 4 h (67%) [1218].

m.p. 193° [1218]; IR [1218], UV [1218].

2-(2-Hydroxyphenyl)-1-(2,4,6-trihydroxy-3-methylphenyl)ethanoneC₁₅H₁₄O₅

mol.wt. 274.27

**Synthesis**

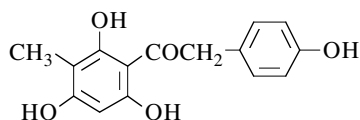
-Obtained by alkaline degradation of *methyloisogenistein* (8-methyl-5,7,2'-trihydroxyisoflavone) (SM) (m.p. 255°) with potassium hydroxide [1117] [1118]. SM was obtained by hydrolysis of *methyloisogenistin*, its glycoside, (m.p. 301-302°) [1117], isolated from soya bean [1117] [1118].

N.B.: This ketone cannot be prepared by condensation of o-hydroxyphenylacetonitrile with 2-methylphloroglucinol (Hoesch reaction) [1321].

m.p. 186° [1117].

2-(4-Hydroxyphenyl)-1-(2,4,6-trihydroxy-3-methylphenyl)ethanoneC₁₅H₁₄O₅

mol.wt. 274.27

**Syntheses**

-Obtained by partial demethylation of 2-hydroxy-4,6-dimethoxy-3-methylphenyl 4-methoxybenzyl ketone with aluminium chloride in refluxing benzene for 2 h (58%) [1318].

-Also obtained by alkaline degradation of *methylgenistein* (8-methyl-5,7,4'-trihydroxyisoflavone) (m.p. 298°) with potash [1117] [1118].

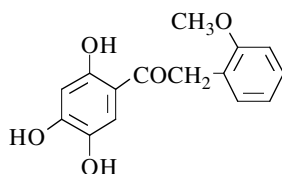
m.p. 235-237° [1318], 190° [1117]. One of the reported melting points is obviously wrong.

2-(2-Methoxyphenyl)-1-(2,4,5-trihydroxyphenyl)ethanone

[79744-49-3]

C₁₅H₁₄O₅

mol.wt. 274.27

**Synthesis**

-Obtained by reaction of 2-methoxyphenylacetonitrile with hydroxyhydroquinone (Hoesch reaction) [246] [732].

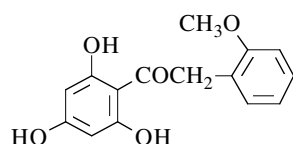
¹³C NMR [732].

2-(2-Methoxyphenyl)-1-(2,4,6-trihydroxyphenyl)ethanone

[116854-95-6]

C₁₅H₁₄O₅

mol.wt. 274.27

**Syntheses**

-Preparation by reaction of 2-methoxyphenylacetonitrile with phloroglucinol (Hoesch reaction),
 *in the presence of zinc chloride [118] [767], (74%) [119], (48%) [1319], (42%) [1024], (37%) [1531];
 *in the presence of boron trifluoride etherate (45%) [1024].

-Also refer to: [208] [559] [989] [1320].

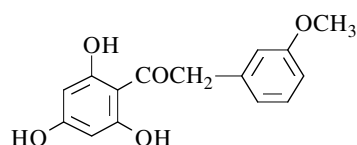
monohydrate [1319] [1531]; sublimation at 120°/0.04 mm [1531];
 m.p. 170° [767], 169° [1531], 168-170° [1319], 167-169° [118] [119].

2-(3-Methoxyphenyl)-1-(2,4,6-trihydroxyphenyl)ethanone

[111474-27-2]

C₁₅H₁₄O₅

mol.wt. 274.27

**Synthesis**

-Preparation by reaction of 3-methoxyphenylacetonitrile with phloroglucinol (Hoesch reaction) (75%) [208], (30%) [559].

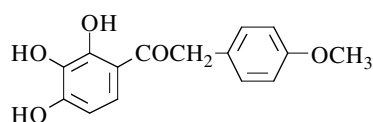
m.p. 168-169° [559], 165-166° [208]; ¹H NMR [208], IR [208].

2-(4-Methoxyphenyl)-1-(2,3,4-trihydroxyphenyl)ethanone

[38412-59-8]

C₁₅H₁₄O₅

mol.wt. 274.27

**Syntheses**

-Obtained by acid hydrolysis of 4-methoxybenzyl 2-hydroxy-3,4-diphenylmethylenedioxyphenyl ketone (m.p. 146°) in acetic acid in the presence of 2 drops of concentrated hydrochloric acid at 100° for 5 min (48%) [744].

-Also obtained by reaction of 4-methoxyphenylacetic acid with pyrogallol in chloroform in the presence of excess boron trifluoride, first at 0°, then at r.t. overnight (77%) [764] or for 2 days (54%) [744].

-Also refer to: [246] [732] [1148].

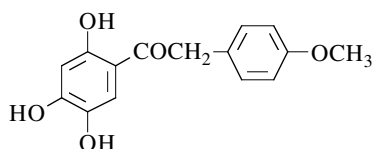
m.p. 157° [744], 145-146° [764];
¹H NMR [744], ¹³C NMR [732]; TLC [744].

2-(4-Methoxyphenyl)-1-(2,4,5-trihydroxyphenyl)ethanone

[76095-38-0]

C₁₅H₁₄O₅

mol.wt. 274.27

**Syntheses**

-Preparation by reaction of p-methoxyphenyl-acetonitrile with hydroxyhydroquinone (Hoesch reaction) [246] [530] [732] [1347], (80%) [707].
 -Also refer to: [212] [731] [1580] [1581].

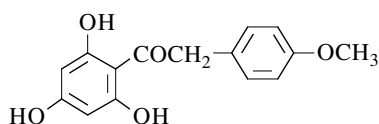
m.p. 180-181° [707] [1347]; TLC [707];
¹H NMR [707], ¹³C NMR [732], UV [1347].

2-(4-Methoxyphenyl)-1-(2,4,6-trihydroxyphenyl)ethanone

[15485-66-2]

C₁₅H₁₄O₅

mol.wt. 274.27

**Syntheses**

-Preparation by reaction of p-methoxyphenyl-acetonitrile with phloroglucinol (Hoesch reaction), *in the presence of zinc chloride [141] [1019] [1145], (91-92%) [1168] [1169] [1354], (80%) [113], (66%) [771], (57%) [106], (55%) [1024];
 *in the presence of boron trifluoride etherate (82%) [1024].
 -Preparation by Fries rearrangement of 3,5-dihydroxyphenyl p-methoxyphenylacetate with aluminium chloride in nitrobenzene, first at 60°, then at 150° for 2 h (75%) [1354].
 -Preparation by Friedel-Crafts acylation of phloroglucinol with p-methoxyphenylacetyl chloride in nitrobenzene at 100° for 2 h (50%) [1354].
 -Preparation by reaction of p-methoxyphenylacetic acid with phloroglucinol in the presence of zinc chloride and phosphorous oxychloride for 24 h at r.t. (68%) [391].
 -Also refer to: [559] [701] [873] [1165] [1166] [1182] [1183] [1188] [1419].

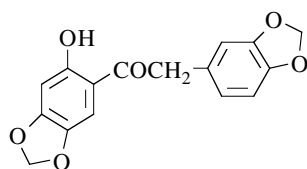
m.p. 198-200° [1169], 198-199° [1019], 195° [106], 194° [771],
 192-193° [113] [1354], 192° [391]; monohydrate [113];
¹H NMR [1169], ¹³C NMR [732] [1167] [1169], IR [771],
 UV [771] [1019] [1169]; TLC [771].

2-(1,3-Benzodioxol-5-yl)-1-(6-hydroxy-1,3-benzodioxol-5-yl)ethanone

[2746-90-9]

C₁₆H₁₂O₆

mol.wt. 300.27

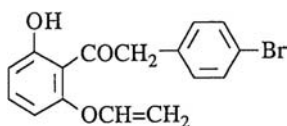
**Syntheses**

-Obtained by reaction of (3,4-methylenedioxy)phenyl-acetonitrile with *sesamol* (5-hydroxy-1,3-benzodioxol) (Hoesch reaction) (13%) [528].
 -Also obtained by reaction of methylene sulfate with 2,4,5-trihydroxyphenyl (3,4-methylenedioxy)benzyl ketone in the presence of potassium hydroxide in dilute acetone for 70 min at 45-50° (9%) [528].

m.p. 172-173° [528]; IR [528], UV [528].

2-(4-Bromophenyl)-1-[2-(ethenyloxy)-6-hydroxyphenyl]ethanoneC₁₆H₁₃BrO₃

mol.wt. 333.18

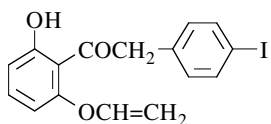
**Synthesis**

-Obtained (by-product) by reaction of diethylaminochloroethane with 2,6-dihydroxy-4'-bromodesoxybenzoin in the presence of sodium ethoxide in refluxing ethanol for 4 h [914].

m.p. 103° [914].

1-[2-(Ethenyloxy)-6-hydroxyphenyl]-2-(4-iodophenyl)ethanoneC₁₆H₁₃IO₃

mol.wt. 380.18

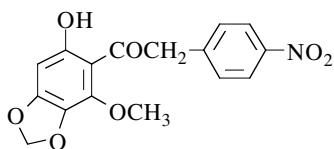
**Synthesis**

-Obtained (by-product) by reaction of diethylaminochloroethane with 2,6-dihydroxy-4'-iododesoxybenzoin in the presence of sodium ethoxide in refluxing ethanol for 4 h [914].

m.p. 131° [914].

1-(6-Hydroxy-4-methoxy-1,3-benzodioxol-5-yl)-2-(4-nitrophenyl)ethanoneC₁₆H₁₃NO₇

mol.wt. 331.28

**Synthesis**

-Obtained by condensation of 3-methoxy-4,5-methylenedioxyphenol with 4-nitrophenylacetone (Hoesch reaction) (37%) [529].

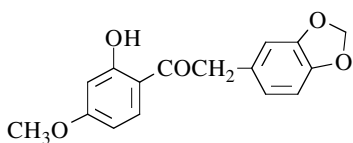
m.p. 165-167° [529]; IR [529].

2-(1,3-Benzodioxol-5-yl)-1-(2-hydroxy-4-methoxyphenyl)ethanone

[5128-56-3]

C₁₆H₁₄O₅

mol.wt. 286.28

**Syntheses**

-Obtained by partial methylation of *pseudo-baptigenetin* in ethanol with diazomethane in ethyl ether for 24 h (82%) [1385].
-Also refer to: [699] [843].

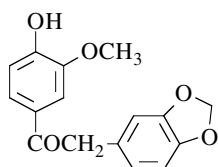
m.p. 145° [1385].

2-(1,3-Benzodioxol-5-yl)-1-(4-hydroxy-3-methoxyphenyl)ethanone

[56766-87-1]

C₁₆H₁₄O₅

mol.wt. 286.28

**Synthesis**

-Obtained by hydrogenolysis of 4-benzyloxy-3-methoxyphenyl 3,4-methylenedioxybenzyl ketone (oil) with hydrogen in the presence of 10% Pd/C in ethanol at r.t. for 1.5 h (87%) [434].

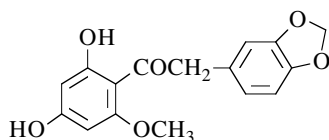
m.p. 132-133° [434];

¹H NMR [434], IR [434], UV [434], MS [434].**2-(1,3-Benzodioxol-5-yl)-1-(2,4-dihydroxy-6-methoxyphenyl)ethanone**

[55607-36-8]

C₁₆H₁₄O₆

mol.wt. 302.28

**Synthesis**

-Obtained by reaction of 3,4-methylenedioxyphenylacetonitrile with phloroglucinol monomethyl ether (Hoesch reaction) [559], (27%) [715].

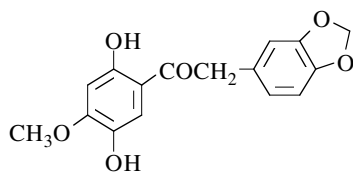
m.p. 143-144° [559], 138-139° [715];

¹H NMR [715]; TLC [715].**2-(1,3-Benzodioxol-5-yl)-1-(2,5-dihydroxy-4-methoxyphenyl)ethanone**

[2746-89-6]

C₁₆H₁₄O₆

mol.wt. 302.28

**Synthesis**

-Obtained by treatment of 2,4,5-trihydroxyphenyl (3,4-methylenedioxy)benzyl ketone in acetone with an ethereal diazomethane solution at r.t. overnight (76%) [528].

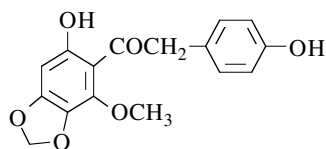
m.p. 194-196° [528]; UV [528].

1-(6-Hydroxy-4-methoxy-1,3-benzodioxol-5-yl)-2-(4-hydroxyphenyl)ethanone

[3207-38-3]

C₁₆H₁₄O₆

mol.wt. 302.28

**Syntheses**

-Obtained by alkaline degradation of *irisolone* (4'-hydroxy-5-methoxy-6,7-methylenedioxyisoflavone) (m.p. 258-265°) (SM) with refluxing aqueous sodium hydroxide for 1.5 h. SM was isolated from the rhizomes of *iris nepalensis* D. DON (Iridaceae) [573].

-Also obtained by reaction of 4-hydroxyphenylacetonitrile with 3-methoxy-4,5-methylenedioxyphenol (Hoesch reaction) (7%) [529].

-Also obtained by diazotization of 6-hydroxy-2-methoxy-3,4-methylenedioxyphenyl 4-aminobenzyl ketone, followed by hydrolysis of the diazonium salt obtained (10%) [529].

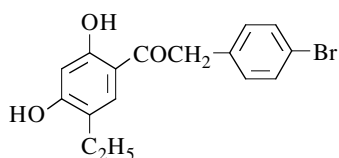
m.p. 159-160° [573], 152-153° [529]; IR [529], UV [529] [573].

2-(4-Bromophenyl)-1-(5-ethyl-2,4-dihydroxyphenyl)ethanone

[96643-99-1]

C₁₆H₁₅BrO₃

mol.wt. 335.20



Synthesis

-Preparation by reaction of p-bromophenylacetonitrile with 4-ethylresorcinol in the presence of boron trifluoride etherate under hydrogen chloride atmosphere at r.t. overnight (80%) [936], (70%) [786].

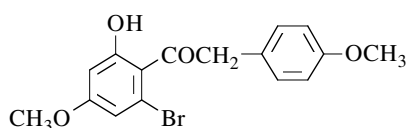
m.p. 124-125° [786] [936]; ¹H NMR [786].

1-(2-Bromo-6-hydroxy-4-methoxyphenyl)-2-(4-methoxyphenyl)ethanone

[191847-25-3]

C₁₆H₁₅BrO₄

mol.wt. 351.20



Synthesis

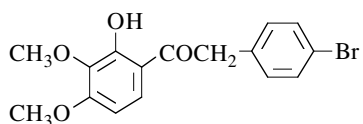
-Obtained by Friedel-Crafts acylation of 3,5-dimethoxybromobenzene with 4-methoxyphenylacetyl chloride in the presence of aluminium chloride (12%) [1578].

m.p. 180-182° [1578]; ¹H NMR [1578], MS [1578].

2-(4-Bromophenyl)-1-(2-hydroxy-3,4-dimethoxyphenyl)ethanone

C₁₆H₁₅BrO₄

mol.wt. 351.20



Synthesis

-Refer to: [758] (Japanese paper).

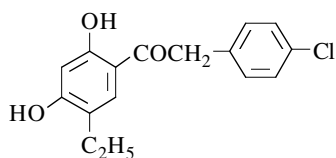
m.p. 134-135° [758].

2-(4-Chlorophenyl)-1-(5-ethyl-2,4-dihydroxyphenyl)ethanone

[96644-00-7]

C₁₆H₁₅ClO₃

mol.wt. 290.75



Synthesis

-Preparation by reaction of p-chlorophenylacetonitrile with 4-ethylresorcinol in the presence of boron trifluoride etherate under hydrogen chloride atmosphere at r.t. overnight (80%) [936], (70%) [786].

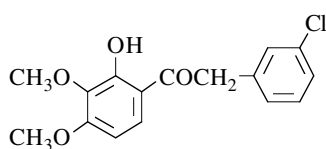
m.p. 130-131° [786] [936]; ¹H NMR [786].

2-(3-Chlorophenyl)-1-(2-hydroxy-3,4-dimethoxyphenyl)ethanone

[24863-50-1]

C₁₆H₁₅ClO₄

mol.wt. 306.75

**Synthesis**

-Obtained by Friedel-Crafts acylation of pyrogallol trimethyl ether with m-chlorophenylacetyl chloride in the presence of aluminium chloride in carbon disulfide for 30 min (54%) [758].

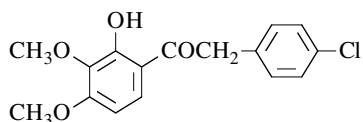
m.p. 111-112° [758]; ¹H NMR [758].

2-(4-Chlorophenyl)-1-(2-hydroxy-3,4-dimethoxyphenyl)ethanone

[24852-34-4]

C₁₆H₁₅ClO₄

mol.wt. 306.75

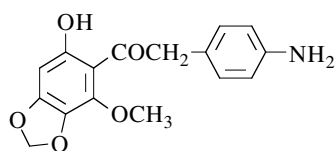
**Synthesis**

-Obtained by Friedel-Crafts acylation of pyrogallol trimethyl ether with p-chlorophenylacetyl chloride in carbon disulfide in the presence of aluminium chloride for 30 min (59%) [758].

m.p. 113-114° [758].

2-(4-Aminophenyl)-1-(6-hydroxy-4-methoxy-1,3-benzodioxol-5-yl)ethanoneC₁₆H₁₅NO₅

mol.wt. 301.30

**Synthesis**

-Obtained by catalytic reduction of 6-hydroxy-2-methoxy-3,4-methylenedioxyphenyl 4-nitrobenzyl ketone in ethyl acetate with hydrogen in the presence of 10% Pd/C at r.t. (82%) [529].

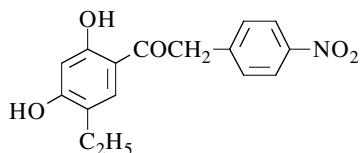
m.p. 170-172° [529]; IR [529].

1-(5-Ethyl-2,4-dihydroxyphenyl)-2-(4-nitrophenyl)ethanone

[96644-02-9]

C₁₆H₁₅NO₅

mol.wt. 301.30

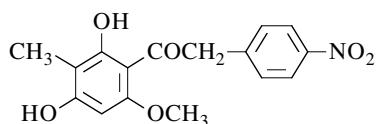
**Synthesis**

-Obtained by reaction of p-nitrophenylacetone nitrile with 4-ethylresorcinol in the presence of boron trifluoride etherate under hydrogen chloride atmosphere (8-10 h), then at r.t. overnight (94%) [786].

m.p. 159-160° [786]; ¹H NMR [786].

1-(2,4-Dihydroxy-6-methoxy-3-methylphenyl)-2-(4-nitrophenyl)ethanoneC₁₆H₁₅NO₆

mol.wt. 317.30

**Synthesis**

-Obtained by reaction of p-nitrophenylacetonitrile with 2,6-dihydroxy-4-methoxytoluene (Hoesch reaction) [764].

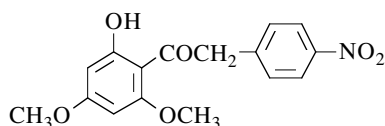
m.p. 201° [764].

1-(2-Hydroxy-4,6-dimethoxyphenyl)-2-(4-nitrophenyl)ethanone

[56982-36-6]

C₁₆H₁₅NO₆

mol.wt. 317.30

**Syntheses**

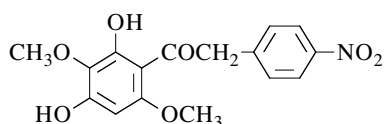
-Obtained by partial methylation of 4-nitrobenzyl 2,4,6-trihydroxyphenyl ketone,
*with diazomethane in ethyl ether at 0° for 48 h (57%) [686];

*with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone [585].
-Also refer to: [688].

m.p. 150° [585], 148-149° [688], 148° [686].

1-(2,4-dihydroxy-3,6-dimethoxyphenyl)-2-(4-Nitrophenyl)ethanoneC₁₆H₁₅NO₇

mol.wt. 333.30

**Synthesis**

-Obtained by reaction of p-nitrophenylacetonitrile with 2,5-dimethoxyresorcinol (Hoesch reaction) [746].

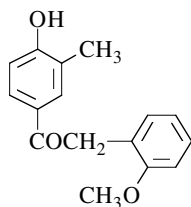
m.p. 174° [746].

1-(2-Hydroxy-3-methylphenyl)-2-(2-methoxyphenyl)ethanone

[74384-36-4]

C₁₆H₁₆O₃

mol.wt. 256.30

**Synthesis**

-Preparation by Fries rearrangement of o-cresyl o-methoxyphenylacetate with aluminium chloride in nitromethane for 170 h at 20° (60%) [971].

m.p. 167° [971];

¹H NMR (Sadler: standard n° 44610 M);

IR (Sadler: standard n° 71638 K) [971],

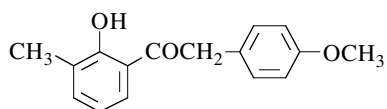
UV [971], MS [971].

1-(2-Hydroxy-3-methylphenyl)-2-(4-methoxyphenyl)ethanone

[74384-33-1]

C₁₆H₁₆O₃

mol.wt. 256.30

**Synthesis**

-Obtained (by-product) by Fries rearrangement of o-cresyl p-methoxyphenylacetate with aluminium chloride in nitromethane for 25 h at 20° (11%) [971].

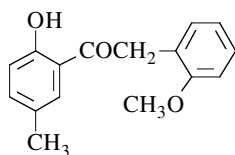
oil [971]; IR [971], UV [971], MS [971].

1-(2-Hydroxy-5-methylphenyl)-2-(2-methoxyphenyl)ethanone

[74384-38-6]

C₁₆H₁₆O₃

mol.wt. 256.30

**Synthesis**

-Obtained by Fries rearrangement of p-cresyl o-methoxyphenylacetate with aluminium chloride in nitromethane for 170 h at 20° (41%) [971].

m.p. 95° [971];

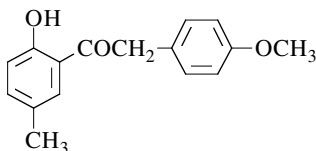
¹H NMR (Sadtlar: standard n° 44606 M), IR (Sadtlar: standard n°71634 K) [971], UV [971], MS [971].

1-(2-Hydroxy-5-methylphenyl)-2-(4-methoxyphenyl)ethanone

[74384-34-2]

C₁₆H₁₆O₃

mol.wt. 256.30

**Synthesis**

-Obtained by Fries rearrangement of p-cresyl p-methoxyphenylacetate with aluminium chloride in nitromethane for 25 h at 20° (22%) [971].

m.p. 55° [971];

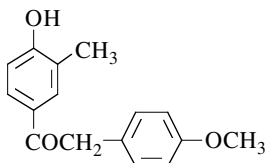
IR [971], UV [971], MS [971].

1-(4-Hydroxy-3-methylphenyl)-2-(4-methoxyphenyl)ethanone

[74384-31-9]

C₁₆H₁₆O₃

mol.wt. 256.30

**Synthesis**

-Preparation by Fries rearrangement of o-cresyl p-methoxyphenylacetate with aluminium chloride in nitromethane for 25 h at 20° (71%) [971].

m.p. 160° [971];

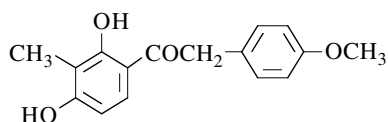
¹H NMR (Sadtlar: standard n° 44612 M), IR (Sadtlar: standard n° 71640 K) [971], UV [971], MS [971].

1-(2,4-Dihydroxy-3-methylphenyl)-2-(4-methoxyphenyl)ethanone

[93434-89-0]

C₁₆H₁₆O₄

mol.wt. 272.30

**Syntheses**

-Preparation by hydrogenation of 2,4-dihydroxy-3-formylphenyl 4-methoxybenzyl ketone (m.p. 114-115°) in acetic acid in the presence of 5% Pd/C in an atmosphere of hydrogen at r.t. and at atmospheric pressure (79%) [594].

-Preparation by reaction of p-methoxyphenylacetonitrile with 2-methylresorcinol (48%) (Hoesch reaction) [841].
Also refer to: [28].

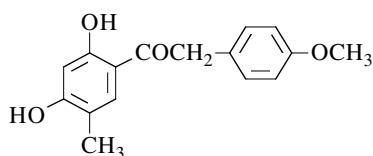
m.p. 175° [841], 172-173° [594].

1-(2,4-Dihydroxy-5-methylphenyl)-2-(4-methoxyphenyl)ethanone

[56308-10-2]

C₁₆H₁₆O₄

mol.wt. 272.30

**Syntheses**

-Obtained by reaction of 4-methoxyphenylacetonitrile with 4-methylresorcinol (Hoesch reaction) (44%) [173], (36%) [1534].

-Also refer to: [1419] (Hungarian paper).

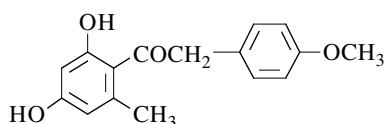
m.p. 155° [1534], 139-140° [173]. One of the reported melting points is obviously wrong.

1-(2,4-Dihydroxy-6-methylphenyl)-2-(4-methoxyphenyl)ethanone

[15485-71-9]

C₁₆H₁₆O₄

mol.wt. 272.30

**Synthesis**

-Obtained by treatment of orcinol with p-methoxyphenylacetonitrile in ethyl ether in the presence of zinc chloride and hydrogen chloride (Hoesch reaction) [1019].

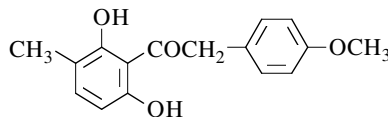
m.p. 109-110° [1019]; UV [1019].

1-(2,6-Dihydroxy-3-methylphenyl)-2-(4-methoxyphenyl)ethanone

[131196-70-8]

C₁₆H₁₆O₄

mol.wt. 272.30

**Synthesis**

-Obtained from 2,6-dihydroxy-4'-methoxy-5-methoxycarbonyl-3-methyldeoxybenzoin (m.p. 116°) which was simultaneously hydrolysed and decarboxylated by treatment with potassium

hydroxide in refluxing dilute ethanol for 1.5 h (84%) [1534].

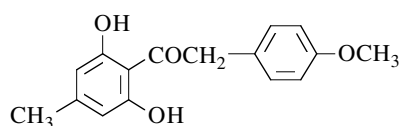
m.p. 164° [1534].

1-(2,6-Dihydroxy-4-methylphenyl)-2-(4-methoxyphenyl)ethanone

[128672-42-4]

C₁₆H₁₆O₄

mol.wt. 272.30



Synthesis

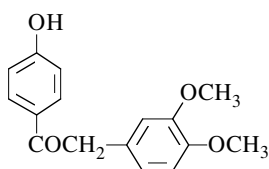
-Refer to: [1565] (Chinese paper).

2-(3,4-Dimethoxyphenyl)-1-(4-hydroxyphenyl)ethanone

[183054-34-4]

C₁₆H₁₆O₄

mol.wt. 272.30



Synthesis

-Obtained by Friedel-Crafts acylation of isopropyl phenyl ether with homoveratryl chloride in ethylene dichloride in the presence of aluminium chloride, first at 20°, then at 40° for 2-3 h and at r.t. overnight (31%) [1487].

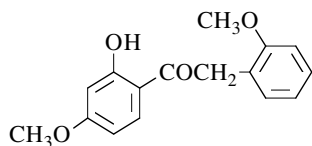
m.p. 165-167° [1487];

¹H NMR [1487], ¹³C NMR [1487], IR [1487], MS [1487].**1-(2-Hydroxy-4-methoxyphenyl)-2-(2-methoxyphenyl)ethanone**

[18440-00-1]

C₁₆H₁₆O₄

mol.wt. 272.30



Syntheses

-Preparation by partial methylation of 2,4-dihydroxy-2'-methoxydeoxybenzoin,

*with methyl iodide in the presence of potassium carbonate in boiling acetone during 1.5 h (quantitative yield) [1536];

*with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone for 5 h (83%) [590].

-Also obtained by Friedel-Crafts acylation of resorcinol dimethyl ether with o-methoxyphenylacetyl chloride in the presence of aluminium chloride, first in carbon disulfide, then on steam bath for 2.5 h after solvent elimination (40%) [733].

-Also obtained by hydrolysis of 2,4-dimethoxybenzoyl-2-methoxyphenylacetonitrile (m.p. 114-115°) in acetic acid with concentrated hydrochloric acid on a steam bath for 15 h (43%) [777].

-Also obtained by hydrolysis of ethyl 2,4-dimethoxybenzoyl-2-methoxyphenylacetate (m.p. 94-96°) in acetic acid with concentrated hydrochloric acid on a steam bath for 15 h (40%) [777].

-Also obtained by degradation of 7,2'-dimethoxy-3-phenyl-4-hydroxycoumarin with refluxing 30% alcoholic hydrogen chloride for 1 h (36%) [387].

-Also refer to: [724] [1165] [1291] [1364] [1530].

m.p. 94° [1536], 93-95° [733], 93-94° [590], 92° [387], 90-91° [777];

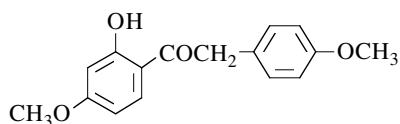
b.p._{0.001} 180° [777].

1-(2-Hydroxy-4-methoxyphenyl)-2-(4-methoxyphenyl)ethanone

[39604-64-3]

C₁₆H₁₆O₄

mol.wt. 272.30

**Syntheses**

-Preparation by partial methylation of 2,4-dihydroxyphenyl 4-methoxybenzyl ketone,
*with methyl iodide in the presence of potassium carbonate in boiling acetone during 3 h (83%) [106];

*with dimethyl sulfate [86], in the presence of potassium carbonate in boiling acetone [13];

*with diazomethane in ethyl ether [221] [1526].

-Also obtained by alkaline degradation of *formononetin methyl ether* (7,4'-dimethoxyisoflavone) [221], (m.p. 156°) with boiling 10% sodium hydroxide for 1 h [1526].

-Also obtained by hydrolysis of 2,4-dimethoxybenzoyl-4-methoxyphenyl-acetonitrile (m.p. 105-106°) in acetic acid with concentrated hydrochloric acid on a steam bath for 15 h (38%) [777].

-Also obtained by hydrolysis of ethyl 2,4-dimethoxybenzoyl-4-methoxyphenyl-acetate (m.p. 48-50°) in acetic acid with concentrated hydrochloric acid on a steam bath for 15 h (33%) [777].

-Also obtained by reaction of p-methoxyphenylacetonitrile with resorcinol monomethyl ether (Hoesch reaction) [1528].

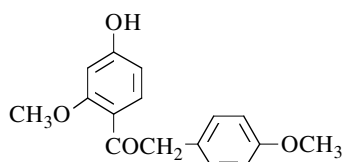
-Also refer to: [11] [12] [117] [169] [701] [724] [870] [1076] [1165] [1168] [1169] [1291] [1364] [1490].

m.p. 104° [106] [1526], 102° [221], 100-100°5 [777], 92-93° [1528];

b.p.0.001 190° [777]; ¹³C NMR [732] [1167].

1-(4-Hydroxy-2-methoxyphenyl)-2-(4-methoxyphenyl)ethanoneC₁₆H₁₆O₄

mol.wt. 272.30

**Syntheses**

-Obtained by heating 1-[4-(glucopyranosyloxy)-2-methoxyphenyl]-2-(4-methoxyphenyl)ethanone (SM) with concentrated sulfuric acid for 20 min. SM was obtained by methylation of synthetic *onospin* (m.p. 179°5) with excess methyl iodide in the presence of potassium carbonate in boiling methanol for 2 h. This

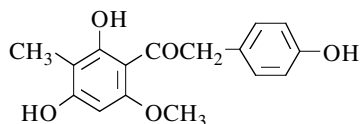
same methylation can be realized by using diazomethane [1528].

-Also obtained by reaction of p-methoxyphenylacetonitrile with resorcinol monomethyl ether (Hoesch reaction) [1528].

m.p. 173-175° [1528].

1-(2,4-Dihydroxy-6-methoxy-3-methylphenyl)-2-(4-hydroxyphenyl)ethanoneC₁₆H₁₆O₅

mol.wt. 288.30

**Syntheses**

-Obtained by reaction of p-hydroxyphenylacetonitrile with 2,6-dihydroxy-4-methoxytoluene (m.p. 124°) (Hoesch reaction) (50%) [1531].

-Also refer to: [1534].

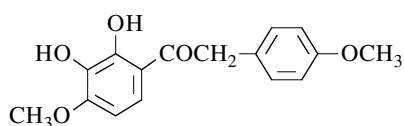
m.p. 207° [1531].

1-(2,3-Dihydroxy-4-methoxyphenyl)-2-(4-methoxyphenyl)ethanone

[38412-65-6]

C₁₆H₁₆O₅

mol.wt. 288.30



Synthesis

-Obtained by reaction of 4-methoxyphenylacetic acid with 3-methoxycatechol in chloroform in the presence of excess boron trifluoride, first at 0°, then at r.t. for 2 days (97%) [744].

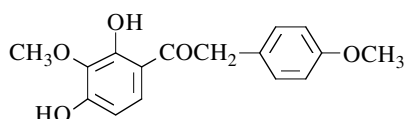
m.p. 137° [744].

1-(2,4-Dihydroxy-3-methoxyphenyl)-2-(4-methoxyphenyl)ethanone

[61243-80-9]

C₁₆H₁₆O₅

mol.wt. 288.30



Synthesis

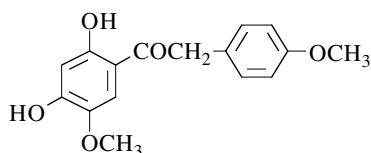
-Obtained by mild base hydrolysis of 8-*O*-methyl-retusin (7-hydroxy-8,4'-dimethoxyisoflavone) (SM) (m.p. 229-232°), itself isolated from heartwood of *Xanthocercis zambesiaca* (Bak.) (Leguminosae) [615].

m.p. 140-142° [615]; ¹H NMR [615], IR [615], UV [615], MS [615].**1-(2,4-Dihydroxy-5-methoxyphenyl)-2-(4-methoxyphenyl)ethanone**

[5128-54-1]

C₁₆H₁₆O₅

mol.wt. 288.30



Syntheses

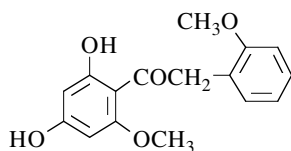
-Obtained by alkaline degradation of *afromosin* (7-hydroxy-6,4'-dimethoxyisoflavone), (69%) [1347], (64%) [986]. *Afromosin* (m.p. 228-229°), was isolated from *afromosia elata* Harms [986]. *Afromosin* is the aglycone of *wistin*

(m.p. 209-210°), itself isolated from the bark of *wistaria floribunda* DC [1347].

-Also obtained by reaction of 4-methoxyphenyl-acetonitrile with 4-methoxyresorcinol (Hoesch reaction) (20%) [986].

m.p. 128-129° [986], 127° [1347]; ¹³C NMR [732], IR [986], UV [986] [1347].**1-(2,4-Dihydroxy-6-methoxyphenyl)-2-(2-methoxyphenyl)ethanone**C₁₆H₁₆O₅

mol.wt. 288.30



Synthesis

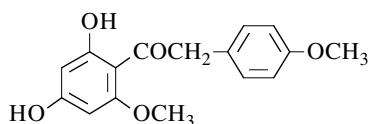
-Refer to: [559].

1-(2,4-Dihydroxy-6-methoxyphenyl)-2-(4-methoxyphenyl)ethanone

[13539-34-9]

C₁₆H₁₆O₅

mol.wt. 288.30

**Syntheses**

-Preparation by reaction of p-methoxyphenyl-acetonitrile with phloroglucinol monomethyl ether (Hoesch reaction) [559] [700], (39%) [85], (31%) [1531].

-Also obtained by alkaline degradation of *genistein* 5,4'-dimethyl ether (7-hydroxy-5,4'-dimethoxyisoflavone) (m.p. 290-293°) in boiling 30% potassium hydroxide for 15 min (93%) [1520].

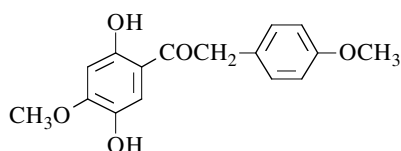
crystals [1520]; m.p. 166-167° [559], 129-130° [1531], 126-127° [85]. One of the reported melting points is obviously wrong. UV [85].

1-(2,5-Dihydroxy-4-methoxyphenyl)-2-(4-methoxyphenyl)ethanone

[79744-55-1]

C₁₆H₁₆O₅

mol.wt. 288.30

**Syntheses**

-Obtained by alkaline persulfate oxidation of 2-hydroxy-4-methoxyphenyl 4-methoxybenzyl ketone (Elbs reaction) (21%) [86].

-Also obtained by partial methylation of 2,4,5-trihydroxyphenyl 4-methoxybenzyl ketone with

excess diazomethane in ethyl ether at r.t. overnight (14%) [530].

-Also obtained by reaction of 4-methoxyphenylacetonitrile with 2-methoxyhydroquinone so called methoxyquinol (24%) (Hoesch reaction) [986].

m.p. 150° [986], 148-149° [530], 133-134° [86].

One of the reported melting points is obviously wrong.

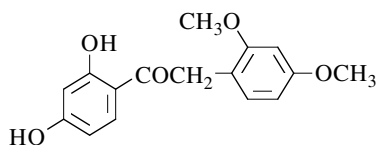
¹³C NMR [732], IR [986], UV [86] [986].

1-(2,4-Dihydroxyphenyl)-2-(2,4-dimethoxyphenyl)ethanone

[1855-30-7]

C₁₆H₁₆O₅

mol.wt. 288.30

**Syntheses**

-Obtained by reaction of 2,4-dimethoxyphenyl-acetonitrile with resorcinol (Hoesch reaction) [1145], (55%) [1304], (37%) [218] [314], (5%) [1384].

-Also refer to: [702] [703].

m.p. 158-159° [1304], 155-156° [1384], 154° [314], 152° [218];

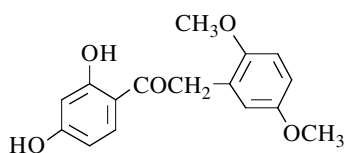
b.p._{0.02} 200-210° [1384]; IR [314].

1-(2,4-Dihydroxyphenyl)-2-(2,5-dimethoxyphenyl)ethanone

[18086-25-4]

C₁₆H₁₆O₅

mol.wt. 288.30

**Synthesis**

-Obtained by reaction of 2,5-dimethoxyphenylacetonitrile (m.p. 56-57°) with resorcinol (40%) (Hoesch reaction) [751].

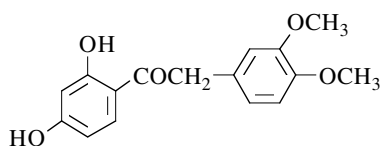
m.p. 144-145° [751].

1-(2,4-Dihydroxyphenyl)-2-(3,4-dimethoxyphenyl)ethanone

[24126-98-5]

C₁₆H₁₆O₅

mol.wt. 288.30

**Syntheses**

-Preparation by Friedel-Crafts acylation of resorcinol with 3,4-dimethoxyphenylacetyl chloride in nitrobenzene in the presence of aluminium chloride for 24 h at r.t. (56%) [106].

-Preparation by reaction of 3,4-dimethoxyphenylacetonitrile with resorcinol (Hoesch reaction) [158], (60%) [392], (49%) [218].

-Obtained by heating *Cladrin* (7-hydroxy-3',4'-dimethoxyisoflavone) (m.p. 257-258°) with 10% aqueous barium hydroxide at reflux for 2 h (73%). *Cladrin* was isolated from *Cladrastis lutea* (Mich. f.) K. Koch (Leguminosae) [1330].

-Also refer to: [467] [723] [1140].

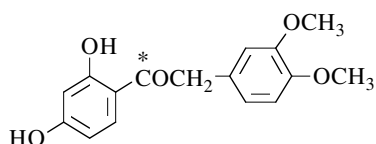
m.p. 182-183° [1330], 180° [218], 177°5 [106], 177-178° [392], 176°5 [158].

1-(2,4-Dihydroxyphenyl)-2-(3,4-dimethoxyphenyl)ethanone-1-¹⁴C

[142050-41-7]

C₁₆H₁₆O₅

mol.wt. 290.29

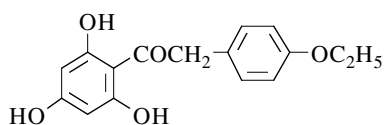
**Synthesis**

-Obtained by reaction of 3,4-dimethoxybenzyl [¹⁴C] nitrile with resorcinol (Hoesch reaction) (38%) [174].

m.p. 183-184° [174]; TLC [174].

2-(4-Ethoxyphenyl)-1-(2,4,6-trihydroxyphenyl)ethanoneC₁₆H₁₆O₅

mol.wt. 288.30

**Synthesis**

-Preparation by condensation of p-ethoxyphenylacetonitrile with phloroglucinol (Hoesch reaction) [1074].

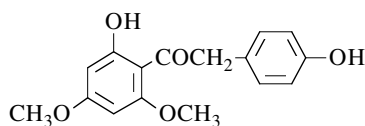
m.p. 208-210° [1074].

1-(2-Hydroxy-4,6-dimethoxyphenyl)-2-(4-hydroxyphenyl)ethanone

[69127-79-3]

C₁₆H₁₆O₅

mol.wt. 288.30

**Syntheses**

-Obtained by alkaline degradation of *genistein 5,7-dimethyl ether* (5,7-dimethoxy-4'-hydroxyisoflavone) (m.p. 266°) with 40% potassium hydroxide in a water bath for 15 min (41%) [1571].

-Also obtained by diazotization of 4-aminobenzyl 2-hydroxy-4,6-dimethoxyphenyl ketone hydrochloride, followed by hydrolysis of the diazonium salt obtained (33%) [686].

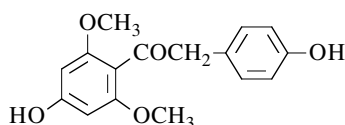
-Also obtained by reaction of p-hydroxyphenylacetonitrile with phloroglucinol dimethyl ether (Hoesch reaction) (25%) [829], (19%) [1571].

-Also refer to: [559] [1166].

m.p. 112° [829] [1571], 110° [686].

1-(4-Hydroxy-2,6-dimethoxyphenyl)-2-(4-hydroxyphenyl)ethanoneC₁₆H₁₆O₅

mol.wt. 288.30

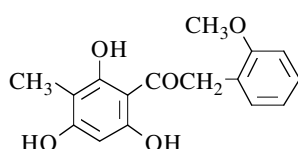
**Synthesis**

-Obtained by reaction of p-hydroxyphenylacetonitrile with phloroglucinol dimethyl ether (Hoesch reaction) [829] [1571].

m.p. 182° [1571], 181° [829].

2-(2-Methoxyphenyl)-1-(2,4,6-trihydroxy-3-methylphenyl)ethanoneC₁₆H₁₆O₅

mol.wt. 288.30

**Syntheses**

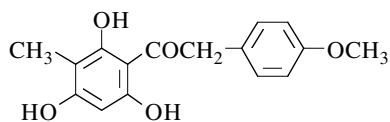
-Preparation by reaction of o-methoxyphenylacetonitrile with 2-methylphloroglucinol (m.p. 215°) (Hoesch reaction), (45%) [1531], (35%) [989].

-Also refer to: [1208].

m.p. 206° [1531], 198-200° [989]; sublimation at 160°/0.01 mm [1531].

2-(4-Methoxyphenyl)-1-(2,4,6-trihydroxy-3-methylphenyl)ethanoneC₁₆H₁₆O₅

mol.wt. 288.30

**Syntheses**

-Obtained by reaction of p-methoxyphenylacetonitrile with 2-methylphloroglucinol (m.p. 215°) [1531] (Hoesch reaction), (54%) [1317], (26%) [1531].

-Also refer to: [988] [1208] [1209].

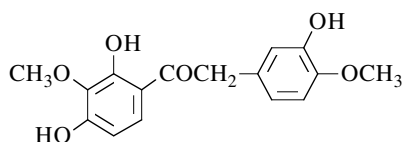
m.p. 228° [1531], 220-221° [1317]; sublimation at 160°/0.01 mm [1531].

1-(2,4-Dihydroxy-3-methoxyphenyl)-2-(3-hydroxy-4-methoxyphenyl)ethanone

[61243-85-4]

C₁₆H₁₆O₆

mol.wt. 304.30

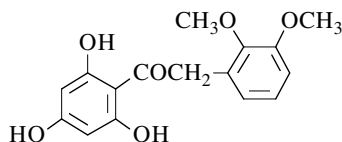
**Syntheses**

-Obtained by mild base hydrolysis of 7,3'-dihydroxy-8,4'-dimethoxyisoflavone (m.p. 212-213°), (71%) [615].
 -Also refer to: [297].

m.p. 127-129° [615]; ¹H NMR [615], IR [615], UV [615], MS [615].

2-(2,3-Dimethoxyphenyl)-1-(2,4,6-trihydroxyphenyl)ethanoneC₁₆H₁₆O₆

mol.wt. 304.30

**Syntheses**

-Obtained by reaction of 2,3-dimethoxyphenylacetonitrile with phloroglucinol (Hoesch reaction) (44%) [1536].
 -Also refer to: [1530].

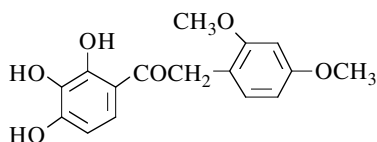
m.p. 193° [1536].

2-(2,4-Dimethoxyphenyl)-1-(2,3,4-trihydroxyphenyl)ethanone

[14756-83-3]

C₁₆H₁₆O₆

mol.wt. 304.30

**Syntheses**

-Obtained by reaction of phenylacetic acid with pyrogallol in the presence of zinc chloride at 130° for 2 h (Nencki reaction) (39%) [754].
 -Also obtained (poor yield) by reaction of 2,4-dimethoxyphenylacetonitrile with pyrogallol (Hoesch reaction) (4%) [754].

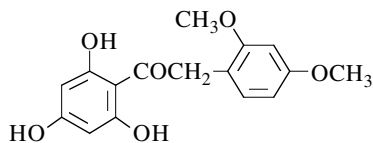
m.p. 134-135° [754].

2-(2,4-Dimethoxyphenyl)-1-(2,4,6-trihydroxyphenyl)ethanone

[65568-08-3]

C₁₆H₁₆O₆

mol.wt. 304.30

**Syntheses**

-Obtained by condensation of 2,4-dimethoxyphenylacetonitrile (m.p. 76°) with phloroglucinol (Hoesch reaction) [12] [839] [1016] [1080].
 -Also refer to: [559] [716] [723] [1140] [1495] [1530].

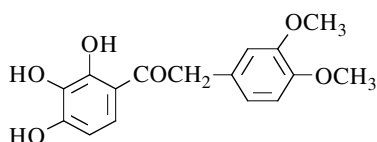
m.p. 178° [1080], 175° [1016]; paper chromatography [393].

2-(3,4-Dimethoxyphenyl)-1-(2,3,4-trihydroxyphenyl)ethanone

[93435-58-6]

C₁₆H₁₆O₆

mol.wt. 304.30

**Synthesis**

-Obtained by condensation of 3,4-dimethoxyphenyl-acetonitrile (m.p. 45-47°) [620] with pyrogallol (Hoesch reaction) [1147], (23%) [848].

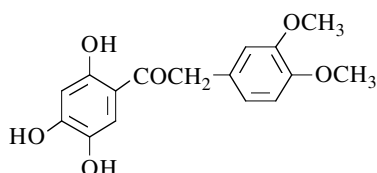
m.p. 174° [848].

2-(3,4-Dimethoxyphenyl)-1-(2,4,5-trihydroxyphenyl)ethanone

[66116-74-3]

C₁₆H₁₆O₆

mol.wt. 304.30

**Syntheses**

-Preparation by reaction of 3,4-dimethoxyphenyl-acetonitrile with hydroxyhydroquinone (Hoesch reaction) (81%) [707].

-Also refer to: [246].

m.p. 193-194° [707]; TLC [707];

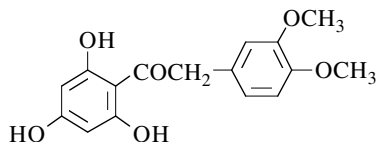
¹H NMR [707], ¹³C NMR [732].

2-(3,4-Dimethoxyphenyl)-1-(2,4,6-trihydroxyphenyl)ethanone

[53084-06-3]

C₁₆H₁₆O₆

mol.wt. 304.30

**Syntheses**

-Preparation by reaction of 3,4-dimethoxyphenyl-acetonitrile with phloroglucinol (Hoesch reaction), *in the presence of zinc chloride [559] [1073], (47%) [106], (42%) [771], (38%) [1024];

*in the presence of boron trifluoride etherate (59%) [1024].

-Also refer to: [873].

N.B.: The monohydrate of this ketone was at first obtained [106]. The water of crystallisation is lost on heating the crystals at 90°.

m.p. 208-210° [1073], 184-186° [559], 182-184° [1024], 181° [106], 180-181° [771].

One of the reported melting points is obviously wrong.

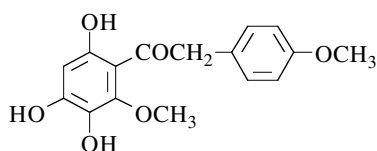
¹³C NMR [732], IR [771], UV [771]; TLC [771].

2-(4-Methoxyphenyl)-1-(3,4,6-trihydroxy-2-methoxyphenyl)ethanone

[14701-83-8]

C₁₆H₁₆O₆

mol.wt. 304.30

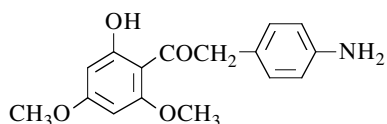
**Synthesis**

-Obtained by persulfate oxidation of 2,4-dihydroxy-6-methoxyphenyl 4-methoxybenzyl ketone (Elbs reaction) [85].

m.p. 144° [85]; UV [85].

2-(4-Aminophenyl)-1-(2-hydroxy-4,6-dimethoxyphenyl)ethanoneC₁₆H₁₇NO₄

mol.wt. 287.32



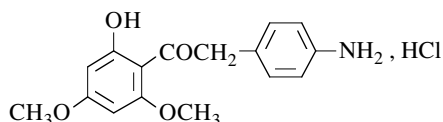
Synthesis

-Preparation by hydrogenation of 2-hydroxy-4,6-dimethoxyphenyl 4-nitrobenzyl ketone in ethanol in the presence of Raney nickel as catalyst with hydrogen for 8 h [686].

m.p. 103-104° [686].

2-(4-Aminophenyl)-1-(2-hydroxy-4,6-dimethoxyphenyl)ethanone (Hydrochloride)C₁₆H₁₇NO₄, HCl

mol.wt. 323.78



Synthesis

-Obtained by treatment of the above base with hot dilute hydrochloric acid [686].

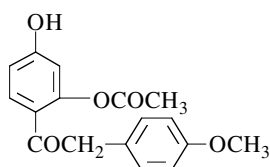
m.p. 198-200° [686].

1-[2-(Acetyloxy)-4-hydroxyphenyl]-2-(4-methoxyphenyl)ethanone

[145747-28-0]

C₁₇H₁₆O₅

mol.wt. 300.31



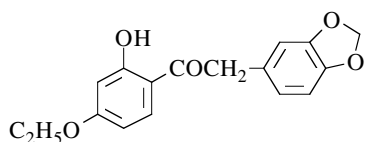
Syntheses

-Obtained by selective deacetylation catalyzed by porcine pancreas lipase in THF at 42-45° of,
 *2,4-diacetoxyphenyl 4-methoxybenzyl ketone during 48 h (73%) [1144] [1145] [1146];
 *1-acetoxy-1-(2,4-diacetoxyphenyl)-2-(4-methoxyphenyl)-ethene during 72 h (18%) [1145].

semi solid [1145]; TLC [1145];

¹H NMR [1145], IR [1145], UV [1145], MS [1145].**2-(1,3-Benzodioxol-5-yl)-1-(4-ethoxy-2-hydroxyphenyl)ethanone**
(*Pseudo-baptigenin monoethyl ether*)C₁₇H₁₆O₅

mol.wt. 300.31



Syntheses

-Obtained by partial ethylation of *pseudo-baptigenin* in ethanol with diazoethane in ethyl ether for 1.25 h [1385].

-Also obtained by alkaline degradation of *pseudo-baptigenin monoethyl ether* (m.p. 172°) with

potassium hydroxide in boiling dilute ethanol [1385].

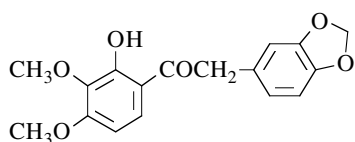
m.p. 129° [1385].

2-(1,3-Benzodioxol-5-yl)-1-(2-hydroxy-3,4-dimethoxyphenyl)ethanone

[84018-73-5]

C₁₇H₁₆O₆

mol.wt. 316.31

**Synthesis**

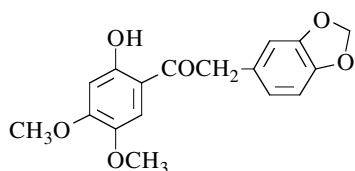
-Obtained by reaction of 3,4-(methylenedioxy)phenylacetonitrile with pyrogallol (Hoesch reaction) and subsequent partial methylation of the 2,3,4-trihydroxyphenyl 3,4-methylenedioxybenzyl ketone so obtained with dimethyl sulfate [706] according to the method [528].

2-(1,3-Benzodioxol-5-yl)-1-(2-hydroxy-4,5-dimethoxyphenyl)ethanone

[2746-88-5]

C₁₇H₁₆O₆

mol.wt. 316.31

**Syntheses**

-Obtained by partial methylation of 3,4-(methylenedioxy)benzyl 2,4,5-trihydroxyphenyl ketone with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone for 6 h (40%) [528] or according to [701], (90%) [707].

-Also obtained by partial demethylation of 3,4-(methylenedioxy)benzyl 2,4,5-trimethoxyphenyl ketone (m.p. 153-154°) with aluminium chloride in refluxing acetonitrile for 45 min (43%) [262].
 -Also obtained (trace) by reaction of 3,4-(methylenedioxy)phenylacetyl chloride with 1,2,4-trimethoxybenzene in the presence of aluminium chloride in ethyl ether at 0° overnight (< 1%) [262].
 -Also refer to: [12].

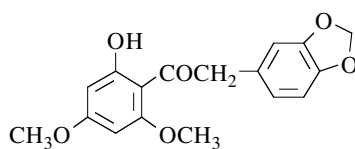
m.p. 153-154° [528], 119° [707], 118-119° [262]. One of the reported melting points is obviously wrong.
 IR [262] [528], UV [262] [528], MS [262].

2-(1,3-Benzodioxol-5-yl)-1-(2-hydroxy-4,6-dimethoxyphenyl)ethanone

[22044-73-1]

C₁₇H₁₆O₆

mol.wt. 316.31

**Syntheses**

-Preparation by partial methylation of 3,4-(methylenedioxy)benzyl 2,4,6-trihydroxyphenyl ketone with dimethyl sulfate in the presence of potassium carbonate in boiling acetone [559], for 14 h (73%) [687].

-Also refer to: [699] [1419].

Isolation from natural sources

-Obtained (major product) by alkaline hydrolysis of *Derrustone* (5,7-dimethoxy-3',4'-methylenedioxyisoflavone) (m.p. 153-154°) (SM) with 25% aqueous potassium hydroxide in refluxing methanol for 2 h (69%). SM was isolated from the root material of *Derris robusta* (Roxb.) Benth [438].

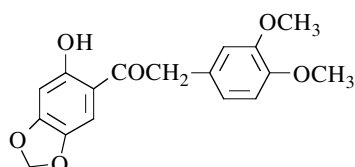
m.p. 102-103° [438], 98-99° [559], 97° [687]; IR [438].

2-(3,4-Dimethoxyphenyl)-1-(6-hydroxy-1,3-benzodioxol-5-yl)ethanone

[61243-78-5]

C₁₇H₁₆O₆

mol.wt. 316.31

**Synthesis**

-Obtained by mild base hydrolysis of 3',4'-dimethoxy-6,7-methylenedioxyisoflavone [615].

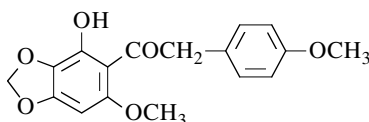
m.p. 148-151° [615];

¹H NMR [615], IR [615], UV [615], MS [615];

TLC [615].

1-(4-Hydroxy-6-methoxy-1,3-benzodioxol-5-yl)-2-(4-methoxyphenyl)ethanoneC₁₇H₁₆O₆

mol.wt. 316.31

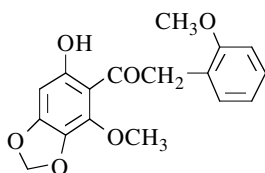
**Synthesis**

-Obtained by alkali degradation of 5,4'-dimethoxy-7,8-methylenedioxy-2-methylisoflavone (m.p. 214-215°) with potassium hydroxide in refluxing dilute ethanol for 2 h under a stream of nitrogen gas (88%) [529].

m.p. 133-134° [529]; IR [529], UV [529].

1-(6-Hydroxy-4-methoxy-1,3-benzodioxol-5-yl)-2-(2-methoxyphenyl)ethanoneC₁₇H₁₆O₆

mol.wt. 316.31

**Synthesis**

-Obtained by alkaline degradation of *tlatlancuayin* (5,2'-dimethoxy-6,7-methylenedioxyisoflavone) (SM) with refluxing aqueous sodium hydroxide for 1.5 h (quantitative yield). SM was isolated from *Iresine celosioides* L. (Amarantaceae) [335].

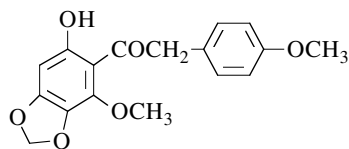
m.p. 115-116° [335]; IR [335], UV [335].

1-(6-Hydroxy-4-methoxy-1,3-benzodioxol-5-yl)-2-(4-methoxyphenyl)ethanone

[3207-42-9]

C₁₇H₁₆O₆

mol.wt. 316.31

**Syntheses**

-Obtained by methylenation of 2,4,5-trihydroxy-6-methoxyphenyl 4-methoxybenzyl ketone with methylene iodide in the presence of potassium carbonate in refluxing acetone for 40 h [85].

-Also obtained by alkaline degradation of *irisolone methyl ether* (4',5-dimethoxy-6,7-methylenedioxyisoflavone) (m.p. 184-185°) with refluxing aqueous sodium hydroxide for 1.5 h [573].

-Also obtained by reaction of 4-methoxyphenylacetonitrile with 3-methoxy-4,5-methylenedioxyphenol (Hoesch reaction) (12%) [529].

-Also obtained in two steps: First, methylation of 6-benzyloxy-2-hydroxy-3,4-methylenedioxyphenyl 4-methoxybenzyl ketone with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone for 27 h. The obtained methyl ether was debenzylated with hydrogen in ethanol in the presence of 10% Pd/C for 5 h at r.t. (31%) [529].

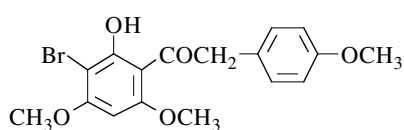
m.p. 114-115° [529], 113-114° [85] [573];
IR [529], UV [85] [529] [573].

1-(3-Bromo-2-hydroxy-4,6-dimethoxyphenyl)-2-(4-methoxyphenyl)ethanone

[28750-74-5]

C₁₇H₁₇BrO₅

mol.wt. 381.22



Synthesis

-Preparation by bromination of 2-hydroxy-4,6,4'-trimethoxydeoxybenzoin with bromine in chloroform under UV light at r.t. overnight (52%) [771].

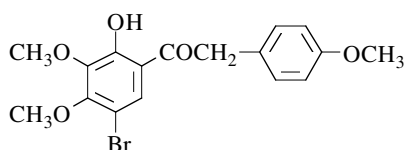
m.p. 158-159° [771]; TLC [771];
¹H NMR [771], IR [771], UV [771].

1-(5-Bromo-2-hydroxy-3,4-dimethoxyphenyl)-2-(4-methoxyphenyl)ethanone

[24852-43-5]

C₁₇H₁₇BrO₅

mol.wt. 381.22



Synthesis

-Obtained by bromination of 2-hydroxy-3,4-dimethoxyphenyl 4-methoxybenzyl ketone with bromine in the presence of sodium acetate in chloroform for 5 h (70%) [758].

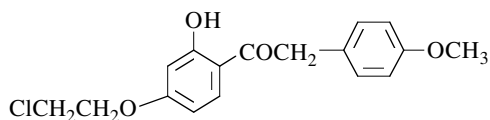
m.p. 81-82° [758]; ¹H NMR [758].

1-[4-(2-Chloroethoxy)-2-hydroxyphenyl]-2-(4-methoxyphenyl)ethanone

[247931-29-9]

C₁₇H₁₇ClO₄

mol.wt. 320.77



Synthesis

-Obtained by partial alkylation of 1-(2,4-dihydroxyphenyl)-2-(4-methoxyphenyl)ethanone with 1-bromo-2-chloroethane in the presence of potassium carbonate in

refluxing acetone for 24 h (70%) [1490].

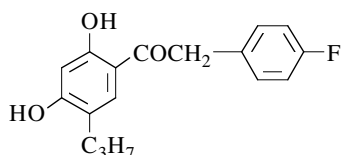
m.p. 87-89° [1490]; ¹H NMR [1490].

1-(2,4-Dihydroxy-5-propylphenyl)-2-(4-fluorophenyl)ethanone

[96644-01-8]

C₁₇H₁₇FO₃

mol.wt. 288.32

**Synthesis**

-Obtained by reaction of p-fluorophenylacetonitrile with 4-propylresorcinol in the presence of boron trifluoride etherate under hydrogen chloride at r.t. for 8-10 h, then at r.t. overnight (63%) [786].

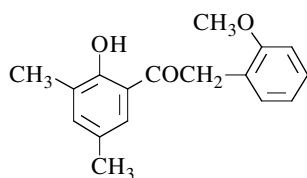
m.p. 100-101° [786]; ¹H NMR [786].

1-(2-Hydroxy-3,5-dimethylphenyl)-2-(2-methoxyphenyl)ethanone

[74384-39-7]

C₁₇H₁₈O₃

mol.wt. 270.33

**Synthesis**

-Obtained by Fries rearrangement of 2,4-dimethylphenyl 2-methoxyphenylacetate with aluminium chloride in nitromethane at 20° for 170 h (39%) [971].

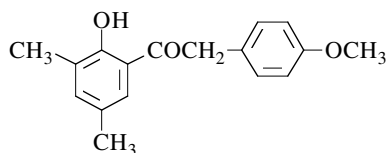
m.p. 85° [971];
¹H NMR (Sadtlar: standard n° 44603 M), [971],
 IR (Sadtlar: standard n° 71631 K), [971], UV [971],
 MS [971].

1-(2-Hydroxy-3,5-dimethylphenyl)-2-(4-methoxyphenyl)ethanone

[74384-35-3]

C₁₇H₁₈O₃

mol.wt. 270.33

**Synthesis**

-Preparation by Fries rearrangement of 2,4-dimethylphenyl 4-methoxyphenylacetate with aluminium chloride in nitromethane at 20° for 170 h (59%) [971].

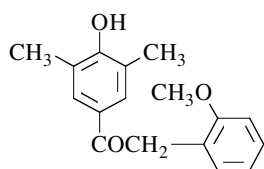
m.p. 23° [971]; IR [971], UV [971], MS [971].

1-(4-Hydroxy-3,5-dimethylphenyl)-2-(2-methoxyphenyl)ethanone

[74384-37-5]

C₁₇H₁₈O₃

mol.wt. 270.33

**Synthesis**

-Obtained by Fries rearrangement of 2,6-dimethylphenyl 2-methoxyphenylacetate in the presence of ferric chloride or aluminium chloride in nitromethane at 20° for 50 h (29% and 6% yields, respectively) [971].

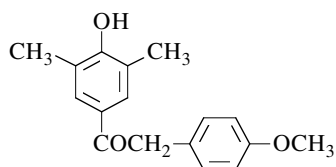
m.p. 160° [971];
¹H NMR (Sadtlar: standard n° 44607 M), [971],
 IR (Sadtlar: standard n° 71635 K), [971], UV [971], MS [971].

1-(4-Hydroxy-3,5-dimethylphenyl)-2-(4-methoxyphenyl)ethanone

[74384-32-0]

C₁₇H₁₈O₃

mol.wt. 270.33

**Synthesis**

-Preparation by Fries rearrangement of 2,6-dimethylphenyl 4-methoxyphenylacetate with aluminium chloride in nitromethane at 20° for 50 h (76%) [971].

m.p. 177° [971];

¹H NMR (Sadler: standard n° 44604 M), [971],

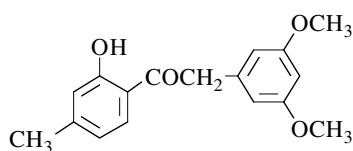
IR (Sadler: standard n° 71632 K), [971], UV [971], MS [971].

2-(3,5-Dimethoxyphenyl)-1-(2-hydroxy-4-methylphenyl)ethanone

[111191-98-1]

C₁₇H₁₈O₄

mol.wt. 286.33

**Synthesis**

-Obtained (poor yield) by Fries rearrangement of m-cresyl 3,5-dimethoxyphenylacetate (b.p._{0.05} 95°) in the presence of aluminium chloride, first in carbon disulfide, then at 130-145° for 2 h after solvent elimination (15%) [495].

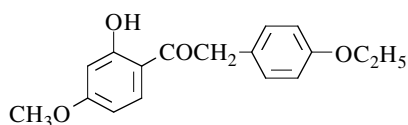
brown gum [495].

N.B.: Methyl ether: m.p. 199-200° [495], ¹H NMR [495], IR [495], MS [495].**2-(4-Ethoxyphenyl)-1-(2-hydroxy-4-methoxyphenyl)ethanone**

[89019-87-4]

C₁₇H₁₈O₄

mol.wt. 286.33

**Synthesis**

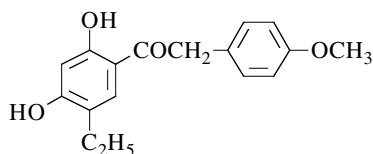
-Obtained (by-product) by reaction of p-hydroxyphenylacetic acid with m-methoxyphenol in ethylene dichloride in the presence of boron trifluoride at 80° for 2 h under an argon atmosphere (2%) [937].

m.p. 95-97° [937]; ¹H NMR [937], IR [937], UV [937], MS [937].**1-(5-Ethyl-2,4-dihydroxyphenyl)-2-(4-methoxyphenyl)ethanone**

[96644-03-0]

C₁₇H₁₈O₄

mol.wt. 286.33

**Synthesis**

-Preparation by condensation of p-methoxyphenylacetonitrile with 4-ethylresorcinol in the presence of boron trifluoride etherate under hydrogen chloride atmosphere (8-10 h) at r.t. overnight (86%) [786].

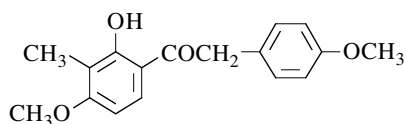
m.p. 95-96° [786]; ¹H NMR [786].

1-(2-Hydroxy-4-methoxy-3-methylphenyl)-2-(4-methoxyphenyl)ethanone

[39604-65-4]

C₁₇H₁₈O₄

mol.wt. 286.33



Syntheses

-Preparation by partial methylation of, *2,4-dihydroxy-3-methylphenyl 4-methoxybenzyl ketone with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone for 6 h [594], (86%) [841];

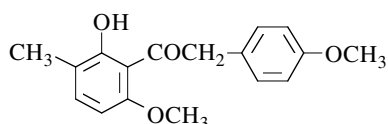
*2,4-dihydroxyphenyl 4-methoxybenzyl ketone with methyl iodide in methanolic potash, first in a bath of ice-salt mixture, then at r.t. overnight and at reflux for 7 h (39%) [594].

-Also refer to: [12].

m.p. 121-122° [841], 116-117° [594].

1-(2-Hydroxy-6-methoxy-3-methylphenyl)-2-(4-methoxyphenyl)ethanoneC₁₇H₁₈O₄

mol.wt. 286.33



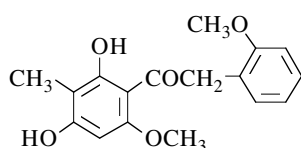
Synthesis

-Obtained by partial methylation of 2,6-dihydroxy-3-methylphenyl 4-methoxybenzyl ketone with dimethyl sulfate in the presence of potassium carbonate in boiling acetone for 1 h (71%) [1534].

oil [1534].

1-(2,4-Dihydroxy-6-methoxy-3-methylphenyl)-2-(2-methoxyphenyl)ethanoneC₁₇H₁₈O₅

mol.wt. 302.33



Synthesis

-Obtained by reaction of o-methoxyphenylacetonitrile with 2,6-dihydroxy-4-methoxytoluene (m.p. 124°) (Hoesch reaction) (36%) [767], (31%) [1531].

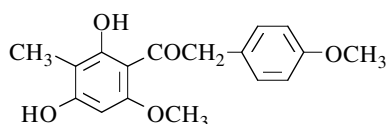
m.p. 195° [1531], 194° [767].

1-(2,4-Dihydroxy-6-methoxy-3-methylphenyl)-2-(4-methoxyphenyl)ethanone

[56308-09-9]

C₁₇H₁₈O₅

mol.wt. 302.33



Syntheses

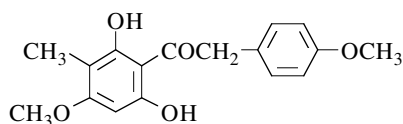
-Obtained by reaction of p-methoxyphenyl-acetonitrile with 2,6-dihydroxy-4-methoxytoluene (m.p. 124°) (Hoesch reaction) [1318], (44%) [1353], (33%) [1531].

-Also refer to: [1419].

m.p. 162-164° [1318], 162° [1531], 125-127° [1353]. One of the reported melting points is obviously wrong.

1-(2,6-Dihydroxy-4-methoxy-3-methylphenyl)-2-(4-methoxyphenyl)ethanoneC₁₇H₁₈O₅

mol.wt. 302.33



Syntheses

-Obtained by alkaline hydrolysis of 5-hydroxy-7,4'-dimethoxy-8-methylisoflavone (m.p. 164-166°) with potassium hydroxide in refluxing ethanol for 30 min (31%) [672].

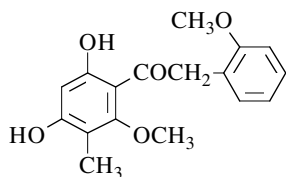
-Also obtained by reaction of p-methoxyphenylacetonitrile with 2,4-dihydroxy-6-methoxytoluene (m.p. 119°) (Hoesch reaction) (41%) [1531].

-Also obtained by alkaline hydrolysis of 5-hydroxy-7,4'-dimethoxy-2,6-dimethylisoflavone (m.p. 198-200°) with 8% alcoholic potassium hydroxide at reflux for 30 min [672].

m.p. 196-197° [672], 192° [1531].

1-(4,6-Dihydroxy-2-methoxy-3-methylphenyl)-2-(2-methoxyphenyl)ethanoneC₁₇H₁₈O₅

mol.wt. 302.33



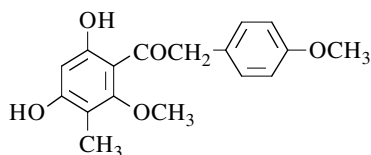
Synthesis

-Obtained by catalytic debenzoylation of 4,6-bis(benzyloxy)-2-methoxy-3-methylphenyl 2-methoxybenzyl ketone (m.p. 107°) in acetic acid in the presence of Pd/C for 20 min (quantitative yield) [1532].

m.p. 118° [1532].

1-(4,6-Dihydroxy-2-methoxy-3-methylphenyl)-2-(4-methoxyphenyl)ethanoneC₁₇H₁₈O₅

mol.wt. 302.33



Synthesis

-Obtained by hydrogenolysis of 4,6-bis(benzyloxy)-2-methoxy-3-methylphenyl 4-methoxybenzyl ketone (m.p. 106°) in the presence of Pd/C in acetic acid for 10 min (quantitative yield) [1532].

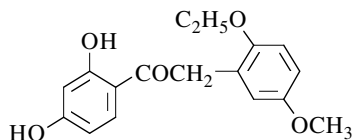
m.p. 176° [1532].

1-(2,4-Dihydroxyphenyl)-2-(2-ethoxy-5-methoxyphenyl)ethanone

[18086-36-7]

C₁₇H₁₈O₅

mol.wt. 302.33



Synthesis

-Obtained by reaction of 2-ethoxy-5-methoxyphenyl-acetonitrile (m.p. 46-48°) with resorcinol (34%) (Hoesch reaction) [751].

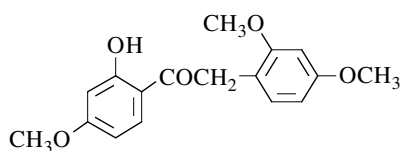
m.p. 114-115° [751].

2-(2,4-Dimethoxyphenyl)-1-(2-hydroxy-4-methoxyphenyl)ethanone

[70779-11-2]

C₁₇H₁₈O₅

mol.wt. 302.33



Syntheses

-Preparation by partial methylation of 2,4-dihydroxyphenyl 2,4-dimethoxybenzyl ketone [1145],

*with methyl iodide in the presence of potassium carbonate in boiling acetone for 70 min (95%) [218];

*with diazomethane in ethyl ether for 30 min (quantitative yield) [1384].

-Also refer to: [723] [1140].

m.p. 116° [218], 114-115° [1384]; b.p._{0.05} 170-180° [1384];

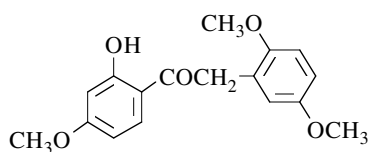
¹H NMR [788], UV [1410].

2-(2,5-Dimethoxyphenyl)-1-(2-hydroxy-4-methoxyphenyl)ethanone

[18086-26-5]

C₁₇H₁₈O₅

mol.wt. 302.33



Synthesis

-Preparation by partial methylation of 2,4-dihydroxyphenyl 2,5-dimethoxybenzyl ketone with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone for 6 h (92%) [751].

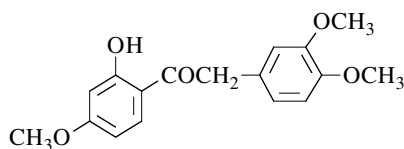
m.p. 113-114° [751]; ¹H NMR [788].

2-(3,4-Dimethoxyphenyl)-1-(2-hydroxy-4-methoxyphenyl)ethanone

[53084-05-2]

C₁₇H₁₈O₅

mol.wt. 302.33



Syntheses

-Preparation by partial methylation of 2,4-dihydroxyphenyl 3,4-dimethoxybenzyl ketone,

*with methyl iodide in the presence of potassium carbonate in boiling acetone for 70 min (86-91%) [218] or for 3 h (81%) [106];

*with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone for 6 h (69%) [392] or in boiling 10% alcoholic sodium hydroxide for 1 h (31%) [158].

-Also obtained by reaction of 3,4-dimethoxyphenylacetyl chloride with 1,3-dimethoxybenzene in the presence of aluminium chloride in boiling benzene for 1 h (52%) [158].

-Also refer to: [277] [724] [1291] [1419].

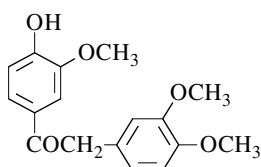
m.p. 119° [106] [158], 118° [218], 116-117° [392].

2-(3,4-Dimethoxyphenyl)-1-(4-hydroxy-3-methoxyphenyl)ethanone

[114847-19-7]

C₁₇H₁₈O₅

mol.wt. 302.33

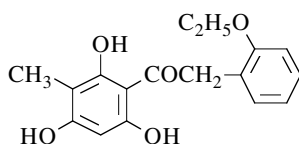
**Syntheses**

-Preparation by reaction of 3,4-dimethoxyphenylacetic acid with guaiacol in the presence of zinc chloride and phosphorous oxychloride for 24 h at r.t. (40%) [391].
-Also refer to: [273].

m.p. 142-144° [391].

2-(2-Ethoxyphenyl)-1-(2,4,6-trihydroxy-3-methylphenyl)ethanoneC₁₇H₁₈O₅

mol.wt. 302.33

**Synthesis**

-Obtained by reaction of o-ethoxyphenylacetonitrile with 2-methylphloroglucinol (Hoesch reaction) (11%) [1536].

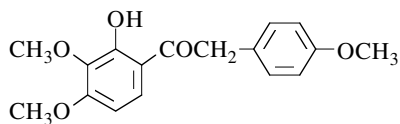
m.p. 174° [1536].

1-(2-Hydroxy-3,4-dimethoxyphenyl)-2-(4-methoxyphenyl)ethanone

[3606-32-4]

C₁₇H₁₈O₅

mol.wt. 302.33

**Syntheses**

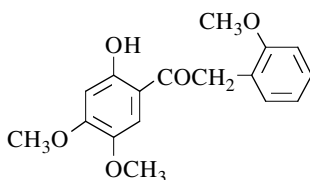
-Obtained by alkaline hydrolysis of *di-O-methylretusin* (7,8,4'-trimethoxyisoflavone) (m.p. 151°) (SM) with 10% aqueous potassium hydroxide in refluxing ethanol for 1 h (67%). SM was obtained by partial methylation of *retusin* (m.p. 249°) (7,8-dihydroxy-4'-methoxyisoflavone), itself isolated from *Dalbergia retusa* heartwood (cocobolo) (Leguminosae) [744].
-Also obtained by Friedel-Crafts reaction of 4-methoxyphenylacetyl chloride with pyrogallol trimethyl ether in the presence of aluminium chloride [759].
-Also refer to: [731] [732] [758].

m.p. 122-123° [744], 121-122° [759]; ¹³C NMR [732].**1-(2-Hydroxy-4,5-dimethoxyphenyl)-2-(2-methoxyphenyl)ethanone**

[24195-30-0]

C₁₇H₁₈O₅

mol.wt. 302.33

**Syntheses**

-Obtained by reaction of o-methoxyphenylacetonitrile with 3,4-dimethoxyphenol (Hoesch reaction) [864], (35%) [262].
-Also refer to: [954] [1364].

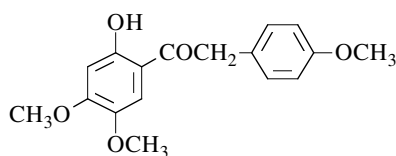
m.p. 108-109° [262];
IR [262], UV [262], MS [262].

1-(2-Hydroxy-4,5-dimethoxyphenyl)-2-(4-methoxyphenyl)ethanone

[5128-49-4]

C₁₇H₁₈O₅

mol.wt. 302.33

**Syntheses**

-Preparation by partial methylation of,
 *2,4-dihydroxy-5-methoxyphenyl 4-methoxybenzyl ketone with methyl iodide in the presence of potassium carbonate in boiling acetone [1347];
 *2,5-dihydroxy-4-methoxyphenyl 4-methoxybenzyl ketone with dimethyl sulfate in the presence of

potassium carbonate in refluxing acetone for 4 h (80%) [86];

*2,4,5-trihydroxyphenyl 4-methoxybenzyl ketone with excess diazomethane in ethyl ether at r.t. overnight (45%) [530] or with methyl iodide in the presence of potassium carbonate in refluxing acetone for 1.5 h [1347] or according to [701], (86%) [707].

-Also obtained by Friedel-Crafts acylation of 1,2,4-trimethoxybenzene with p-methoxyphenylacetyl chloride in the presence of aluminium chloride in ethyl ether [86].

-Also obtained by reaction of p-methoxyphenylacetonitrile with 3,4-dimethoxyphenol (Hoesch reaction) (25%) [986].

-Also obtained by alkaline degradation of *afromosin 7-methyl ether* (6,7,4'-trimethoxyisoflavone) (SM) (m.p. 178°) [1347], (m.p. 174-175°) [986] with potassium hydroxide in refluxing ethanol [1347] for 40 min under nitrogen (61%) [986]. SM was obtained by methylation of *afromosin* (7-hydroxy-6,4'-dimethoxyisoflavone) (m.p. 228-229°), itself isolated from *Afromosia elata* Harms [986].

m.p. 100-101° [707], 99-100° [86] [986] [1347], 98-100° [530];

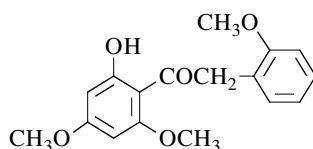
¹H NMR [707], ¹³C NMR [732], IR [1347], UV [86] [1347]; TLC [707].

1-(2-Hydroxy-4,6-dimethoxyphenyl)-2-(2-methoxyphenyl)ethanone

[56308-08-8]

C₁₇H₁₈O₅

mol.wt. 302.33

**Syntheses**

-Preparation by partial methylation of 2,4,6-trihydroxyphenyl 2-methoxybenzyl ketone,
 *with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone for 14 h (86%) [767], for 4 h (70%) [1319] or for 3.5 h (58%) [1531];

*with methyl iodide and of potassium carbonate in refluxing acetone for 4 h (54%) [1320].

-Also obtained by partial methylation of 2-hydroxy-4,6-dimethoxyphenyl 2-hydroxybenzyl ketone (95%) [1530].

-Also refer to: [559] [590] [989] [1419].

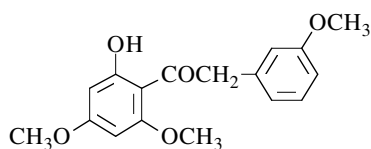
m.p. 122° [1531], 116-118° [1319] [1320], 116° [767].

1-(2-Hydroxy-4,6-dimethoxyphenyl)-2-(3-methoxyphenyl)ethanone

[109089-92-1]

C₁₇H₁₈O₅

mol.wt. 302.33

**Synthesis**

-Preparation by partial methylation of 3-methoxybenzyl 2,4,6-trihydroxyphenyl ketone with dimethyl sulfate in the presence of potassium carbonate in boiling acetone for 3 h (70%) [559].

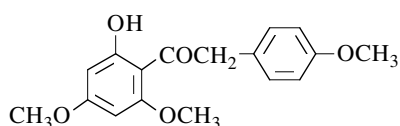
m.p. 66-67° [559].

1-(2-Hydroxy-4,6-dimethoxyphenyl)-2-(4-methoxyphenyl)ethanone

[39604-68-7]

C₁₇H₁₈O₅

mol.wt. 302.33

**Syntheses**

-Preparation by partial methylation of 2,4,6-tri-hydroxyphenyl 4-methoxybenzyl ketone,
*with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone [771] [1074] [1075], for 3 h (64%) [106];

*with diazomethane in ethyl ether at 0° (80%) [1169] or in methanol [1168];

*with methyl iodide in the presence of potassium carbonate in refluxing acetone for 3 h (42%) [1317].

-Also obtained by reaction of 4-methoxyphenylacetonitrile with phloroglucinol dimethyl ether (Hoesch reaction) [1573], (19%) [1239].

-Also obtained by alkaline degradation of 3-(p-anisoyl)-4,6-dimethoxybenzofuran with potassium hydroxide in refluxing dilute methanol for 1.5 h (78%) [200].

-Also obtained by alkaline hydrolysis of 5,7,4'-trimethoxyisoflavone (m.p. 162-163°) with 1 N aqueous sodium hydroxide in refluxing ethanol for 2 h [221].

-Also refer to: [12] [180] [559] [701] [724] [949] [1001] [1076] [1165] [1364] [1490] [1530].

monohydrate [200];

m.p. 140° [200], 139-140° [1169];

m.p. 89° [106] [1573], 88-89° [221] [1074] [1239] [1317], 86-87° [771]. One of the reported melting points is obviously wrong.

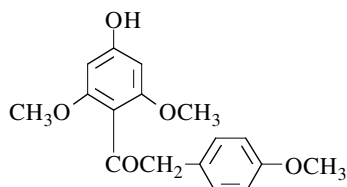
¹H NMR [1169], IR [771], UV [771] [1169]; TLC [771], HPLC [1169].

1-(4-Hydroxy-2,6-dimethoxyphenyl)-2-(4-methoxyphenyl)ethanone

[109089-93-2]

C₁₇H₁₈O₅

mol.wt. 302.33

**Syntheses**

-Obtained by reaction of p-methoxyphenylacetonitrile with phloroglucinol dimethyl ether (Hoesch reaction) [1573].

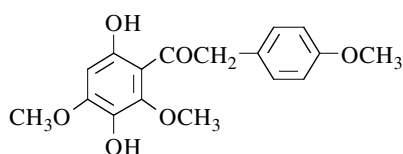
-Also obtained by saponification of 4-acetoxy-2,6-dimethoxyphenyl 4-methoxybenzyl ketone (m.p. 137°) in ethanol with 3% aqueous sodium hydroxide [1573].

-Also refer to: [1001].

m.p. 73° [1573].

1-(3,6-Dihydroxy-2,4-dimethoxyphenyl)-2-(4-methoxyphenyl)ethanoneC₁₇H₁₈O₆

mol.wt. 318.33

**Synthesis**

-Obtained (poor yield) by condensation of 2,6-dimethoxyhydroquinone with the complex p-methoxyphenylacetic acid and boron trifluoride in chloroform at r.t. overnight (< 2%) [766].

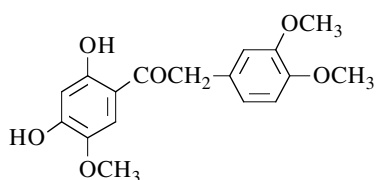
m.p. 110° [766].

1-(2,4-Dihydroxy-5-methoxyphenyl)-2-(3,4-dimethoxyphenyl)ethanone

[24126-91-8]

C₁₇H₁₈O₆

mol.wt. 318.33

**Syntheses**

-Obtained by condensation of 3,4-dimethoxyphenyl-acetonitrile with 4-methoxyresorcinol (Hoesch reaction) (14%) [1330].

-Also obtained by heating *Cladrastin* (7-hydroxy-6,3',4'-trimethoxyisoflavone) (m.p. 206-207°) with 10% aqueous barium hydroxide at reflux for 2 h

under nitrogen (62%). *Cladrastin* was isolated from *Cladrastis lutea* (Mich. f.) K. Koch (Leguminosae) [1330].

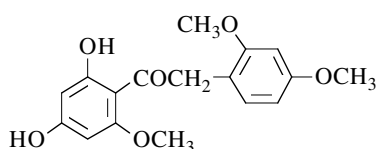
m.p. 166-167° [1330]; UV [1330], MS [1330].

1-(2,4-Dihydroxy-6-methoxyphenyl)-2-(2,4-dimethoxyphenyl)ethanone

[109091-12-5]

C₁₇H₁₈O₆

mol.wt. 318.33

**Synthesis**

-Preparation by reaction of 2,4-dimethoxyphenyl-acetonitrile with phloroglucinol monomethyl ether (Hoesch reaction) [559].

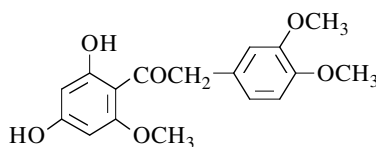
m.p. 169-171° [559].

1-(2,4-Dihydroxy-6-methoxyphenyl)-2-(3,4-dimethoxyphenyl)ethanone

[109092-83-3]

C₁₇H₁₈O₆

mol.wt. 318.33

**Synthesis**

-Obtained by reaction of 3,4-dimethoxyphenyl-acetonitrile with phloroglucinol monomethyl ether (Hoesch reaction) [559] [1342], (20%) [1239].

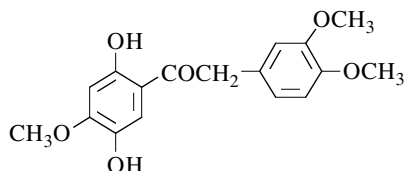
m.p. 180° [1239], 179-180° [559], 108-109° [1342]. One of the reported melting points is obviously wrong. IR [1342].

1-(2,5-Dihydroxy-4-methoxyphenyl)-2-(3,4-dimethoxyphenyl)ethanone

[24126-94-1]

C₁₇H₁₈O₆

mol.wt. 318.33

**Syntheses**

-Obtained by reaction of 3,4-dimethoxyphenyl-acetonitrile with methoxyquinol (2-methoxyhydroquinone) (Hoesch reaction) (16%) [1330].

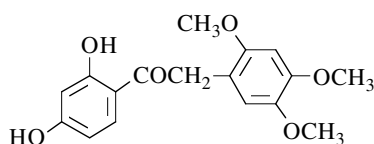
-Also refer to: [246].

m.p. 188-189° [1330];

¹³C NMR [732], UV [1330], MS [1330].

1-(2,4-Dihydroxyphenyl)-2-(2,4,5-trimethoxyphenyl)ethanoneC₁₇H₁₈O₆

mol.wt. 318.33

**Syntheses**

-Obtained by reaction of 2,4,5-trimethoxyphenyl-acetonitrile with resorcinol (Hoesch reaction) (13%) [536].

-Also obtained by reaction of resorcinol with homoasaronic acid (2,4,5-trimethoxyphenylacetic acid) (m.p. 102-103°),

*in the presence of zinc chloride at 130-140° for 2 h (31%) (Nencki reaction) [536];

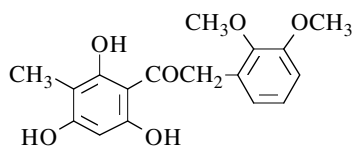
*in the presence of phosphorous oxychloride and zinc chloride at 50-60° for 2 h (24%) [536];

*in the presence of polyphosphoric acid on a steam bath for 15 min (46%) [536].

m.p. 201-202° [536].

2-(2,3-Dimethoxyphenyl)-1-(2,4,6-trihydroxy-3-methylphenyl)ethanoneC₁₇H₁₈O₆

mol.wt. 318.33

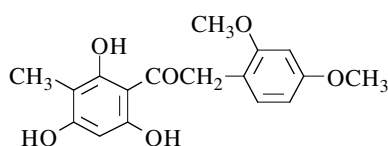
**Synthesis**

-Obtained by reaction of 2,3-dimethoxyphenyl-acetonitrile with 2-methylphloroglucinol (Hoesch reaction) (47%) [1536].

m.p. 201° [1536].

2-(2,4-Dimethoxyphenyl)-1-(2,4,6-trihydroxy-3-methylphenyl)ethanoneC₁₇H₁₈O₆

mol.wt. 318.33

**Syntheses**

-Obtained by reaction of 2,4-dimethoxyphenyl-acetonitrile with 2-methylphloroglucinol (Hoesch reaction) (56%) [125].

-Also refer to: [465].

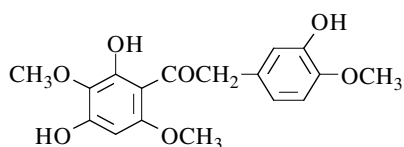
m.p. 188-189° [125]; UV [125].

1-(2,4-Dihydroxy-3,6-dimethoxyphenyl)-2-(3-hydroxy-4-methoxyphenyl)ethanone

[64640-60-4]

C₁₇H₁₈O₇

mol.wt. 334.33

**Synthesis**

-Preparation by reaction of 3-(benzyloxy)-4-methoxyphenylacetonitrile with 1,3-(dibenzoyloxy)-2,5-dimethoxybenzene (Hoesch reaction) [1341], (61%) [843].

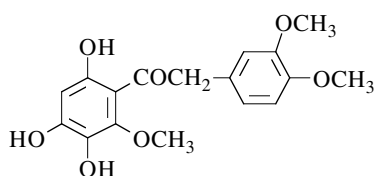
m.p. 278-279° [843], 277-279° [1341]; ¹H NMR [843], IR [1341], UV [843].

2-(3,4-Dimethoxyphenyl)-1-(3,4,6-trihydroxy-2-methoxyphenyl)ethanone

[129207-80-3]

C₁₇H₁₈O₇

mol.wt. 334.33



Synthesis

-Obtained by reaction of potassium persulfate with 2,4-dihydroxy-6-methoxyphenyl 3,4-dimethoxybenzyl ketone in 40% aqueous potassium hydroxide at r.t. overnight (Elbs reaction) [1342].

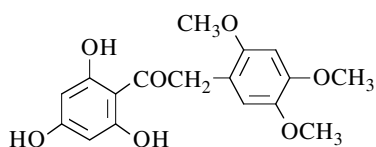
m.p. 135-137° [1342].

1-(2,4,6-Trihydroxyphenyl)-2-(2,4,5-trimethoxyphenyl)ethanone

[72545-40-5]

C₁₇H₁₈O₇

mol.wt. 334.33



Synthesis

-Obtained by reaction of 2,4,5-trimethoxyphenyl-acetonitrile with phloroglucinol (Hoesch reaction) [839], (40%) [582].

N.B.: The phloroglucinol could not be condensed with 2,4,5-trimethoxyphenylacetyl chloride in the presence of aluminium chloride [496] [582].

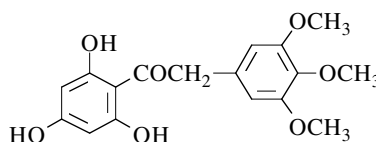
m.p. 208-209° [582].

1-(2,4,6-Trihydroxyphenyl)-2-(3,4,5-trimethoxyphenyl)ethanone

[79744-61-9]

C₁₇H₁₈O₇

mol.wt. 334.33



Syntheses

-Preparation by reaction of 3,4,5-trimethoxyphenyl-acetonitrile with phloroglucinol in ethyl ether (63%) (Hoesch reaction) [208].

-Also refer to: [246].

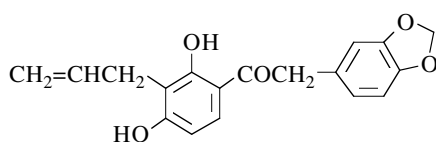
m.p. 197-198° [208]; ¹H NMR [208], ¹³C NMR [732], IR [208], MS [208].

2-(1,3-Benzodioxol-5-yl)-1-[2,4-dihydroxy-3-(2-propenyl)phenyl]ethanone

[117951-99-2]

C₁₈H₁₆O₅

mol.wt. 312.32



Syntheses

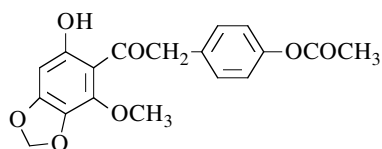
-Obtained by reaction of allyl bromide with 2,4-dihydroxy-3',4'-methylenedioxydesoxybenzoin in the presence of methanolic potassium hydroxide (16%) [711].

-Also refer to: [1140].

m.p. 121-122° [711]; ¹H NMR [711], IR [711], UV [711].

2-[4-(Acetyloxy)phenyl]-1-(6-hydroxy-4-methoxy-1,3-benzodioxol-5-yl)ethanoneC₁₈H₁₆O₇

mol.wt. 344.32

**Synthesis**

-Obtained by reaction of acetic anhydride with 4'-hydroxybenzyl 2-hydroxy-4,5-methylenedioxy-6-methoxyphenyl ketone in pyridine at r.t. for 1 h [573].

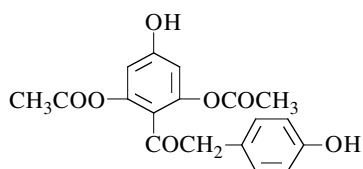
m.p. 162-163° [573].

1-[2,6-Bis(acetyloxy)-4-hydroxyphenyl]-2-(4-hydroxyphenyl)ethanone

[147747-31-5]

C₁₈H₁₆O₇

mol.wt. 344.32

**Syntheses**

-Obtained (poor yields) by regioselective enzyme-catalyzed deacetylation of 4-acetoxybenzyl 2,4,6-triacetoxyphenyl ketone in the dry organic solvents hereafter mentioned containing n-butanol with lipase at 42-45° [1146].

lipase	solvent	time (h)	yields (%)
PPL	THF/n-BuOH	45	15
CCL	DIPE/n-BuOH	46	15

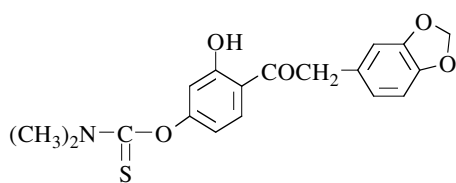
PPL = porcine pancreas lipase; CCL = candida cylindracea lipase; DIPE = diisopropyl ether.

O-[4-(1,3-Benzodioxol-5-ylacetyl)-3-hydroxyphenyl] dimethylcarbamothioate

[142751-39-1]

C₁₈H₁₇NO₅S

mol.wt. 359.40

**Synthesis**

-Obtained by stirring a mixture of 2-(1,3-benzodioxol-5-yl)-1-(2,4-dihydroxyphenyl)ethanone (1 mol), dimethylthiocarbamoyl chloride (2 mol), 1,4-diazabicyclo[2,2,2]octane and N,N-dimethylformamide at r.t. for 2 h (92%) [907].

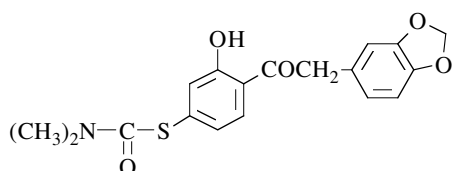
m.p. 168-169° [907]; ¹H NMR [907], MS [907].

S-[4-(1,3-Benzodioxol-5-ylacetyl)-3-hydroxyphenyl] dimethylcarbamothioate

[142751-43-7]

C₁₈H₁₇NO₅S

mol.wt. 359.40

**Synthesis**

-Obtained by refluxing a solution of O-[4-(1,3-Benzodioxol-5-ylacetyl)-3-hydroxyphenyl] dimethylcarbamothioate [142751-39-1] in N,N-dimethylaniline for 1 h (91%) (Newman-Kwart rearrangement) [907].

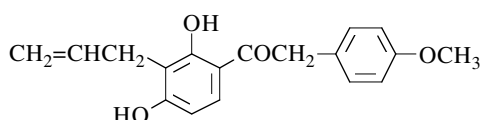
m.p. 160-161° [907]; ¹H NMR [907], MS [907].

1-[2,4-Dihydroxy-3-(2-propenyl)phenyl]-2-(4-methoxyphenyl)ethanone

[117951-88-9]

C₁₈H₁₈O₄

mol.wt. 298.34

**Syntheses**

-Obtained by reaction of allyl bromide with 2,4-dihydroxy-4'-methoxydesoxybenzoin in methanolic potassium hydroxide at r.t. overnight (27%) [711].
-Also refer to: [1140].

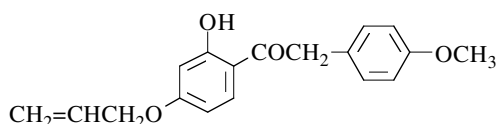
m.p. 97-98° [711]; ¹H NMR [711], IR [711], UV [711].

1-[2-Hydroxy-4-(2-propenyloxy)phenyl]-2-(4-methoxyphenyl)ethanone

[73937-48-1]

C₁₈H₁₈O₄

mol.wt. 298.34

**Syntheses**

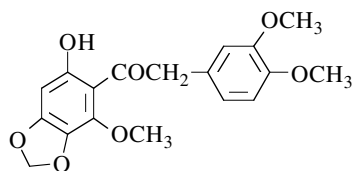
-Refer to: [1258] and [1328] (compound X).

2-(3,4-Dimethoxyphenyl)-1-(6-hydroxy-4-methoxy-1,3-benzodioxol-5-yl)ethanone

[2631-85-8]

C₁₈H₁₈O₇

mol.wt. 346.34

**Syntheses**

-Obtained by reaction of methylene iodide with 2,4,5-trihydroxy-6-methoxyphenyl 3,4-dimethoxybenzyl ketone in the presence of potassium carbonate in refluxing acetone for 45 h [1342].

-Also obtained (poor yield) by reaction of 3,4-dimethoxyphenylacetonitrile with 3-methoxy-

4,5-methylenedioxyphenol (Hoesch reaction) (< 2%) [533].

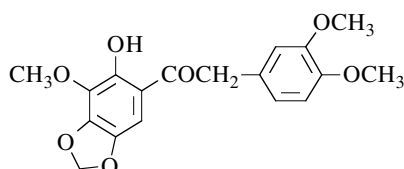
m.p. 125-126° [1342], 121°5-122° [533]; UV [533].

2-(3,4-Dimethoxyphenyl)-1-(6-hydroxy-7-methoxy-1,3-benzodioxol-5-yl)ethanone

[61243-79-6]

C₁₈H₁₈O₇

mol.wt. 346.34

**Synthesis**

-Obtained by mild base hydrolysis of 8,3',4'-trimethoxy-6,7-methylenedioxyisoflavone [615].

m.p. 162-163° [615];

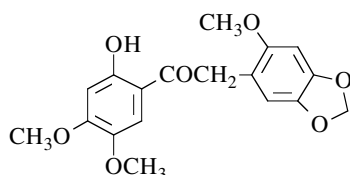
¹H NMR [615], IR [615], UV [615], MS [615];
TLC [615].

1-(2-Hydroxy-4,5-dimethoxyphenyl)-2-(6-methoxy-1,3-benzodioxol-5-yl)ethanone

[24195-24-2]

C₁₈H₁₈O₇

mol.wt. 346.34

**Synthesis**

-Obtained by alkaline degradation of 6,7,2'-trimethoxy-4',5'-methylenedioxyisoflavone (m.p. 234°5-235°5) (SM) with sodium hydroxide in refluxing 50% aqueous ethanol (10-45 min) (88%). SM was isolated from the heartwood of *Cordyla africana* (Leguminosae, sub-family: Caesalpinioideae, tribe: Swartzieae) [262].

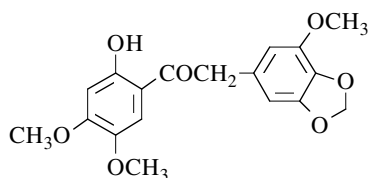
m.p. 161-162° [262]; IR [262], UV [262], MS [262].

1-(2-Hydroxy-4,5-dimethoxyphenyl)-2-(7-methoxy-1,3-benzodioxol-5-yl)ethanone

[24195-23-1]

C₁₈H₁₈O₇

mol.wt. 346.34

**Synthesis**

-Obtained by alkaline degradation of 6,7,3'-trimethoxy-4',5'-methylenedioxyisoflavone (m.p. 211-212°) (SM) with sodium hydroxide in refluxing 50% aqueous ethanol (10-45 min) (28%). SM was isolated from the heartwood of *Cordyla africana* (Leguminosae, sub-family: Caesalpinioideae, tribe: Swartzieae) [262].

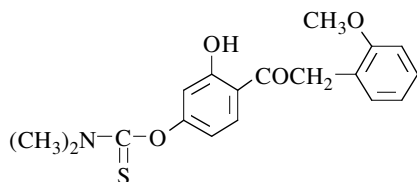
m.p. 143-144° [262]; IR [262], UV [262], MS [262].

O-[3-Hydroxy-4-[(2-methoxyphenyl)acetyl]phenyl] dimethylcarbamothioate

[142751-37-9]

C₁₈H₁₉NO₄S

mol.wt. 345.42

**Synthesis**

-Obtained by stirring a mixture of 2,4-dihydroxyphenyl 2-methoxybenzyl ketone (1 mol), dimethylthiocarbamoyl chloride (2 mol), 1,4-diazabicyclo[2,2,2]octane and DMF at r.t. for 2 h (91%) [907].

m.p. 168-169° [907];

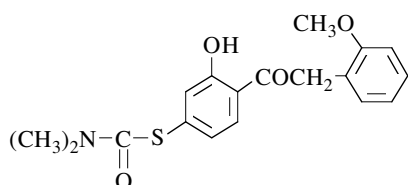
¹H NMR [907], MS [907].

S-[3-Hydroxy-4-[(2-methoxyphenyl)acetyl]phenyl] dimethylcarbamothioate

[142751-41-5]

C₁₈H₁₉NO₄S

mol.wt. 345.42

**Synthesis**

-Obtained by refluxing a solution of O-[3-Hydroxy-4-[(2-methoxyphenyl)acetyl]phenyl] dimethylcarbamothioate [142751-37-9] in N,N-dimethylaniline for 1 h (89%) (Newman-Kwart rearrangement) [907].

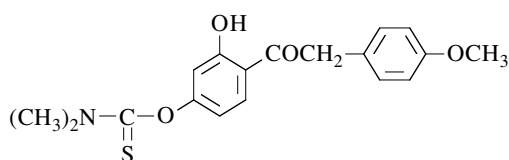
m.p. 107-108° [907]; ¹H NMR [907], MS [907].

O-[3-Hydroxy-4-[(4-methoxyphenyl)acetyl]phenyl] dimethylcarbamothioate

[142751-38-0]

C₁₈H₁₉NO₄S

mol.wt. 345.42

**Synthesis**

-Obtained by stirring a mixture of 2,4-dihydroxyphenyl 4-methoxybenzyl ketone (1 mol), dimethylthiocarbamoyl chloride (2 mol), 1,4-diazabicyclo[2,2,2]octane (2 mol) and N,N-dimethylformamide at r.t. for 2 h (96%) [907].

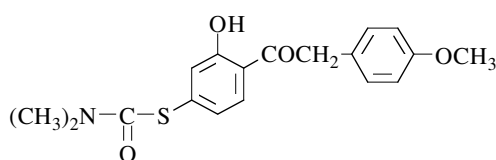
m.p. 114-115° [907]; ¹H NMR [907], MS [907].

S-[3-Hydroxy-4-[(4-methoxyphenyl)acetyl]phenyl] dimethylcarbamothioate

[142751-42-6]

C₁₈H₁₉NO₄S

mol.wt. 345.42

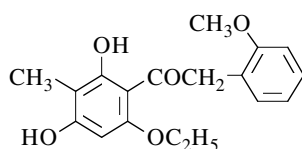
**Synthesis**

-Obtained by refluxing a solution of O-[3-Hydroxy-4-[(4-methoxyphenyl)acetyl]phenyl] dimethylcarbamothioate [142751-38-0] in N,N-dimethylaniline for 1 h (92%) (Newman-Kwart rearrangement) [907].

m.p. 130-131° [907]; ¹H NMR [907], MS [907].

1-(6-Ethoxy-2,4-dihydroxy-3-methylphenyl)-2-(2-methoxyphenyl)ethanoneC₁₈H₂₀O₅

mol.wt. 316.35

**Synthesis**

-Obtained by reaction of o-methoxyphenylacetonitrile with 4-ethoxy-2,6-dihydroxytoluene (Hoesch reaction) (32%) [1536].

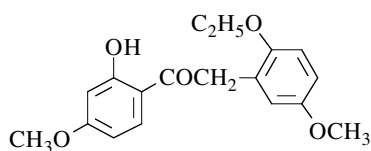
m.p. 185° [1536].

2-(2-Ethoxy-5-methoxyphenyl)-1-(2-hydroxy-4-methoxyphenyl)ethanone

[18086-37-8]

C₁₈H₂₀O₅

mol.wt. 316.35

**Synthesis**

-Obtained by partial methylation of 2,4-dihydroxyphenyl 2-ethoxy-5-methoxybenzyl ketone with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone for 6 h (87%) [751].

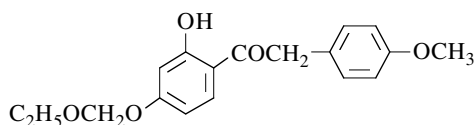
m.p. 107-108° [751].

1-[4-(Ethoxymethoxy)-2-hydroxyphenyl]-2-(4-methoxyphenyl)ethanone

[97714-80-2]

C₁₈H₂₀O₅

mol.wt. 316.35

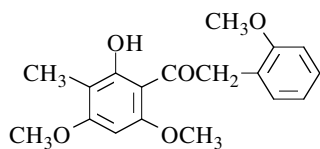
**Syntheses**

-Obtained by reaction of chloromethyl ethyl ether with 2,4-dihydroxyphenyl 4-methoxybenzyl ketone in acetone in the presence of potassium carbonate at r.t. for 15-45 min [710].

-Also refer to: [701].

1-(2-Hydroxy-4,6-dimethoxy-3-methylphenyl)-2-(2-methoxyphenyl)ethanoneC₁₈H₂₀O₅

mol.wt. 316.35

**Syntheses**

-Preparation by partial methylation of 2,4-dihydroxy-6-methoxy-3-methylphenyl 2-methoxybenzyl ketone with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone (quantitative yield) [1531], for 14 h (89%) [767].

-Also obtained by partial methylation of 2,4,6-trihydroxy-3-methylphenyl 2-methoxybenzyl ketone with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone for 4 h (82%) [989] or for 3 h (66%) [1531].

-Also obtained (by-product) by partial methylation of 2,4,6-trihydroxyphenyl 2-methoxybenzyl ketone with methyl iodide in the presence of potassium carbonate in refluxing acetone for 4 h (11%) [1320].

-Also obtained by reaction of o-methoxyphenylacetone with 2-hydroxy-4,6-dimethoxytoluene (m.p. 67°) (Hoesch reaction) (38%) [1531].

-Also refer to: [590].

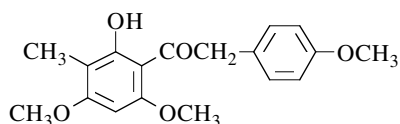
m.p. 150° [767], 148° [1531], 146-148° [989] [1320].

1-(2-Hydroxy-4,6-dimethoxy-3-methylphenyl)-2-(4-methoxyphenyl)ethanone

[56308-12-4]

C₁₈H₂₀O₅

mol.wt. 316.35

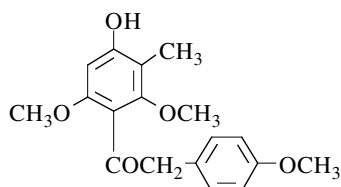
**Syntheses**

- Obtained by partial methylation of 2,4,6-trihydroxy-3-methylphenyl 4-methoxybenzyl ketone, *with dimethyl sulfate in the presence of potassium carbonate in boiling acetone for 4 h (73%) [1317] or for 3 h (68%) [1531];
- *with excess methyl iodide in the presence of potassium carbonate in boiling acetone for 4 h [1317].
- Also obtained by reaction of methyl iodide with 2,4,6-trihydroxyphenyl 4-methoxybenzyl ketone in the presence of potassium carbonate in refluxing acetone for 3 h (13%) [1317].
- Also obtained by partial methylation of 2,4-dihydroxy-6-methoxy-3-methylphenyl 4-methoxybenzyl ketone with methyl iodide in the presence of potassium carbonate in boiling acetone [1531] for 2 h (96%) [1317].
- Also obtained by partial methylation of 2,6-dihydroxy-4-methoxy-3-methylphenyl 4-methoxybenzyl ketone with dimethyl sulfate with of potassium carbonate in boiling acetone [1531].
- Also obtained by partial methylation of 2,4-dihydroxy-6-methoxy-3-methylphenyl 4-hydroxybenzyl ketone with dimethyl sulfate with potassium carbonate in boiling acetone [1531].
- Also obtained by reaction of p-methoxyphenylacetone with 2-hydroxy-4,6-dimethoxytoluene (m.p. 67°) (Hoesch reaction) (38%) [1531].
- Also refer to: [988] [1419].

m.p. 116° [1531], 114-115° [1317] [1318].

1-(4-Hydroxy-2,6-dimethoxy-3-methylphenyl)-2-(4-methoxyphenyl)ethanoneC₁₈H₂₀O₅

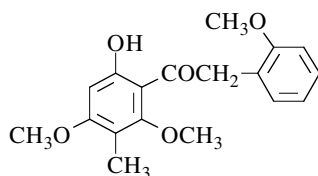
mol.wt. 316.35

**Synthesis**

- Obtained (by-product) by reaction of p-methoxyphenylacetone with 2-hydroxy-4,6-dimethoxytoluene (Hoesch reaction) (small amounts) [1531].

1-(6-Hydroxy-2,4-dimethoxy-3-methylphenyl)-2-(2-methoxyphenyl)ethanoneC₁₈H₂₀O₅

mol.wt. 316.35

**Syntheses**

- Obtained by partial methylation of 4,6-dihydroxy-2-methoxy-3-methylphenyl 2-methoxybenzyl ketone with methyl iodide in the presence of potassium carbonate in boiling acetone for 30 min (96%) [1532].
- Preparation by alkaline degradation of 5,7,2'-trimethoxy-6-methylisoflavone (m.p. 220°) with sodium hydroxide in refluxing dilute methanol for 1.5 h (74%) [1536].
- Also refer to: [1076].

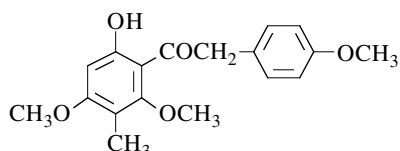
m.p. 134° [1536].

1-(6-Hydroxy-2,4-dimethoxy-3-methylphenyl)-2-(4-methoxyphenyl)ethanone

[22081-01-2]

C₁₈H₂₀O₅

mol.wt. 316.35

**Syntheses**

-Obtained by partial methylation of 4,6-dihydroxy-2-methoxy-3-methylphenyl 4-methoxybenzyl ketone with excess methyl iodide in the presence of potassium carbonate in boiling acetone for 1.5 h (96%) [1532].

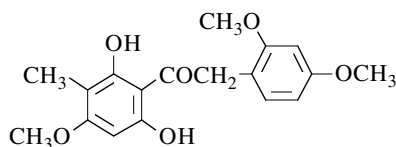
-Also obtained by reaction of p-methoxyphenylacetyl chloride with 4-hydroxy-2,6-dimethoxytoluene in ethyl ether in the presence of aluminium chloride (18%) [717].

m.p. 88° [1532], 87-88° [717];

¹H NMR [788], IR [717]; TLC [717].

1-(2,6-Dihydroxy-4-methoxy-3-methylphenyl)-2-(2,4-dimethoxyphenyl)ethanoneC₁₈H₂₀O₆

mol.wt. 332.35

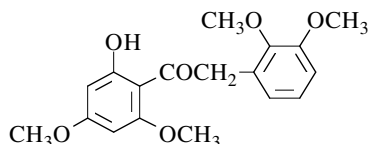
**Synthesis**

-Obtained by alkaline degradation of *dehydroougenin dimethyl ether acetate* (5-acetoxy-6-methyl-7,2',4'-trimethoxyisoflavanone) (m.p. 216-217°) with refluxing alcoholic potash for 2 h (83%) [125].

m.p. 174-175° [125]; UV [125].

2-(2,3-Dimethoxyphenyl)-1-(2-hydroxy-4,6-dimethoxyphenyl)ethanoneC₁₈H₂₀O₆

mol.wt. 332.35

**Synthesis**

-Preparation by partial methylation of 2,4,6-trihydroxy-2',3'-dimethoxydeoxybenzoin with dimethyl sulfate in the presence of potassium carbonate in boiling acetone (92%) [1536].

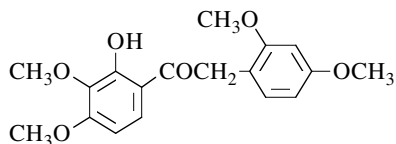
m.p. 132° [1536].

2-(2,4-Dimethoxyphenyl)-1-(2-hydroxy-3,4-dimethoxyphenyl)ethanone

[6502-87-0]

C₁₈H₂₀O₆

mol.wt. 332.35

**Syntheses**

-Preparation by partial methylation of 2,3,4-trihydroxyphenyl 2,4-dimethoxybenzyl ketone with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone for 6 h (82%) [754].

-Also obtained by Friedel-Crafts acylation of pyrogallol trimethyl ether with 2,4-dimethoxyphenylacetyl chloride [750], (41%) [754].
 -Also refer to: [753].

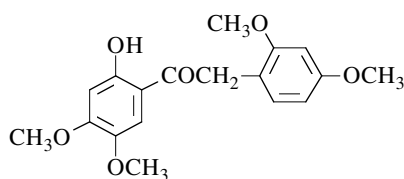
m.p. 134-135° [750] [754]; ¹H NMR [788].

2-(2,4-Dimethoxyphenyl)-1-(2-hydroxy-4,5-dimethoxyphenyl)ethanone

[15402-24-1]

C₁₈H₂₀O₆

mol.wt. 332.35



Syntheses

-Preparation by Hoesch condensations of 1,2,4-trihydroxybenzene with 2,4-dimethoxyphenylacetonitrile or with 2,4-dihydroxyphenylacetonitrile, followed by partial methylations of the ketones so obtained [1145].

-Also obtained by Friedel-Crafts acylation of 1,2,4-trimethoxybenzene with 2,4-dimethoxyphenylacetyl chloride in the presence of aluminium chloride [753] in ethyl ether [864], (31%) [752].
 -Also refer to: [1140].

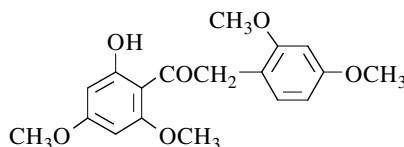
m.p. 122-123° [752] [753].

2-(2,4-Dimethoxyphenyl)-1-(2-hydroxy-4,6-dimethoxyphenyl)ethanone (*Albizoin*)

[39604-69-8]

C₁₈H₂₀O₆

mol.wt. 332.35



Syntheses

-Preparation by partial methylation of 2,4-dimethoxybenzyl 2,4,6-trihydroxyphenyl ketone with dimethyl sulfate in the presence of potassium carbonate in boiling acetone [559], (92%) [583].

-Preparation by partial demethylation of 2,4-dimethoxybenzyl 2,4,6-trimethoxyphenyl ketone with aluminium chloride in refluxing ethyl ether for 10 h (65%) [799].
 -Also obtained by alkaline degradation of 5,7,2',4'-tetramethoxyisoflavone (m.p. 203-204°) with potassium hydroxide in refluxing dilute ethanol for 1 h (93%) [799].
 -Also obtained by alkaline degradation of *ferreirin* trimethyl ether (m.p. 163°) [799], so called *dihydrodalbergioidin tetramethyl ether* (m.p. 165-166°) [125], (5,7,2',4'-tetramethoxyisoflavanone) with potassium hydroxide in refluxing dilute ethanol for 1 h (21%) [799] or for 6 h (26%) [125].
 -Also obtained by Friedel-Crafts acylation of 1,3,5-trimethoxybenzene with 2,4-dimethoxyphenylacetyl chloride in the presence of aluminium chloride in ethyl ether at 0° for 16 h [1278].
 -Also refer to: [12] [723] [1140] [1495] [1536].

Isolation from natural sources

-From the marine mollusc *Nerita albicilla* (Class Gastropoda, family Neritidae) [1278].

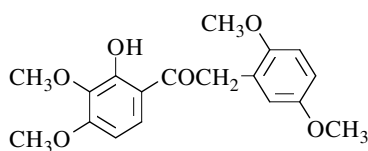
m.p. 140-142° [1278], 139° [799], 138-139° [125], 137-138° [583], 136-137° [559];
¹H NMR [788] [1278], IR [125] [1278], UV [125] [1278], MS [1278];
 HPLC [1278].

2-(2,5-Dimethoxyphenyl)-1-(2-hydroxy-3,4-dimethoxyphenyl)ethanone

[20569-19-1]

C₁₈H₂₀O₆

mol.wt. 332.35

**Synthesis**

-Obtained by Friedel-Crafts acylation of pyrogallol trimethyl ether with 2,5-dimethoxyphenylacetyl chloride in the presence of aluminium chloride in ethyl ether at 0° overnight (39%) [752].

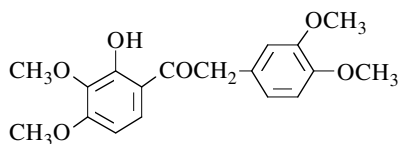
m.p. 153-154° [752].

2-(3,4-Dimethoxyphenyl)-1-(2-hydroxy-3,4-dimethoxyphenyl)ethanone

[61243-86-5]

C₁₈H₂₀O₆

mol.wt. 332.35

**Syntheses**

-Obtained by partial methylation of 2,3,4-trihydroxyphenyl 3,4-dimethoxybenzyl ketone with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone for 6 h (82%) [848].

-Also obtained by Friedel-Crafts acylation of pyrogallol trimethyl ether with 3,4-dimethoxyphenylacetyl chloride (homoveratroyl chloride) in ethyl ether in the presence of aluminium chloride, first at 0°, then at r.t. overnight (33-34%) [289] [848] or in refluxing methylene chloride for 2.5 h (70%) [408] [1507].

-Obtained by partial demethylation of 2,3,4-trimethoxyphenyl 3',4'-dimethoxybenzyl ketone (oil) with aluminium chloride in refluxing ethyl ether for 1 h (67%) [615].

-Also refer to: [1283].

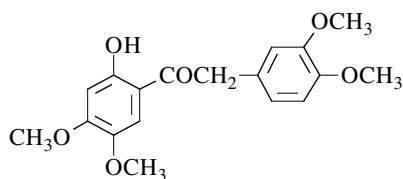
m.p. 139-140° [1507], 135-137° [615], 134° [848], 133-134° [289],

¹H NMR [1507], IR [1507].**2-(3,4-Dimethoxyphenyl)-1-(2-hydroxy-4,5-dimethoxyphenyl)ethanone**

[24195-22-0]

C₁₈H₂₀O₆

mol.wt. 332.35

**Syntheses**

-Obtained by alkaline degradation of 6,7,3',4'-tetramethoxyisoflavone (m.p. 187-188°) (SM) with sodium hydroxide in refluxing 50% aqueous ethanol (45%) [262]. SM was isolated from the heartwood of *Cordyla africana* (Leguminosae).

-Also obtained by partial demethylation of 3,4-dimethoxybenzyl 2,4,5-trimethoxyphenyl ketone (m.p. 120-121°) with aluminium chloride in refluxing acetonitrile for 45 min (10%) [262].

-Also obtained by partial methylation of 3,4-dimethoxybenzyl 2,4,5-trihydroxyphenyl ketone (85%) [707] according to [701].

m.p. 138-139° [707], 137-138° [262];

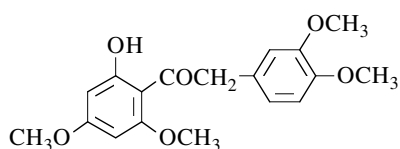
¹H NMR [788], ¹³C NMR [732], IR [262], UV [262], MS [262]; TLC [707].

2-(3,4-Dimethoxyphenyl)-1-(2-hydroxy-4,6-dimethoxyphenyl)ethanone

[109250-71-7]

C₁₈H₂₀O₆

mol.wt. 332.35

**Syntheses**

-Preparation by partial methylation of 2,4-dihydroxy-6,3',4'-trimethoxydeoxybenzoin with methyl iodide in the presence of potassium carbonate in boiling acetone for 1 h (80%) [1239].

-Also obtained by partial methylation of 2,4,6-trihydroxy-3',4'-dimethoxydeoxybenzoin with dimethyl sulfate in the presence of potassium carbonate in boiling acetone [771], (80%) [559], for 3 h [106] or for 10 h [1073].

-Also obtained by hydrolysis of *O*-trimethylsantal (5,7,3',4'-tetramethoxyisoflavone) (m.p. 155-156°) with potassium hydroxide in boiling dilute ethanol for 1 h (82%) [1239].

-Also obtained by reaction of 3,4-dimethoxyphenylacetonitrile with phloroglucinol dimethyl ether (Hoesch reaction) (12%) [1239].

-Also refer to: [1076] [1530].

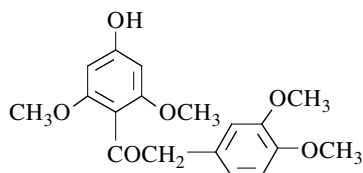
m.p. 120-121° [1073], 117° [771], 117° [106] [1239], 101-103° [559];

One of the reported melting points is obviously wrong.

IR [771], UV [771]; TLC [771].

2-(3,4-Dimethoxyphenyl)-1-(4-hydroxy-2,6-dimethoxyphenyl)ethanoneC₁₈H₂₀O₆

mol.wt. 332.35

**Synthesis**

-Obtained (by-product) by reaction of 3,4-dimethoxyphenylacetonitrile with phloroglucinol dimethyl ether (Hoesch reaction) (< 3%) [1239].

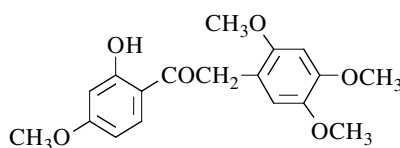
m.p. 140° [1239].

1-(2-Hydroxy-4-methoxyphenyl)-2-(2,4,5-trimethoxyphenyl)ethanone

[85288-48-8]

C₁₈H₂₀O₆

mol.wt. 332.35

**Syntheses**

-Obtained by partial methylation of 2,4-dihydroxyphenyl 2,4,5-trimethoxybenzyl ketone in acetone,

*with an ethereal solution of diazomethane (96%) [536];

*with methyl iodide in the presence of potassium carbonate in refluxing acetone for 70 min (96%) [536].

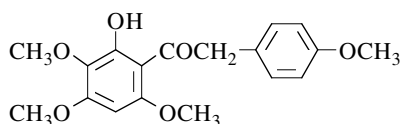
m.p. 135-136° [536]; ¹H NMR [788].

1-(2-Hydroxy-3,4,6-trimethoxyphenyl)-2-(4-methoxyphenyl)ethanone

[13539-22-5]

C₁₈H₂₀O₆

mol.wt. 332.35



Synthesis

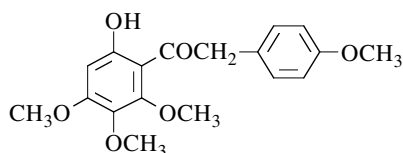
-Refer to: [788] (compound XII).

¹H NMR [788].**1-(6-Hydroxy-2,3,4-trimethoxyphenyl)-2-(4-methoxyphenyl)ethanone**

[22110-04-9]

C₁₈H₂₀O₆

mol.wt. 332.35



Syntheses

-Preparation by acylation of antiarol,
 *with p-methoxyphenylacetyl chloride in ethyl ether in the presence of aluminium chloride at r.t. for 12 h (28%) [842] or for 24 h (55%) [601];
 *with p-methoxyphenylacetic acid in chloroform in

the presence of boron trifluoride at r.t. overnight (37%) [766].

-Also obtained by alkaline hydrolysis of *munigin* dimethyl ether (m.p. 176°) (5,6,7,4'-tetramethoxy-isoflavone) with potassium hydroxide in refluxing ethanol for 30 min (84%) [802].

m.p. 91-92° [842], 73° [802], 69° [601] [766].

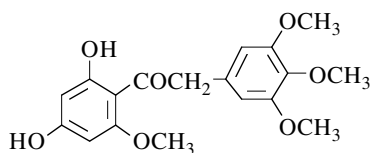
One of the reported melting points is obviously wrong.

b.p.₁ 190-200° [802], b.p.₄ 207-222° [601], b.p.₂ 210-220° [766].**1-(2,4-Dihydroxy-6-methoxyphenyl)-2-(3,4,5-trimethoxyphenyl)ethanone**

[129207-78-9]

C₁₈H₂₀O₇

mol.wt. 348.35



Synthesis

-Obtained by reaction of 3,4,5-trimethoxyphenyl-acetonitrile with phloroglucinol monomethyl ether (Hoesch reaction) [1342].

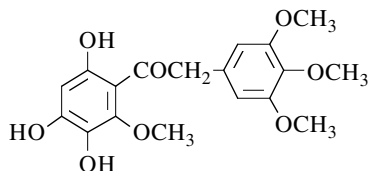
m.p. 130-131° [1342]; IR [1342].

1-(3,4,6-Trihydroxy-2-methoxyphenyl)-2-(3,4,5-trimethoxyphenyl)ethanone

[129207-79-0]

C₁₈H₂₀O₈

mol.wt. 364.35



Synthesis

-Obtained by reaction of potassium persulfate with 2,4-dihydroxy-6-methoxyphenyl 3,4,5-trimethoxybenzyl ketone in 40% aqueous potassium hydroxide at r.t. overnight (Elbs reaction) (21%) [1342].

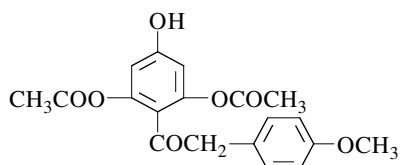
m.p. 164-165° [1342].

1-[2,6-Bis(acetyloxy)-4-hydroxyphenyl]-2-(4-methoxyphenyl)ethanone

[204068-63-3]

C₁₉H₁₈O₇

mol.wt. 358.35

**Synthesis**

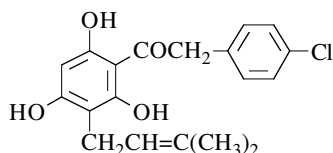
-Obtained (small amount) by selective deacetylation of 1-acetoxy-1-(2,4,6-triacetoxyphenyl)-2-(4-methoxyphenyl)ethene catalyzed by porcine pancreas lipase in THF at 42-45° for 72 h [1145].

2-(4-Chlorophenyl)-1-[2,4,6-trihydroxy-3-(3-methyl-2-butenyl)phenyl]ethanone

[85602-22-8]

C₁₉H₁₉ClO₄

mol.wt. 346.81

**Synthesis**

-Preparation by reaction of prenyl chloride with 2-(4-chlorophenyl)-1-(2,4,6-trihydroxyphenyl)ethanone in ethyl ether in the presence of a saturated aqueous sodium carbonate solution and a catalytic amount of cuprous chloride for 3 h at r.t. (45%) [376].

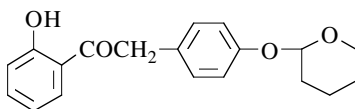
m.p. 182-184° [376]; ¹³C NMR [376], IR [376], MS [376].

1-(2-Hydroxyphenyl)-2-[4-[(tetrahydro-2H-pyran-2-yl)oxy]phenyl]ethanone

[130064-19-6]

C₁₉H₂₀O₄

mol.wt. 312.37

**Synthesis**

-Preparation by reaction of 3,4-dihydro-2H-pyran with 2,4'-dihydroxydeoxybenzoin in dioxane in the presence of PTSA (p-toluenesulfonic acid) at r.t. for 4 h (80%) [1335].

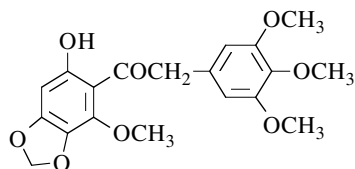
m.p. 95° [1335]; ¹H NMR [1335], IR [1335], MS [1335].

1-(6-Hydroxy-4-methoxy-1,3-benzodioxol-5-yl)-2-(3,4,5-trimethoxyphenyl)ethanone

[50901-33-2]

C₁₉H₂₀O₈

mol.wt. 376.38

**Synthesis**

-Obtained by reaction of methylene iodide with 2,4,5-trihydroxy-6-methoxyphenyl 3,4,5-trimethoxybenzyl ketone in the presence of potassium carbonate in refluxing acetone for 50 h [1342].

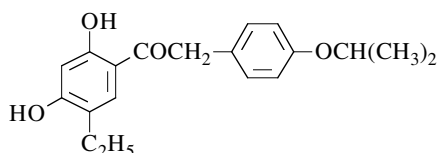
m.p. 119-120° [1342].

1-(5-Ethyl-2,4-dihydroxyphenyl)-2-[4-(1-methylethoxy)phenyl]ethanone

[96644-04-1]

C₁₉H₂₂O₄

mol.wt. 314.38

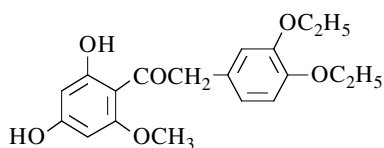
**Synthesis**

-Preparation by condensation of p-isopropyl-oxyphenylacetonitrile with 4-ethylresorcinol in the presence of boron trifluoride etherate under hydrogen chloride atmosphere (8-10 h) at r.t. overnight (62%) [786].

m.p. 95-96° [786]; ¹H NMR [786].

2-(3,4-Diethoxyphenyl)-1-(2,4-dihydroxy-6-methoxyphenyl)ethanoneC₁₉H₂₂O₆

mol.wt. 346.38

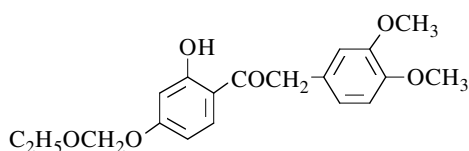
**Synthesis**

-Obtained by reaction of 3,4-diethoxyphenyl-acetonitrile with phloroglucinol monomethyl ether (Hoesch reaction) (24%) [1239].

m.p. 129-130° [1239].

2-(3,4-Dimethoxyphenyl)-1-(4-ethoxymethoxy-2-hydroxyphenyl)ethanoneC₁₉H₂₂O₆

mol.wt. 346.38

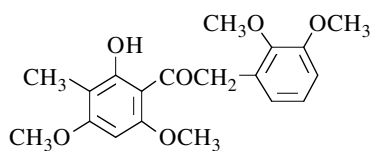
**Synthesis**

-Obtained by reaction of ethoxymethyl chloride with 2,4-dihydroxyphenyl 3,4-dimethoxybenzyl ketone in the presence of potassium carbonate in acetone for 45 min [723].

TLC [723].

2-(2,3-Dimethoxyphenyl)-1-(2-hydroxy-4,6-dimethoxy-3-methylphenyl)ethanoneC₁₉H₂₂O₆

mol.wt. 346.38

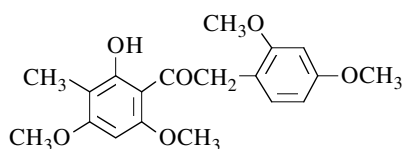
**Synthesis**

-Preparation by partial methylation of 2,4,6-tri-hydroxy-3-methylphenyl 2,3-dimethoxybenzyl ketone with dimethyl sulfate in the presence of potassium carbonate in boiling acetone (69%) [1536].

m.p. 160° [1536].

2-(2,4-Dimethoxyphenyl)-1-(2-hydroxy-4,6-dimethoxy-3-methylphenyl)ethanoneC₁₉H₂₂O₆

mol.wt. 346.38



Syntheses

-Preparation by partial methylation of 2,4,6-tri-hydroxy-3-methylphenyl 2,4-dimethoxybenzyl ketone with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone for 40 h (55%) [125].
-Also refer to: [465].

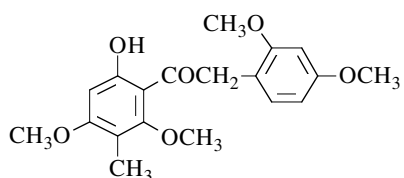
m.p. 142-143° [125]; UV [125].

2-(2,4-Dimethoxyphenyl)-1-(6-hydroxy-2,4-dimethoxy-3-methylphenyl)ethanone

[22081-04-5]

C₁₉H₂₂O₆

mol.wt. 346.38



Synthesis

-Obtained by reaction of 2,4-dimethoxyphenyl-acetyl chloride with 4-hydroxy-2,6-dimethoxy-toluene in ethyl ether in the presence of aluminium chloride [717].

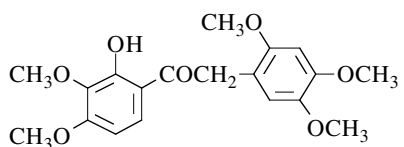
m.p. 115-116° [717]; IR [717], UV [717].

1-(2-Hydroxy-3,4-dimethoxyphenyl)-2-(2,4,5-trimethoxyphenyl)ethanone

[20390-13-0]

C₁₉H₂₂O₇

mol.wt. 362.38



Synthesis

-Preparation by Friedel-Crafts acylation of pyrogallol trimethyl ether with 2,4,5-trimethoxy-phenylacetyl chloride in the presence of aluminium chloride in ethyl ether at 0° overnight (68%) [752].

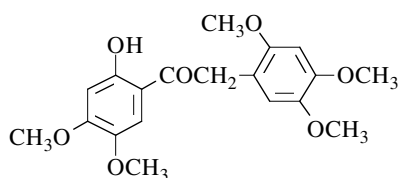
m.p. 170-171° [752].

1-(2-Hydroxy-4,5-dimethoxyphenyl)-2-(2,4,5-trimethoxyphenyl)ethanone

[24195-21-9]

C₁₉H₂₂O₇

mol.wt. 362.38



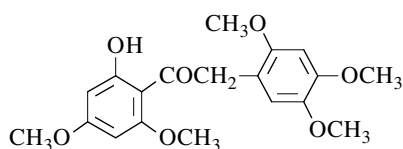
Synthesis

-Obtained by alkaline degradation of 6,7,2',4',5'-pentamethoxyisoflavone (m.p. 171-172°) (SM) with sodium hydroxide in refluxing 50% aqueous ethanol (10-45 min) (84%). SM was isolated from the heartwood of *Cordyla africana* (Leguminosae; sub-family: Caesalpinioideae, tribe: Swartzieae) [262].

m.p. 137-138° and 127°5-128°5 [262]; IR [262], UV [262], MS [262].

1-(2-Hydroxy-4,6-dimethoxyphenyl)-2-(2,4,5-trimethoxyphenyl)ethanoneC₁₉H₂₂O₇

mol.wt. 362.38



Synthesis

-Obtained by partial methylation of 2,4,6-trihydroxyphenyl 2,4,5-trimethoxybenzyl ketone with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone for 14 h (74%) [582].

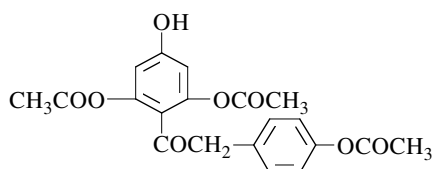
m.p. 144-145° [582].

2-[4-(Acetyloxy)phenyl]-1-[2,6-bis(acetyloxy)-4-hydroxyphenyl]ethanone

[145747-30-4]

C₂₀H₁₈O₈

mol.wt. 386.36



Syntheses

-Obtained by regioselective enzyme-catalyzed deacetylation of 4-acetoxybenzyl 2,4,6-triacetoxyphenyl ketone in the dry organic solvents hereafter mentioned containing n-butanol with lipase at 42-45° [1146].

lipase	solvent	time (h)	yields (%)
PPL	acetone/n-BuOH	48	18
PPL	CH ₃ CN/n-BuOH	48	18
PPL	THF/n-BuOH	45	55
CCL	DIPE/n-BuOH	46	52

PPL = porcine pancreas lipase; CCL = candida cylindracea lipase; DIPE = diisopropyl ether.

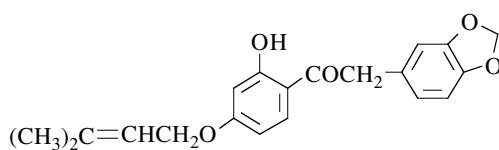
TLC [1146].

2-(1,3-Benzodioxol-5-yl)-1-[2-hydroxy-4-[(3-methyl-2-butenyl)oxy]phenyl]ethanone

[94683-36-0]

C₂₀H₂₀O₅

mol.wt. 340.38



Syntheses

-Obtained by alkaline degradation of *Tephrosia maxima* Pers. (7-γ,γ-dimethylallyloxy)-3',4'-methylenedioxy-isoflavone so called 7-*O*-γ,γ-dimethylallylpseudobaptigenin (m.p. 126-128°)

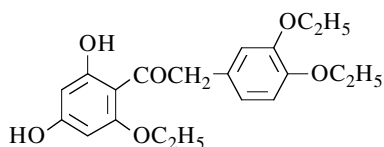
C₂₁H₁₈O₅, with sodium hydroxide (12%) in refluxing dilute ethanol for 15 min [1217].

-Also obtained by partial allylation of Ψ-baptigenetin (2,4-dihydroxyphenyl 3,4-methylenedioxybenzyl ketone) with γ,γ-dimethylallyl bromide in the presence of potassium carbonate in refluxing acetone for 8 h (64%) [848].

m.p. 81-82° [848], 73-74° [1217].

2-(3,4-Diethoxyphenyl)-1-(2-ethoxy-4,6-dihydroxyphenyl)ethanoneC₂₀H₂₄O₆

mol.wt. 360.41

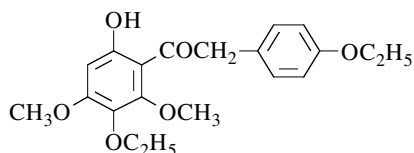
**Synthesis**

-Obtained by condensation of 3,4-diethoxyphenyl-acetonitrile with phloroglucinol monoethyl ether (Hoesch reaction) (16%) [1239].

rhombic prisms [1239];
4-methyl ether m.p. 99° [1239]

1-(3-Ethoxy-6-hydroxy-2,4-dimethoxyphenyl)-2-(4-ethoxyphenyl)ethanoneC₂₀H₂₄O₆

mol.wt. 360.41

**Syntheses**

-Obtained by acylation of 4-ethoxy-3,5-dimethoxy-phenol,
*with p-ethoxyphenylacetic acid in chloroform in the presence of boron trifluoride at r.t. overnight (31%) [766];
*with p-ethoxyphenylacetyl chloride in ethyl ether

in the presence of aluminium chloride at 0° for 2 h, then at r.t. overnight (9%) [840].

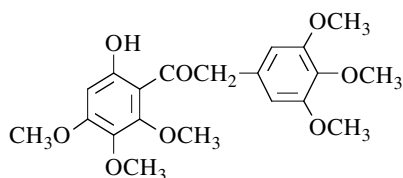
m.p. 104° [766] [840]; b.p._{0.5} 220-230° [766].

1-(6-hydroxy-2,3,4-trimethoxyphenyl)-2-(3,4,5-trimethoxyphenyl)ethanone

[64554-42-3]

C₂₀H₂₄O₈

mol.wt. 392.41

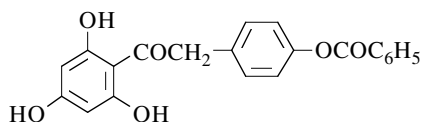
**Synthesis**

-Obtained by alkaline degradation of *irigenin trimethyl ether* (5,6,7,3',4',5'-hexamethoxyisoflavone) (m.p. 163°) with potassium hydroxide in refluxing dilute ethanol for 3 h (82%). *Irigenin* (5,7,3'-trihydroxy-6,4',5'-trimethoxyisoflavone) (m.p. 185°) was prepared by acidic hydrolysis of *iridin* (7-glucopyranosyloxy-5,3'-dihydroxy-6,4',5'-trimethoxyisoflavone) (m.p. 216-217°), itself isolated from *iris kumaonensis* Wall. [749].

m.p. 92° [749]; IR [749], UV [749]; TLC [749].

2-[4-(Benzoyloxy)phenyl]-1-(2,4,6-trihydroxyphenyl)ethanoneC₂₁H₁₆O₆

mol.wt. 364.35

**Synthesis**

-Preparation by reaction of 4-benzoyloxy-acetonitrile with phloroglucinol (Hoesch reaction) (44%) [117].

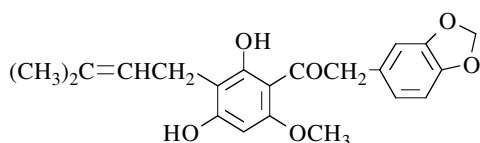
m.p. 224° [117].

2-(1,3-Benzodioxol-5-yl)-1-[2,4-dihydroxy-6-methoxy-3-(3-methyl-2-butenyl)phenyl]-ethanone

[55607-37-9]

C₂₁H₂₂O₆

mol.wt. 370.95

**Synthesis**

-Obtained (poor yield) by prenylation of 2,4-dihydroxy-6-methoxyphenyl 3,4-methylenedioxybenzyl ketone with 2-hydroxy-2-methyl-3-butene in dioxane in the presence of boron

trifluoride etherate for 1 h at r.t. (4%) [715].

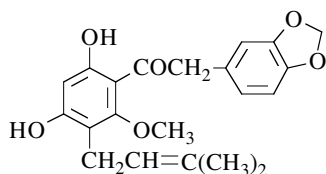
m.p. 155-156° [715]; ¹H NMR [715]; TLC [715].

2-(1,3-Benzodioxol-5-yl)-1-[4,6-dihydroxy-2-methoxy-3-(3-methyl-2-butenyl)phenyl]-ethanone

[55607-38-0]

C₂₁H₂₂O₆

mol.wt. 370.95

**Synthesis**

-Obtained (poor yield) by prenylation of 2,4-dihydroxy-6-methoxyphenyl 3,4-methylenedioxybenzyl ketone with 2-hydroxy-2-methyl-3-butene in dioxane in the presence of boron trifluoride etherate for 1 h at r.t. (3%) [715].

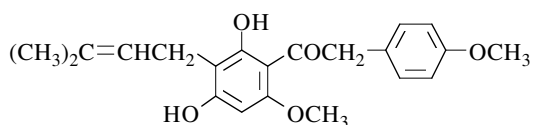
m.p. 105-106° [715]; ¹H NMR [715]; TLC [715].

1-[2,4-Dihydroxy-6-methoxy-3-(3-methyl-2-butenyl)phenyl]-2-(4-methoxyphenyl)-ethanone

[35817-95-9]

C₂₁H₂₄O₅

mol.wt. 356.42

**Syntheses**

-Obtained by nuclear prenylation of 2,4-dihydroxy-6-methoxyphenyl 4-methoxybenzyl ketone, *using 2-methyl-2-hydroxy-

3-methylbutene in dioxane in the presence of boron trifluoride etherate, first at 0°, then for 1 h at r.t. (9%) [700];

*with prenyl bromide in the presence methanolic potassium hydroxide, first with cooling, then keeping the reaction mixture for 20 h at r.t. (12%) [700].

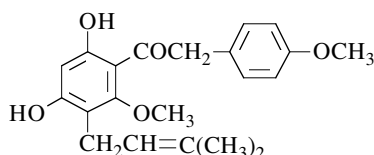
m.p. 153-154° [700]; ¹H NMR [700]; TLC [700].

1-[4,6-Dihydroxy-2-methoxy-3-(3-methyl-2-butenyl)phenyl]-2-(4-methoxyphenyl)-ethanone

[35817-96-0]

C₂₁H₂₄O₅

mol.wt. 356.42

**Synthesis**

-Obtained by nuclear prenylation of 2,4-dihydroxy-6-methoxyphenyl 4-methoxybenzyl ketone using 2-methyl-2-hydroxy-3-methylbutene in dioxane in the presence of boron trifluoride etherate, first at 0°, then for 1 h at r.t. (7%) [700].

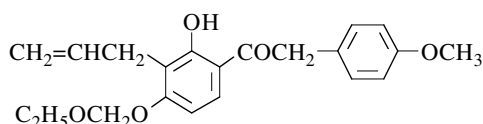
m.p. 91-92° [700]; ¹H NMR [700]; TLC [700].

1-[4-(Ethoxymethoxy)-2-hydroxy-3-(2-propenyl)phenyl]-2-(4-methoxyphenyl)ethanone

[117951-89-0]

C₂₁H₂₄O₅

mol.wt. 356.42

**Synthesis**

-Obtained by reaction of ethoxymethyl chloride with 3-allyl-2,4-dihydroxy-4'-methoxydesoxybenzoin in the presence of potassium carbonate in acetone for 10 min at r.t. [711].

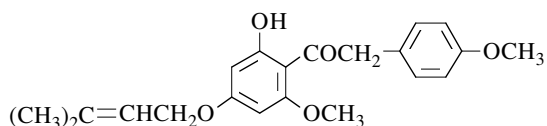
TLC [711].

1-[2-Hydroxy-6-methoxy-4-[(3-methyl-2-butenyl)oxy]phenyl]-2-(4-methoxyphenyl)-ethanone

[35817-38-0]

C₂₁H₂₄O₅

mol.wt. 356.42

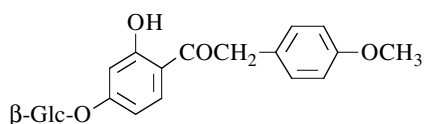
**Synthesis**

-Obtained by reaction of prenyl bromide with 2,4-dihydroxy-6,4'-dimethoxydesoxybenzoin in the presence of potassium carbonate in refluxing acetone for 3 h (81%) or in the presence of methanolic potassium hydroxide, first with cooling, then keeping the reaction mixture for 20 h at r.t. (2%) [700].

m.p. 76-77° [700]; ¹H NMR [700]; TLC [700].

1-[4-(β-D-Glucopyranosyloxy)-2-hydroxyphenyl]-2-(4-methoxyphenyl)ethanone
(*Onospin*)C₂₁H₂₄O₉

mol.wt. 420.42

**Syntheses**

-Obtained by reaction of acetobromoglucose with 1-(2,4-dihydroxyphenyl)-2-(4-methoxyphenyl)ethanone in acetone in the presence of 10% aqueous sodium hydroxide at r.t. for 12 h (25%) [1528].

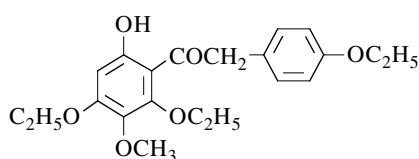
-Also obtained by alkaline degradation of *Ononin* — 7-(β-D-glucopyranosyloxy)-4'-methoxy isoflavone (SM) — [601] with boiling aqueous barium hydroxide [1528]. SM was isolated from the roots of thorny restharrow (*Ononis spinosa*) (Leguminosae, sub-family Fabaceae) [601] [1528].

m.p. 179°5 [1528]; $(\alpha)_D = 65^\circ 9-67^\circ 2$ (methanol) [1528].

1-(2,4-Diethoxy-6-hydroxy-3-methoxyphenyl)-2-(4-ethoxyphenyl)ethanone

C₂₁H₂₆O₆

mol.wt. 374.43



Synthesis

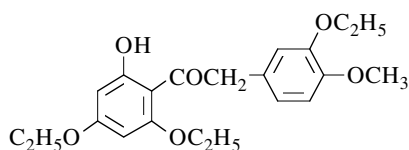
-Obtained by Friedel-Crafts acylation of 3,5-diethoxy-4-methoxyphenol with p-ethoxyphenylacetyl chloride in ethyl ether in the presence of aluminium chloride at r.t. for 12 h [842].

oil [842].

1-(2,4-Diethoxy-6-hydroxyphenyl)-2-(3-ethoxy-4-methoxyphenyl)ethanone

C₂₁H₂₆O₆

mol.wt. 374.43



Synthesis

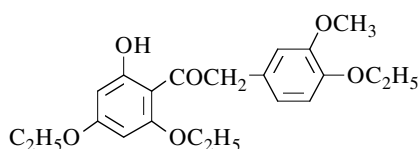
-Obtained by condensation of 3-ethoxy-4-methoxyphenylacetonitrile with phloroglucinol diethyl ether (Hoesch reaction) (16%) [1239].

m.p. 117° [1239].

1-(2,4-Diethoxy-6-hydroxyphenyl)-2-(4-ethoxy-3-methoxyphenyl)ethanone

C₂₁H₂₆O₆

mol.wt. 374.43



Synthesis

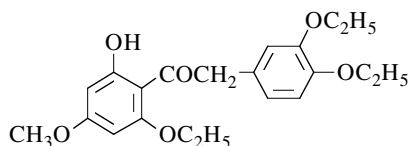
-Obtained by condensation of 4-ethoxy-3-methoxyphenylacetonitrile with phloroglucinol diethyl ether (Hoesch reaction) (16%) [1239].

m.p. 138° [1239].

2-(3,4-Diethoxyphenyl)-1-(2-ethoxy-6-hydroxy-4-methoxyphenyl)ethanone

C₂₁H₂₆O₆

mol.wt. 374.43



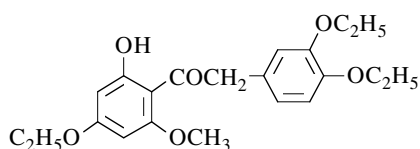
Syntheses

-Obtained by alkaline degradation of *O-triethylsantal* (7-methoxy-5,3',4'-triethoxyisoflavone) (m.p. 111-112°) with potassium hydroxide in boiling dilute ethanol for 1.5 h (67%) [1239].
-Also obtained by partial methylation of 2,4-dihydroxy-6,3',4'-triethoxydeoxybenzoin [1239].

m.p. 99° [1239].

2-(3,4-Diethoxyphenyl)-1-(4-ethoxy-2-hydroxy-6-methoxyphenyl)ethanoneC₂₁H₂₆O₆

mol.wt. 374.43

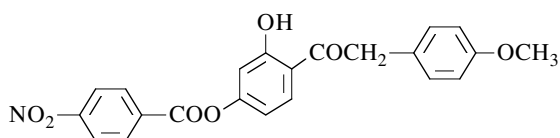
**Synthesis**

-Obtained by partial ethylation of 2,4-dihydroxy-6-methoxyphenyl 3,4-diethoxybenzyl ketone with ethyl iodide in the presence of potassium carbonate in boiling acetone for 2 h (77%) [1239].

m.p. 111-112° [1239].

1-[2-Hydroxy-4-(4-nitrobenzoyloxy)phenyl]-2-(4-methoxyphenyl)ethanoneC₂₂H₁₇NO₇

mol.wt. 407.38

**Synthesis**

-Obtained by partial esterification of 2,4-dihydroxyphenyl 4-methoxybenzyl ketone with p-nitrobenzoyl chloride in the presence of pyridine [585].

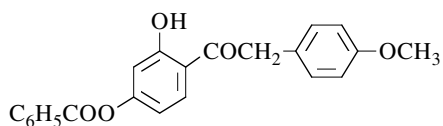
m.p. 166-167° [585].

1-[4-(Benzoyloxy)-2-hydroxyphenyl]-2-(4-methoxyphenyl)ethanone

[102706-12-7]

C₂₂H₁₈O₅

mol.wt. 362.38

**Syntheses**

-Obtained by partial esterification of 2,4-dihydroxyphenyl 4-methoxybenzyl ketone with benzoyl chloride (Schotten-Baumann method) [585].
-Also refer to: [1123].

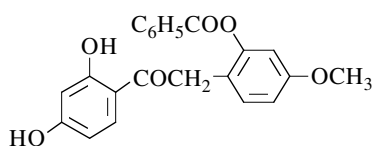
m.p. 120-121° [585].

2-[2-(Benzoyloxy)-4-methoxyphenyl]-1-(2,4-dihydroxyphenyl)ethanone

[52250-27-8]

C₂₂H₁₈O₆

mol.wt. 378.38

**Synthesis**

-Preparation by reaction of 2-benzoyloxy-4-methoxyphenylacetonitrile with resorcinol (Hoesch reaction) [466].

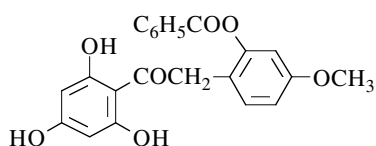
oil [466].

2-[2-(Benzoyloxy)-4-methoxyphenyl]-1-(2,4,6-trihydroxyphenyl)ethanone

[32884-28-9]

C₂₂H₁₈O₇

mol.wt. 394.38

**Synthesis**

-Obtained by reaction of 2-benzoyloxy-4-methoxyphenylacetonitrile with phloroglucinol [465].

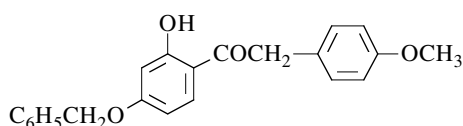
m.p. 207-208° [465]; IR [465].

1-[2-Hydroxy-4-(phenylmethoxy)phenyl]-2-(4-methoxyphenyl)ethanone

[95307-71-4]

C₂₂H₂₀O₄

mol.wt. 348.40

**Syntheses**

-Preparation by partial alkylation of 2,4-dihydroxyphenyl 4-methoxybenzyl ketone with benzyl chloride in the presence of potassium carbonate in refluxing acetone

for 6 h (80%) [1490] or 8 h [26], (37%) [944].
-Also refer to: [13] [1140].

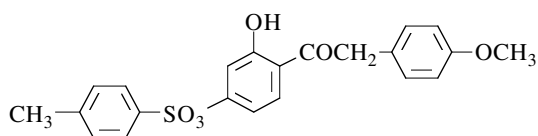
m.p. 103° [944], 93-95° [1490]; ¹H NMR [1490].

1-[2-Hydroxy-4-[(4-methylphenyl)sulfonyl]oxy]phenyl]-2-(4-methoxyphenyl)ethanone

[102599-68-8]

C₂₂H₂₀O₆S

mol.wt. 412.46

**Synthesis**

-Obtained by partial esterification of 2,4-dihydroxyphenyl 4-methoxybenzyl ketone with p-toluenesulfonyl chloride in acetone in the presence of potassium carbonate [585].

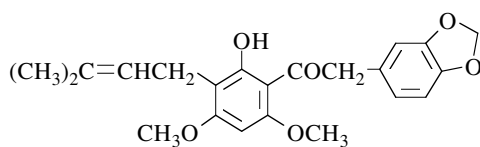
m.p. 91° [585].

2-(1,3-Benzodioxol-5-yl)-1-[2-hydroxy-4,6-dimethoxy-3-(3-methyl-2-butenyl)phenyl]-ethanone

[55607-39-1]

C₂₂H₂₄O₆

mol.wt. 384.43

**Synthesis**

-Obtained by partial methylation of 2,4-dihydroxy-6-methoxy-3-prenylphenyl 3,4-methylenedioxybenzyl ketone with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone for 3.5 h (96%) [715].

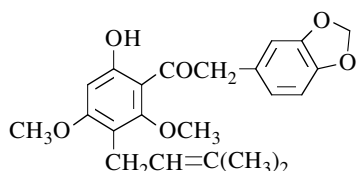
m.p. 118-119° [715]; ¹H NMR [715]; TLC [715].

2-(1,3-Benzodioxol-5-yl)-1-[6-hydroxy-2,4-dimethoxy-3-(3-methyl-2-butenyl)phenyl]-ethanone

[55607-41-5]

C₂₂H₂₄O₆

mol.wt. 384.43

**Synthesis**

-Obtained by partial methylation of 2,4-dihydroxy-6-methoxy-5-prenylphenyl 3,4-methylenedioxybenzyl ketone with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone for 4 h (96%) [715].

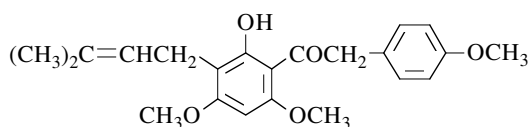
m.p. 83-84° [715]; ¹H NMR [715]; TLC [715].

1-[2-Hydroxy-4,6-dimethoxy-3-(3-methyl-2-butenyl)phenyl]-2-(4-methoxyphenyl)-ethanone

[51323-85-4]

C₂₂H₂₆O₅

mol.wt. 370.45

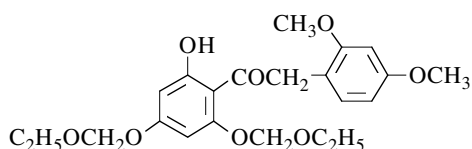
**Synthesis**

-Obtained by partial methylation of 3-prenyl-2,4-dihydroxy-6,4'-dimethoxydesoxybenzoin with dimethyl sulfate in the presence of potassium carbonate in refluxing acetone for 3.5 h [700].

m.p. 94-95° [700].

2-(2,4-Dimethoxyphenyl)-1-[4,6-bis(ethoxymethoxy)-2-hydroxyphenyl]ethanoneC₂₂H₂₈O₈

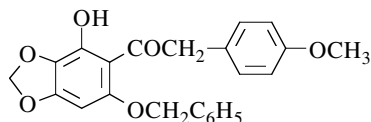
mol.wt. 420.46

**Synthesis**

-Refer to: [723] (compound 1d).

1-[4-Hydroxy-6-(phenylmethoxy)-1,3-benzodioxol-5-yl]-2-(4-methoxyphenyl)ethanoneC₂₃H₂₀O₆

mol.wt. 392.41

**Synthesis**

-Obtained by alkaline degradation of 5-benzyloxy-4'-methoxy-7,8-methylenedioxy-2-methylisoflavone with 10% aqueous potassium hydroxide in refluxing ethanol for 2 h under a stream of nitrogen gas (74%) [529].

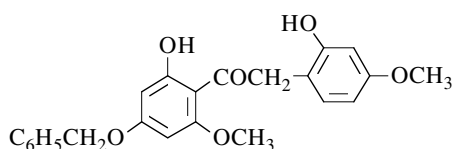
m.p. 148-149° [529]; IR [529], UV [529].

1-[2-Hydroxy-6-methoxy-4-(phenylmethoxy)phenyl]-2-(2-hydroxy-4-methoxyphenyl)-ethanone

[32884-33-6]

C₂₃H₂₂O₆

mol.wt. 394.42

**Synthesis**

-Obtained by alkaline degradation of 2'-benzoyloxy-7-benzoyloxy-4',5-dimethoxy-2-methoxycarbonylisoflavone (m.p. 183-184°) with potassium hydroxide in refluxing dilute ethanol for 2 h (98%) [465].

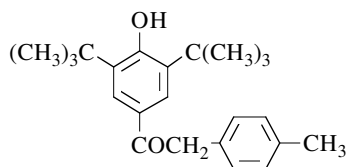
m.p. 120-122° [465]; ¹H NMR [465], IR [465].

1-[3,5-Bis(1,1-dimethylethyl)-4-hydroxyphenyl]-2-(4-methylphenyl)ethanone

[81116-01-0]

C₂₃H₃₀O₂

mol.wt. 338.49

**Syntheses**

-Obtained by acylation of 2,6-di-tert-butylphenol with p-methylphenylacetyl chloride according to [1192], (35%) [1316].
-Also refer to: [1343].

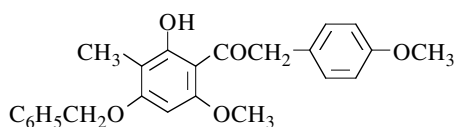
m.p. 114-115° [1316]; IR [1316].

1-[2-Hydroxy-6-methoxy-3-methyl-4-(phenylmethoxy)phenyl]-2-(4-methoxyphenyl)-ethanone

[102749-29-1]

C₂₄H₂₄O₅

mol.wt. 392.45

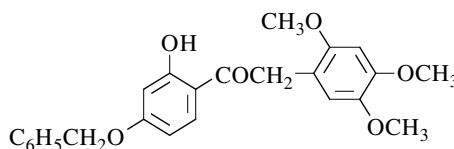
**Synthesis**

-Obtained by reaction of benzyl bromide with 2,4-dihydroxy-6-methoxy-3-methylphenyl 4-methoxybenzyl ketone in the presence of potassium carbonate in boiling acetone for 3 h (77%) [1534].

m.p. 118° [1534].

1-[2-Hydroxy-4-(phenylmethoxy)phenyl]-2-(2,4,5-trimethoxyphenyl)ethanoneC₂₄H₂₄O₆

mol.wt. 408.45

**Synthesis**

-Obtained by reaction of 2,4-dihydroxyphenyl 2,4,5-trimethoxybenzyl ketone with benzyl chloride in the presence of potassium carbonate in refluxing acetone for 8 h (94%) [536].

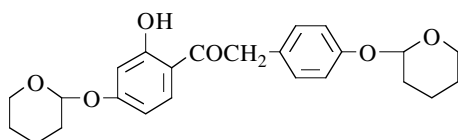
m.p. 149-150° [536].

1-[2-Hydroxy-4-[(tetrahydro-2H-pyran-2-yl)oxy]phenyl]-2-[4-[(tetrahydro-2H-pyran-2-yl)oxy]phenyl]ethanone

[130064-21-0]

C₂₄H₂₈O₆

mol.wt. 412.48

**Synthesis**

-Preparation by reaction of 3,4-dihydro-2H-pyran with 1-(2,4-dihydroxyphenyl)-2-(4-hydroxyphenyl)ethanone in concentrated hydrochloric acid and stirring in an ice bath for 4 h (87%) [1335].

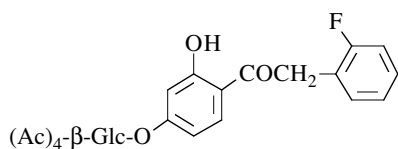
m.p. 118° [1335]; ¹H NMR [1335], IR [1335], MS [1335].

2-(2-Fluorophenyl)-1-[2-hydroxy-4-[(2,3,4,6-tetra-O-acetyl-β-D-glucopyranosyl)oxy]-phenyl]ethanone

[121060-06-8]

C₂₈H₂₉FO₁₂

mol.wt. 576.53

**Synthesis**

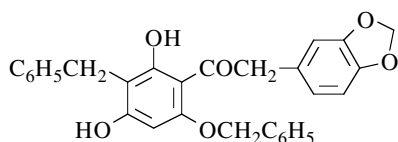
-Obtained by glycosidation of 1-(2,4-dihydroxyphenyl)-2-(2-fluorophenyl)ethanone with acetobromo-α-D-glucose in aqueous acetone containing potassium hydroxide [1186].

2-(1,3-Benzodioxol-5-yl)-1-[2,4-dihydroxy-6-(phenylmethoxy)-3-(phenylmethyl)phenyl]-ethanone

[39549-01-4]

C₂₉H₂₄O₆

mol.wt. 468.51

**Synthesis**

-Obtained by benzylation of 2,4,6-trihydroxyphenyl 3,4-methylenedioxybenzyl ketone with benzyl chloride in the presence of potassium carbonate in refluxing acetone for 7 h (10%) [714].

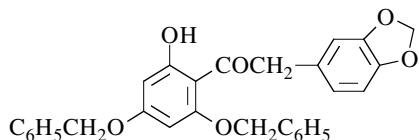
m.p. 145-146° [714]; ¹H NMR [714], UV [714].

2-(1,3-Benzodioxol-5-yl)-1-[2-hydroxy-4,6-bis(phenylmethoxy)phenyl]ethanone

[39549-00-3]

C₂₉H₂₄O₆

mol.wt. 468.51

**Synthesis**

-Obtained by benzylation of 2,4,6-trihydroxyphenyl 3,4-methylenedioxybenzyl ketone with benzyl chloride in the presence of potassium carbonate in refluxing acetone for 7 h (17%) [714].

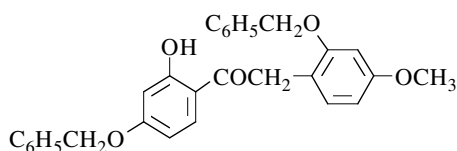
m.p. 78-79° [714]; ¹H NMR [714], UV [714].

1-[2-Hydroxy-4-(phenylmethoxy)phenyl]-2-[4-methoxy-2-(phenylmethoxy)phenyl]-ethanone

[67685-29-4]

C₂₉H₂₆O₅

mol.wt. 454.52

**Syntheses**

-Obtained by decarbonylation of the acetal — 2-(2-benzyloxy-4-methoxyphenyl)-1-(2,4-dibenzyloxyphenyl)-3,3-dimethoxypropan-1-one — (colourless oil) in refluxing methanol (200 ml) containing

60% perchloric acid (30 ml) for 1.5 h (12%) [169].

-Also obtained by selective debenzoylation of 2,2',4-tribenzyloxy-4'-methoxydeoxybenzoin (m.p. 111°) in acetonitrile in the presence of boron trifluoride etherate and sodium iodide at r.t. (88%) [169].

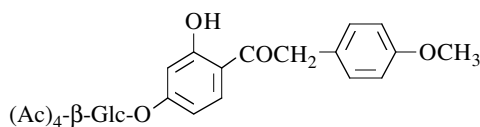
m.p. 101° [169]; ¹H NMR [169], MS [169]; TLC [169].

1-[2-Hydroxy-4-[(2,3,4,6-tetra-O-acetyl-β-D-glucopyranosyl)oxy]phenyl]-2-(4-methoxyphenyl)ethanone

[42868-73-5]

C₂₉H₃₂O₁₃

mol.wt. 588.57

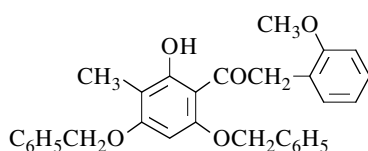
**Synthesis**

-Obtained by glycosidation of 1-(2,4-dihydroxyphenyl)-2-(4-methoxyphenyl)ethanone with acetobromo-α-D-glucose in

aqueous acetone containing potassium hydroxide [1186].

1-[2-Hydroxy-3-methyl-4,6-bis(phenylmethoxy)phenyl]-2-(2-methoxyphenyl)ethanoneC₃₀H₂₈O₅

mol.wt. 468.55

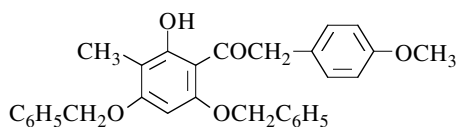
**Synthesis**

-Obtained by reaction of benzyl bromide (2 mol) with 2,4,6-trihydroxy-3-methylphenyl 2-methoxybenzyl ketone in the presence of potassium carbonate in boiling acetone for 3 h (31%) [1532].

m.p. 146° [1532].

1-[2-Hydroxy-3-methyl-4,6-bis(phenylmethoxy)phenyl]-2-(4-methoxyphenyl)ethanoneC₃₀H₂₈O₅

mol.wt. 468.55

**Synthesis**

-Obtained by reaction of benzyl bromide (2 mol) with 2,4,6-trihydroxy-3-methylphenyl 4-methoxybenzyl ketone in the presence of potassium carbonate in boiling acetone for 3 h (37%) [1532].

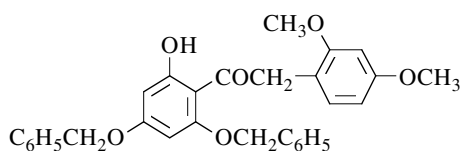
m.p. 129° [1532].

2-(2,4-Dimethoxyphenyl)-1-[2-hydroxy-4,6-bis(phenylmethoxy)phenyl]ethanone

[39604-84-7]

C₃₀H₂₈O₆

mol.wt. 484.55

**Synthesis**

-Obtained by reaction of benzyl chloride with 2,4,6-trihydroxyphenyl 2,4-dimethoxybenzyl ketone in the presence of potassium carbonate in refluxing acetone for 5 h (38%) [12].

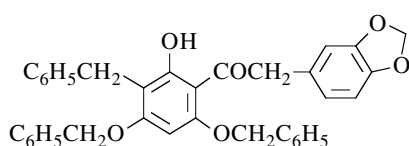
m.p. 136-137° [12].

2-(1,3-Benzodioxol-5-yl)-1-[2-hydroxy-4,6-bis(phenylmethoxy)-3-(phenylmethyl)phenyl]ethanone

[39548-99-7]

C₃₆H₃₀O₆

mol.wt. 558.63

**Synthesis**

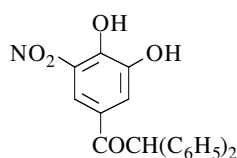
-Obtained (poor yield) by benzylation of 2,4,6-trihydroxyphenyl 3',4'-methylenedioxybenzyl ketone with benzyl chloride in the presence of potassium carbonate in refluxing acetone for 7 h (10%) [714].

m.p. 135-136° [714]; ¹H NMR [714], UV [714].**9.3. Compounds derived from di- and triphenylacetic acids****1-(3,4-Dihydroxy-5-nitrophenyl)-2,2-diphenylethanone**

[400871-22-9]

C₂₀H₁₅NO₅

mol.wt. 349.34

**Synthesis**

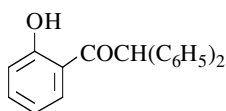
-Preparation by treatment of 2,2-diphenyl-1-(4-hydroxy-3-methoxy-5-nitrophenyl)ethanone with aluminium chloride in refluxing ethyl acetate/pyridine mixture for 2 h (90-96%) [887].

m.p. 204-205° [887]; ¹H NMR [887], ¹³C NMR [887], IR [887].**1-(2-Hydroxyphenyl)-2,2-diphenylethanone**

[4970-24-5]

C₂₀H₁₆O₂

mol.wt. 288.34

**Syntheses**

-Obtained (by-product) by Fries rearrangement of phenyl diphenylacetate with aluminium chloride in nitrobenzene for 4 h at 60° (3%) [1551].
-Also obtained (poor yield) by refluxing phenyl diphenylacetate (pyrolysis, 300°) [1369]. **N.B.:** By using

"Kupferbronze" or various silicates ("Bleicherde", for example) as catalysts, the yield increases with appreciable change from 140°.

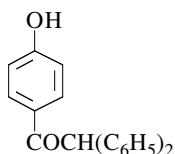
m.p. 99-100° [1551].

1-(4-Hydroxyphenyl)-2,2-diphenylethanone

[4873-38-5]

C₂₀H₁₆O₂

mol.wt. 288.34



Syntheses

-Preparation by Fries rearrangement of phenyl diphenylacetate with aluminium chloride,
*in nitrobenzene at 60° for 4 h (70%) [1551];
*in nitroethane at r.t. for 24 h (86%) or at 60° for 4 h (79%) [1550].

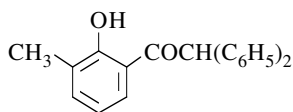
m.p. 178-180° [1550], 174-177° [1551].

1-(2-Hydroxy-3-methylphenyl)-2,2-diphenylethanone

[133859-03-7]

C₂₁H₁₈O₂

mol.wt. 302.37



Synthesis

-Obtained by Fries rearrangement of o-tolyl diphenylacetate with aluminium chloride in nitrobenzene at 60° for 4 h (20%) [1551].

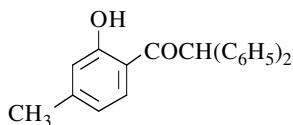
IR [1551].

1-(2-Hydroxy-4-methylphenyl)-2,2-diphenylethanone

[133859-04-8]

C₂₁H₁₈O₂

mol.wt. 302.37



Synthesis

-Obtained by Fries rearrangement of m-tolyl diphenylacetate with aluminium chloride in nitrobenzene at 60° for 4 h (7%) [1551].

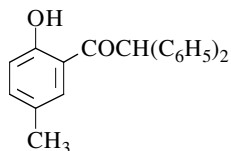
m.p. 179-180° [1551]; IR [1551].

1-(2-Hydroxy-5-methylphenyl)-2,2-diphenylethanone

[133859-05-9]

C₂₁H₁₈O₂

mol.wt. 302.37



Syntheses

-Obtained by Fries rearrangement of p-tolyl diphenylacetate (m.p. 76°) [101] with aluminium chloride,
*without solvent in boiling water bath for 1 h [101];
*in nitrobenzene at 60° for 4 h (22%) [1551].

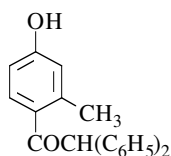
IR [1551].

1-(4-Hydroxy-2-methylphenyl)-2,2-diphenylethanone

[133859-06-0]

C₂₁H₁₈O₂

mol.wt. 302.37

**Syntheses**

-Obtained (poor yields) by Fries rearrangement of m-tolyl diphenylacetate with aluminium chloride,
 *in nitromethane or in nitroethane at r.t. for 12 h (19-21%) [1550];
 *in nitrobenzene at r.t. for 10 h (10%) or at 60° for 4 h (10%) [1550], (6%) [1551].

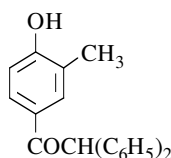
m.p. 150-151° [1550], 125-127° [1551].
 One of the reported melting points is obviously wrong.

1-(4-Hydroxy-3-methylphenyl)-2,2-diphenylethanone

[122918-54-1]

C₂₁H₁₈O₂

mol.wt. 302.37

**Synthesis**

-Preparation by Fries rearrangement of o-cresyl diphenylacetate with aluminium chloride in nitrobenzene at 60° for 4 h (49%) [1551] or in nitroethane at r.t. for 12 h (73%) [1550].

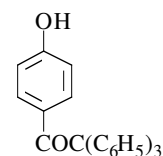
m.p. 211-212° [1551].

1-(4-Hydroxyphenyl)-2,2,2-triphenylethanone

[133859-07-1]

C₂₆H₂₀O₂

mol.wt. 364.44

**Synthesis**

-Obtained (poor yield) by Fries rearrangement of phenyl triphenylacetate with aluminium chloride in nitrobenzene for 4 h at 60° (5%) [1551].

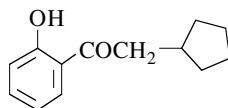
IR [1551].

9.4. Compounds derived from cycloalkylacetic acids**2-Cyclopentyl-1-(2-hydroxyphenyl)ethanone**

[56234-70-9]

C₁₃H₁₆O₂

mol.wt. 204.27

**Synthesis**

-Obtained by reaction of cyclopentylacetyl chloride with phenol in the presence of aluminium chloride at 140° for 15 min (46%) [1093].

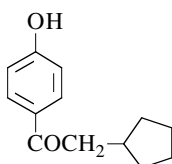
b.p.₁ 112-114° [1093].

2-Cyclopentyl-1-(4-hydroxyphenyl)ethanone

[56184-10-2]

C₁₃H₁₆O₂

mol.wt. 204.27

**Synthesis**

-Obtained by reaction of cyclopentylacetyl chloride with phenol in the presence of aluminium chloride at 140° for 15 min (36%) [1093].

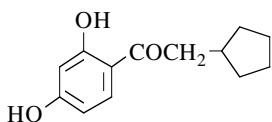
b.p.₁ 175-185° [1093].

2-Cyclopentyl-1-(2,4-dihydroxyphenyl)ethanone

[59108-69-9]

C₁₃H₁₆O₃

mol.wt. 220.27

**Synthesis**

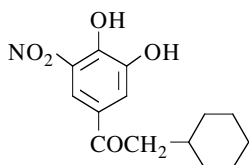
-Obtained by reaction of cyclopentylacetonitrile with resorcinol (Hoesch reaction) [141].

2-Cyclohexyl-1-(3,4-dihydroxy-5-nitrophenyl)ethanone

[400871-12-7]

C₁₄H₁₇NO₅

mol.wt. 279.29

**Synthesis**

-Preparation by treatment of 2-cyclohexyl-1-(4-hydroxy-3-methoxy-5-nitrophenyl)ethanone with aluminium chloride in refluxing ethyl acetate/pyridine mixture for 2 h (90-96%) [887].

m.p. 113-114° [887];

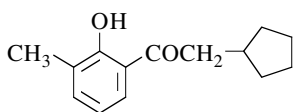
¹H NMR [887], ¹³C NMR [887], IR [887].

2-Cyclopentyl-1-(2-hydroxy-3-methylphenyl)ethanone

[56184-11-3]

C₁₄H₁₈O₂

mol.wt. 218.30

**Synthesis**

-Preparation by reaction of cyclopentylacetyl chloride with o-cresol in the presence of aluminium chloride at 180° for 15 min (40-45%) [1093].

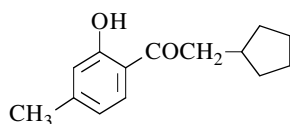
b.p.₁ 121-123° [1093].

2-Cyclopentyl-1-(2-hydroxy-4-methylphenyl)ethanone

[56184-13-5]

C₁₄H₁₈O₂

mol.wt. 218.30

**Synthesis**

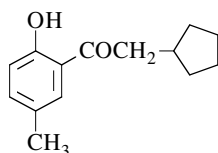
-Preparation by reaction of cyclopentylacetyl chloride with m-cresol in the presence of aluminium chloride at 140° for 15 min (81%) [1093].

b.p.₁ 126-128° [1093].**2-Cyclopentyl-1-(2-hydroxy-5-methylphenyl)ethanone**

[56184-14-6]

C₁₄H₁₈O₂

mol.wt. 218.30

**Synthesis**

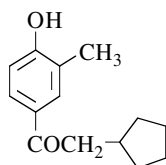
-Preparation by reaction of cyclopentylacetyl chloride with p-cresol in the presence of aluminium chloride at 140° for 15 min (80%) [1093].

b.p.₁ 124-126° [1093].**2-Cyclopentyl-1-(4-hydroxy-3-methylphenyl)ethanone**

[56184-12-4]

C₁₄H₁₈O₂

mol.wt. 218.30

**Synthesis**

-Preparation by reaction of cyclopentylacetyl chloride with o-cresol in the presence of aluminium chloride at 140° for 15 min (56%) [1093].

b.p.₁ 180-190° [1093].