

## Chapter 5. Compounds derived from aryloxyacetic acids

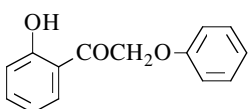
### 5.1. Compounds derived from phenoxyacetic acid

#### 1-(2-Hydroxyphenyl)-2-phenoxyethanone

[73014-18-3]

C<sub>14</sub>H<sub>12</sub>O<sub>3</sub>

mol.wt. 228.25



##### Syntheses

-Preparation by hydrogenolysis of 2-benzyloxy- $\alpha$ -phenoxyacetophenone in ethanol/dioxane (1:1) in the presence of Pd/C under hydrogen (85%) [1417].  
-Also obtained by acidic hydrolysis of 4-hydroxy-

3-phenoxycoumarin (m.p. 216°) [810] according to [996].  
-Also prepared by reaction of phenoxyacetonitrile with phenol (Hoesch reaction) [1025].  
-Also refer to: [160].

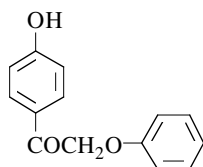
m.p. 115-115°5 [1417], 115° [810]; UV [1417].

#### 1-(4-Hydroxyphenyl)-2-phenoxyethanone

[41978-29-4]

C<sub>14</sub>H<sub>12</sub>O<sub>3</sub>

mol.wt. 228.25



##### Synthesis

-Refer to: [1234] [1267] (Japanese papers).

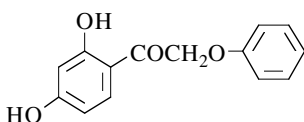
m.p. 159-160° [1267]; b.p. 212-220° [1267].

#### 1-(2,4-Dihydroxyphenyl)-2-phenoxyethanone

[73014-19-4]

C<sub>14</sub>H<sub>12</sub>O<sub>4</sub>

mol.wt. 244.25



##### Syntheses

-Obtained by reaction of phenoxyacetonitrile with resorcinol (Hoesch reaction) [78] [1382] [1498] [1499], (88%) [1496], (82%) [1417].  
-Also refer to: [540] [567].

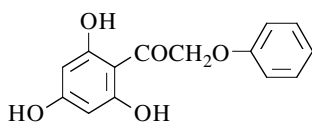
m.p. 209°5-210° [1417], 207-208° [1496], 204-205° [1382];  
<sup>1</sup>H NMR [1496], UV [1417].

#### 2-Phenoxy-1-(2,4,6-trihydroxyphenyl)ethanone

[72023-07-1]

C<sub>14</sub>H<sub>12</sub>O<sub>5</sub>

mol.wt. 260.25



##### Syntheses

-Preparation by reaction of phenoxyacetonitrile with phloroglucinol (Hoesch reaction), (84%) [1417], (80%) [541], (48%) [1575].  
-Also refer to: [1185] [1545] [1559].

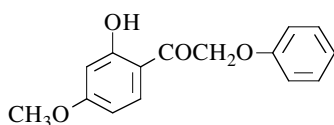
m.p. 275° (d) [1575], 244-245° [1417], 234° [541].  
 One note a very large dispersion of the various melting points.  
<sup>1</sup>H NMR [541], UV [1417].

**1-(2-Hydroxy-4-methoxyphenyl)-2-phenoxyethanone**

[73023-08-2]

C<sub>15</sub>H<sub>14</sub>O<sub>4</sub>

mol.wt. 258.27



Syntheses

-Obtained by partial methylation of 2,4-dihydroxy- $\alpha$ -phenoxyacetophenone with dimethyl sulfate in the presence of potassium carbonate in boiling acetone for 2.5 h (83%) [1417].  
 -Also refer to: [1498].

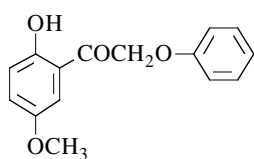
m.p. 86°5-87° [1417]; UV [1417].

**1-(2-Hydroxy-5-methoxyphenyl)-2-phenoxyethanone**

[137612-24-9]

C<sub>15</sub>H<sub>14</sub>O<sub>4</sub>

mol.wt. 258.27



Syntheses

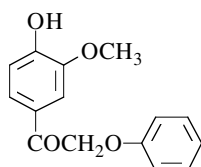
-Obtained by acylation of hydroquinone monomethyl ether with phenoxyacetonitrile in the presence of boron trichloride and aluminium chloride in ethylene dichloride (44%) [1026].  
 -Also refer to: [1025].

**1-(4-Hydroxy-3-methoxyphenyl)-2-phenoxyethanone**

[41978-28-3]

C<sub>15</sub>H<sub>14</sub>O<sub>4</sub>

mol.wt. 258.27



Syntheses

-Obtained (by-product, unusual result) by methylation of 2-(3-chlorophenoxy)-1-(4-hydroxy-3-methoxyphenyl)-ethanone [397].  
 -Also refer to: [1267] (Japanese paper).

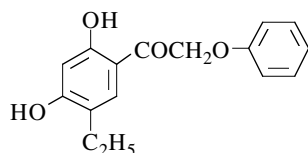
m.p. 94°5-95° [1267]; b.p.<sub>2</sub> 218-225° [1267].

**1-(5-Ethyl-2,4-dihydroxyphenyl)-2-phenoxyethanone**

[243465-56-7]

C<sub>16</sub>H<sub>16</sub>O<sub>4</sub>

mol.wt. 272.30



Synthesis

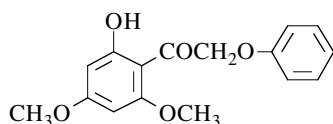
-Obtained [540] by previously described methods [1185].

**1-(2-Hydroxy-4,6-dimethoxyphenyl)-2-phenoxyethanone**

[73023-09-3]

C<sub>16</sub>H<sub>16</sub>O<sub>5</sub>

mol.wt. 288.30

**Synthesis**

-Obtained by partial methylation of 2,4,6-trihydroxy- $\alpha$ -phenoxyacetophenone with dimethyl sulfate in the presence of potassium carbonate in boiling acetone for 8 h (63%) [1417].

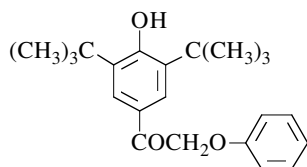
m.p. 122-123° [1417]; UV [1417].

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

[41978-27-2]

C<sub>22</sub>H<sub>28</sub>O<sub>3</sub>

mol.wt. 340.46

**Synthesis**

-Refer to: [1267] (Japanese paper).

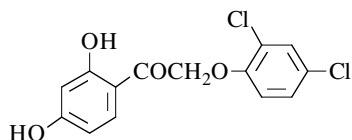
m.p. 111°5-112° [1267].

*5.2. Compounds derived from substituted phenoxyacetic acids***2-(2,4-Dichlorophenoxy)-1-(2,4-dihydroxyphenyl)ethanone**

[137987-83-8]

C<sub>14</sub>H<sub>10</sub>Cl<sub>2</sub>O<sub>4</sub>

mol.wt. 313.14

**Synthesis**

-Obtained by reaction of 2,4-dichlorophenoxy-acetonitrile with resorcinol (Hoesch reaction) (85%) [1496].

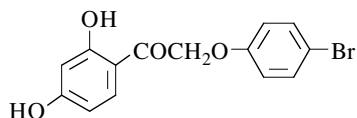
m.p. 192° [1496]; <sup>1</sup>H NMR [1496].

**2-(4-Bromophenoxy)-1-(2,4-dihydroxyphenyl)ethanone**

[243465-55-6]

C<sub>14</sub>H<sub>11</sub>BrO<sub>4</sub>

mol.wt. 323.14

**Synthesis**

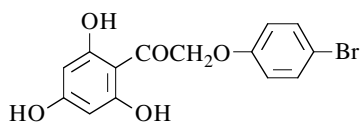
-Obtained [540] by previously described method [1185].

**2-(4-Bromophenoxy)-1-(2,4,6-trihydroxyphenyl)ethanone**

[243657-60-5]

C<sub>14</sub>H<sub>11</sub>BrO<sub>5</sub>

mol.wt. 339.14

**Synthesis**

-Preparation by Hoesch condensation of p-bromophenoxyacetonitrile with phloroglucinol in benzene/ethyl ether in the presence of zinc chloride and hydrogen chloride at 0° (82%) [541].

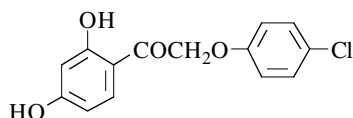
m.p. 256° [541]; <sup>1</sup>H NMR [541].

**2-(4-Chlorophenoxy)-1-(2,4-dihydroxyphenyl)ethanone**

[115781-11-8]

C<sub>14</sub>H<sub>11</sub>ClO<sub>4</sub>

mol.wt. 278.69

**Syntheses**

-Obtained by reaction of 4-chlorophenoxyacetonitrile with resorcinol (Hoesch reaction) (84%) [1496].  
-Also refer to: [1431] (Japanese patent).

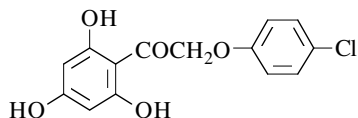
m.p. 187°5 [1496]; <sup>1</sup>H NMR [1496].

**2-(4-Chlorophenoxy)-1-(2,4,6-trihydroxyphenyl)ethanone**

[243657-59-2]

C<sub>14</sub>H<sub>11</sub>ClO<sub>5</sub>

mol.wt. 294.69

**Synthesis**

-Preparation by Hoesch condensation of p-chlorophenoxyacetonitrile with phloroglucinol in benzene/ethyl ether in the presence of zinc chloride and hydrogen chloride at 0° (85%) [541].

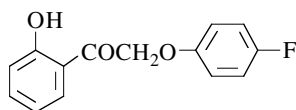
m.p. 251° [541]; <sup>1</sup>H NMR [541].

**2-(4-Fluorophenoxy)-1-(2-hydroxyphenyl)ethanone**

[137612-30-7]

C<sub>14</sub>H<sub>11</sub>FO<sub>3</sub>

mol.wt. 246.24

**Syntheses**

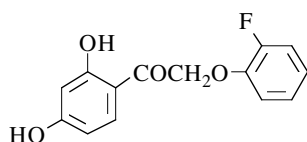
-Obtained by reaction of p-fluorophenoxyacetonitrile with phenol (Hoesch reaction) [1025].  
-Also refer to: [1026].

**1-(2,4-Dihydroxyphenyl)-2-(2-fluorophenoxy)ethanone**

[137987-82-7]

C<sub>14</sub>H<sub>11</sub>FO<sub>4</sub>

mol.wt. 262.24

**Synthesis**

-Obtained by reaction of 2-fluorophenoxyacetonitrile with resorcinol (Hoesch reaction) (87%) [1496].

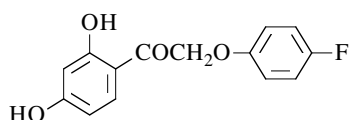
m.p. 163° [1496]; <sup>1</sup>H NMR [1496].

**1-(2,4-Dihydroxyphenyl)-2-(4-fluorophenoxy)ethanone**

[121361-56-6]

C<sub>14</sub>H<sub>11</sub>FO<sub>4</sub>

mol.wt. 262.24

**Syntheses**

-Obtained by reaction of p-fluorophenoxyacetonitrile with resorcinol (Hoesch reaction), (86%) [1496], (63%) [1187].

-Also refer to: [540] [1499].

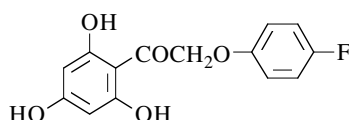
m.p. 165° [1187] [1496]; <sup>1</sup>H NMR [1187] [1496], IR [1187].

**2-(4-Fluorophenoxy)-1-(2,4,6-trihydroxyphenyl)ethanone**

[127526-42-5]

C<sub>14</sub>H<sub>11</sub>FO<sub>5</sub>

mol.wt. 278.24

**Synthesis**

-Preparation by Hoesch condensation of p-fluorophenoxyacetonitrile with phloroglucinol in benzene/ethyl ether in the presence of zinc chloride and hydrogen chloride at 0° (81%) [541].

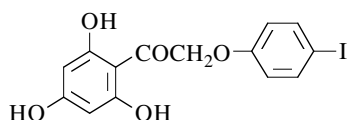
m.p. 242° [541]; <sup>1</sup>H NMR [541].

**2-(4-Iodophenoxy)-1-(2,4,6-trihydroxyphenyl)ethanone**

[243657-61-6]

C<sub>14</sub>H<sub>11</sub>IO<sub>5</sub>

mol.wt. 386.14

**Synthesis**

-Preparation by Hoesch condensation of p-iodophenoxyacetonitrile with phloroglucinol in benzene/ethyl ether in the presence of zinc chloride and hydrogen chloride at 0° (80%) [541].

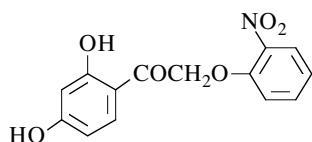
m.p. 269° [541]; <sup>1</sup>H NMR [541].

**1-(2,4-Dihydroxyphenyl)-2-(2-nitrophenoxy)ethanone**

[137987-91-8]

C<sub>14</sub>H<sub>11</sub>NO<sub>6</sub>

mol.wt. 289.24

**Synthesis**

-Obtained by reaction of o-nitrophenoxyacetonitrile with resorcinol (Hoesch reaction) (84%) [1496].

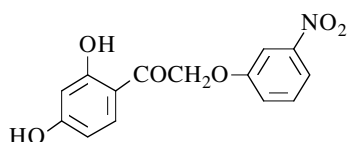
m.p. 287° [1496]; <sup>1</sup>H NMR [1496].

**1-(2,4-Dihydroxyphenyl)-2-(3-nitrophenoxy)ethanone**

[137987-90-7]

C<sub>14</sub>H<sub>11</sub>NO<sub>6</sub>

mol.wt. 289.24

**Synthesis**

-Obtained by reaction of m-nitrophenoxyacetonitrile with resorcinol (Hoesch reaction) (81%) [1496].

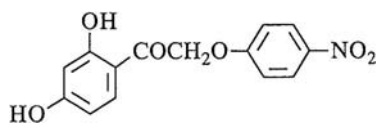
m.p. 275° [1496]; <sup>1</sup>H NMR [1496].

**1-(2,4-Dihydroxyphenyl)-2-(4-nitrophenoxy)ethanone**

[137987-89-4]

C<sub>14</sub>H<sub>11</sub>NO<sub>6</sub>

mol.wt. 289.24

**Synthesis**

-Obtained by reaction of p-nitrophenoxyacetonitrile with resorcinol (Hoesch reaction) (86%) [1496].

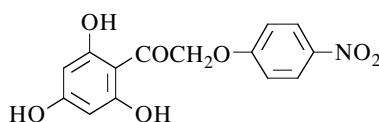
m.p. 281° [1496]; <sup>1</sup>H NMR [1496].

**2-(4-Nitrophenoxy)-1-(2,4,6-trihydroxyphenyl)ethanone**

[243657-68-3]

C<sub>14</sub>H<sub>11</sub>NO<sub>7</sub>

mol.wt. 305.24

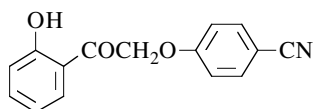
**Synthesis**

-Preparation by Hoesch condensation of p-nitrophenoxyacetonitrile with phloroglucinol in benzene/ethyl ether in the presence of zinc chloride and hydrogen chloride at 0° (87%) [541].

m.p. 295° [541]; <sup>1</sup>H NMR [541].

**2-(4-Cyanophenoxy)-1-(2-hydroxyphenyl)ethanone**C<sub>15</sub>H<sub>11</sub>NO<sub>3</sub>

mol.wt. 253.26

**Syntheses**

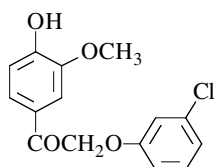
-Refer to: [1114] [1115].

**2-(3-Chlorophenoxy)-1-(4-hydroxy-3-methoxyphenyl)ethanone**

[107602-85-7]

C<sub>15</sub>H<sub>13</sub>ClO<sub>4</sub>

mol.wt. 292.72

**Synthesis**

-Obtained by saponification of 1-(4-acetoxy-3-methoxyphenyl)-2-(3-chlorophenoxy)ethanone with sodium methoxide in refluxing methanol for 2.5 h (82%) [397].

m.p. 118-119° [397];

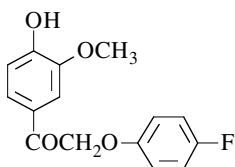
<sup>1</sup>H NMR [397], IR [397], MS [397].

**2-(4-Fluorophenoxy)-1-(4-hydroxy-3-methoxyphenyl)ethanone**

[104972-13-6]

C<sub>15</sub>H<sub>13</sub>FO<sub>4</sub>

mol.wt. 276.26

**Synthesis**

-Preparation by treatment of 1-(4-isopropoxy-3-methoxyphenyl)-2-(4-fluorophenoxy)ethanone (viscous liquid) (1 mol) with aluminium chloride (4 mol) in benzene for 2 h at r.t. (95%) [1243].

<sup>1</sup>H NMR [1243], <sup>13</sup>C NMR [1243],

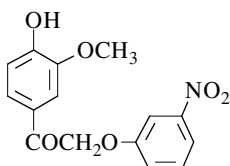
<sup>19</sup>F NMR [1243], IR [1243]; TLC [1243].

**1-(4-Hydroxy-3-methoxyphenyl)-2-(3-nitrophenoxy)ethanone**

[107584-70-3]

C<sub>15</sub>H<sub>13</sub>NO<sub>6</sub>

mol.wt. 303.27

**Synthesis**

-Obtained by saponification of 1-(4-acetoxy-3-methoxyphenyl)-2-(3-nitrophenoxy)ethanone (m.p. 130-133°) with sodium methoxide in refluxing methanol for 2.5 h (65%) [397].

m.p. 187°5-189°5 [397];

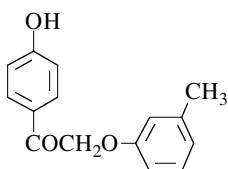
<sup>1</sup>H NMR [397], IR [397], MS [397].

**1-(4-Hydroxyphenyl)-2-(3-methylphenoxy)ethanone**

[107584-64-5]

C<sub>15</sub>H<sub>14</sub>O<sub>3</sub>

mol.wt. 242.27

**Synthesis**

-Obtained by coupling 4-hydroxy-α-bromoacetophenone with m-cresol (44%) [397].

m.p. 170°5-172°5 [397];

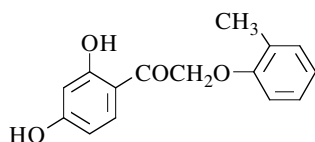
<sup>1</sup>H NMR [397], IR [397], MS [397].

**1-(2,4-Dihydroxyphenyl)-2-(2-methylphenoxy)ethanone**

[137987-86-1]

C<sub>15</sub>H<sub>14</sub>O<sub>4</sub>

mol.wt. 258.27

**Synthesis**

-Obtained by reaction of o-methylphenoxyacetonitrile with resorcinol (Hoesch reaction) (82%) [1496].

m.p. 182° [1496];

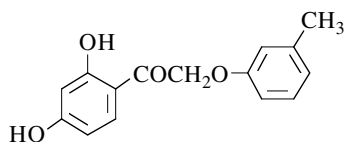
<sup>1</sup>H NMR [1496].

**1-(2,4-Dihydroxyphenyl)-2-(3-methylphenoxy)ethanone**

[137987-85-0]

C<sub>15</sub>H<sub>14</sub>O<sub>4</sub>

mol.wt. 258.27

**Synthesis**

-Obtained by reaction of 3-methylphenoxyacetonitrile with resorcinol (Hoesch reaction) (82%) [1496].

m.p. 162° [1496];

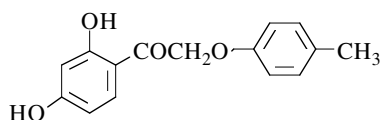
<sup>1</sup>H NMR [1496].

**1-(2,4-Dihydroxyphenyl)-2-(4-methylphenoxy)ethanone**

[137987-84-9]

C<sub>15</sub>H<sub>14</sub>O<sub>4</sub>

mol.wt. 258.27

**Synthesis**

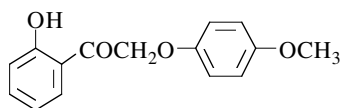
-Obtained by condensation of (p-methylphenoxy)-acetonitrile with resorcinol in ethyl ether/benzene in the presence of zinc chloride according to Houben-Hoesch method (95%) [78], (87%) [1496].

m.p. 171-172° [78], 167° [1496];

<sup>1</sup>H NMR [78] [1496].

**1-(2-Hydroxyphenyl)-2-(4-methoxyphenoxy)ethanone**C<sub>15</sub>H<sub>14</sub>O<sub>4</sub>

mol.wt. 258.27

**Syntheses**

-Refer to: [1114] (compound **1d**) and [1115].

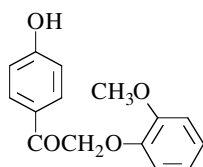


**1-(4-Hydroxyphenyl)-2-(2-methoxyphenoxy)ethanone**

[143486-72-0]

C<sub>15</sub>H<sub>14</sub>O<sub>4</sub>

mol.wt. 258.27

**Synthesis**

-Preparation by saponification of 1-(4-acetoxyphenyl)-2-(2-methoxyphenoxy)ethanone (SM) with potassium hydroxide in ethanol for 3 h at temperature < 30° under nitrogen (90%) [1500]. SM was obtained by alkylation of sodium 2-methoxyphenoxide with p-acetoxy- $\alpha$ -bromoacetophenone (Williamson synthesis) (96%, m.p. 67°5-68°5).

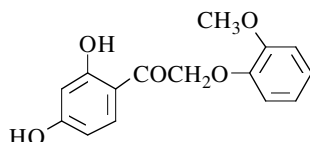
m.p. 159-160° [1500]; <sup>1</sup>H NMR [1500].

**1-(2,4-Dihydroxyphenyl)-2-(2-methoxyphenoxy)ethanone**

[137987-88-3]

C<sub>15</sub>H<sub>14</sub>O<sub>5</sub>

mol.wt. 274.27

**Synthesis**

-Obtained by reaction of o-methoxyphenoxyacetonitrile with resorcinol (Hoesch reaction) (87%) [1496].

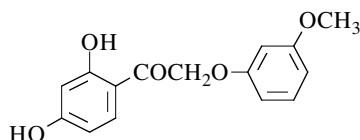
m.p. 193° [1496]; <sup>1</sup>H NMR [1496].

**1-(2,4-Dihydroxyphenyl)-2-(3-methoxyphenoxy)ethanone**

[137987-87-2]

C<sub>15</sub>H<sub>14</sub>O<sub>5</sub>

mol.wt. 274.27

**Synthesis**

-Obtained by reaction of m-methoxyphenoxyacetonitrile with resorcinol (Hoesch reaction) (85%) [1496].

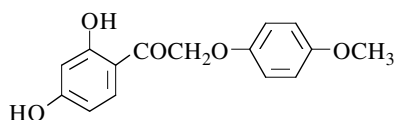
m.p. 145° [1496]; <sup>1</sup>H NMR [1496].

**1-(2,4-Dihydroxyphenyl)-2-(4-methoxyphenoxy)ethanone**

[121361-55-5]

C<sub>15</sub>H<sub>14</sub>O<sub>5</sub>

mol.wt. 274.27

**Syntheses**

-Obtained by reaction of p-methoxyphenoxyacetonitrile with resorcinol (Hoesch reaction) (89%) [1496], (73%) [1187].

-Also refer to: [1182].

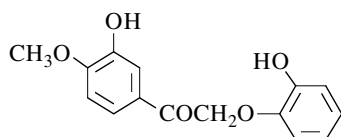
m.p. 179° [1182] [1187], 175° [1496];  
<sup>1</sup>H NMR [1182] [1187] [1496], IR [1182] [1187].

**1-(3-Hydroxy-4-methoxyphenyl)-2-(2-hydroxyphenoxy)ethanone**

[99783-86-5]

C<sub>15</sub>H<sub>14</sub>O<sub>5</sub>

mol.wt. 274.27

**Syntheses**

- Preparation by reaction of 3-hydroxy-4-methoxy- $\alpha$ -chloroacetophenone, \*with pyrocatechol monosodium salt in DMF at r.t. for 3 h (51%) [84];
- \*with pyrocatechol in the presence of potassium

carbonate in 2-butanone [83].  
-Also refer to: [81].

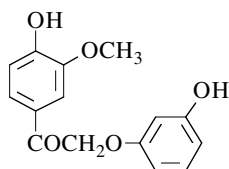
m.p. 154° [84]; <sup>1</sup>H NMR [84], MS [84].

**1-(4-Hydroxy-3-methoxyphenyl)-2-(3-hydroxyphenoxy)ethanone**

[107584-71-4]

C<sub>15</sub>H<sub>14</sub>O<sub>5</sub>

mol.wt. 274.27

**Syntheses**

- Obtained by saponification of 1-(4-acetoxy-3-methoxyphenyl)-2-(3-hydroxyphenoxy)ethanone with sodium methoxide in refluxing methanol for 2.5 h [397].
- Also obtained by coupling reaction of 4-hydroxy-3-methoxy- $\alpha$ -bromoacetophenone with sodium m-acetoxyphenolate [397].

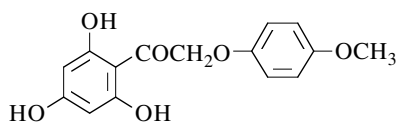
m.p. 145-146° [397]; <sup>1</sup>H NMR [397], IR [397], MS [397].

**2-(4-Methoxyphenoxy)-1-(2,4,6-trihydroxyphenyl)ethanone**

[243657-65-0]

C<sub>15</sub>H<sub>14</sub>O<sub>6</sub>

mol.wt. 290.27

**Synthesis**

- Preparation by Hoesch condensation of p-methoxyphenoxyacetonitrile with phloroglucinol in benzene/ethyl ether in the presence of zinc chloride and hydrogen chloride at 0° (78%) [541].

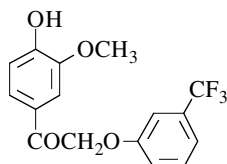
m.p. 259° [541]; <sup>1</sup>H NMR [541].

**1-(4-Hydroxy-3-methoxyphenyl)-2-[3-(trifluoromethyl)phenoxy]ethanone**

[107584-69-0]

C<sub>16</sub>H<sub>13</sub>F<sub>3</sub>O<sub>4</sub>

mol.wt. 326.27

**Synthesis**

- Obtained by saponification of 1-(4-acetoxy-3-methoxyphenyl)-2-[3-(trifluoromethyl)phenoxy]ethanone with sodium methoxide in refluxing methanol for 2.5 h (88%) [397].

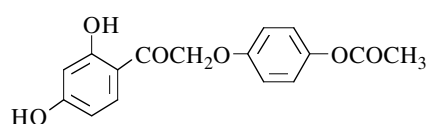
m.p. 107°5-108°5 [397]; <sup>1</sup>H NMR [397], IR [397], MS [397].

**2-(4-Acetoxyphenoxy)-1-(2,4-dihydroxyphenyl)ethanone**

[137987-93-0]

C<sub>16</sub>H<sub>14</sub>O<sub>6</sub>

mol.wt. 302.28



Synthesis

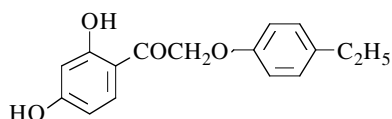
-Refer to: [1496].

**1-(2,4-Dihydroxyphenyl)-2-(4-ethylphenoxy)ethanone**

[201284-76-6]

C<sub>16</sub>H<sub>16</sub>O<sub>4</sub>

mol.wt. 272.30



Synthesis

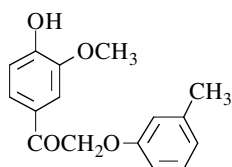
-Obtained by condensation of (p-ethylphenoxy)-acetonitrile with resorcinol in ethyl ether/benzene in the presence of zinc chloride according to Houben-Hoesch method (84%) [78].

m.p. 147-148° [78]; <sup>1</sup>H NMR [78].**1-(4-Hydroxy-3-methoxyphenyl)-2-(3-methylphenoxy)ethanone**

[107584-67-8]

C<sub>16</sub>H<sub>16</sub>O<sub>4</sub>

mol.wt. 272.30



Synthesis

-Obtained by saponification of 1-(4-acetoxy-3-methoxyphenyl)-2-(3-methylphenoxy)ethanone with sodium methoxide in refluxing methanol for 2.5 h (53%) [397].

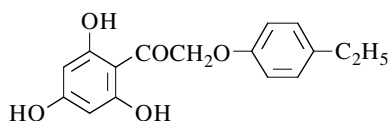
m.p. 170°5-172°5 [397];

<sup>1</sup>H NMR [397], IR [397], MS [397].**2-(4-Ethylphenoxy)-1-(2,4,6-trihydroxyphenyl)ethanone**

[243657-62-7]

C<sub>16</sub>H<sub>16</sub>O<sub>5</sub>

mol.wt. 288.30



Synthesis

-Preparation by Hoesch condensation of p-ethylphenoxyacetonitrile with phloroglucinol in ethyl ether/benzene in the presence of zinc chloride and hydrogen chloride at 0° (88%) [541].

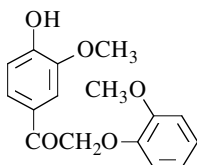
m.p. 247° [541]; <sup>1</sup>H NMR [541].

**1-(4-Hydroxy-3-methoxyphenyl)-2-(2-methoxyphenoxy)ethanone**

[22317-35-7]

C<sub>16</sub>H<sub>16</sub>O<sub>5</sub>

mol.wt. 288.30

**Syntheses**

- Preparation by treatment of 1-(4-acetoxy-3-methoxyphenyl)-2-(2-methoxyphenoxy)ethanone in chloroform solution with sodium methoxide in methanol, followed by acidification with dilute sulfuric acid (92%) [1309].
- Also obtained by hydrogenolysis of 1-[4-(benzyloxy)-3-methoxyphenyl]-2-(2-methoxyphenoxy)ethanone in methanol in the presence of 5% Pd on barium sulfate under hydrogen pressure (72%) [1124].
- Preparation by treatment of 1-(4-isopropoxy-3-methoxyphenyl)-2-(2-methoxyphenoxy)ethanone (m.p. 70°) (1 mol) with aluminium chloride (4 mol) in benzene for 2 h at r.t. (95%) [1243].
- Also obtained by oxidative degradation with 3% peracetic acid of 1-(4-hydroxy-3-methoxyphenyl)-2-(2-methoxyphenoxy)ethanol and 1-(3,4-dimethoxyphenyl)-2-(2-methoxyphenoxy)ethanol (used as softwood lignin model compounds) in 10% acetic acid or 50% ethanol for 48 h at 30° [1119].
- Also obtained by degradation of 1-(4-benzyloxy-3-methoxyphenyl)-2-(2-methoxyphenoxy)ethanol in the presence of *Aspergillus flavus*. Initial reactions in the degradation of this compound were oxidation of the  $\alpha$ -hydroxy group to the corresponding ketone and debenylation of the benzyloxy group [167].
- Formation from kraft lignin in sulfate cooking [1437] [1450].
- Also obtained from the cleavage of the  $\beta$ -ether bond in the guaiacylglycol- $\beta$ -guaiacyl ether (SM) with the water solution of phthalocyanine complex trisodium tetra-4-sulfonatophthalocyanine-iron (III) (Fe(TSPc)). Fe(TSPc) catalyzed formation of oxidized products in the absence of oxygen. The radical derived from SM then undergoes further single electron oxidation and deprotonation to give the titled compound [1523].
- Also refer to: [272] [317] [398] [562] [654] [673] [1451].

m.p. 94-95° [1124], 93° [1309], 65-67° [1450].

One the reported melting points is obviously wrong.

<sup>1</sup>H NMR [167] [1124] [1243], <sup>13</sup>C NMR [1243], IR [167] [1243], UV [1124],

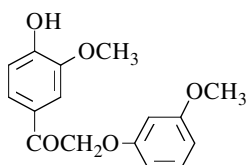
MS [167] [1124]; TLC [167] [1243]; GC [167].

**1-(4-Hydroxy-3-methoxyphenyl)-2-(3-methoxyphenoxy)ethanone**

[107584-68-9]

C<sub>16</sub>H<sub>16</sub>O<sub>5</sub>

mol.wt. 288.30

**Synthesis**

- Obtained by saponification of 1-(4-acetoxy-3-methoxyphenyl)-2-(3-methoxyphenoxy)ethanone with sodium methoxide in refluxing methanol for 2.5 h (75%) [397].

m.p. 109-110° [397];

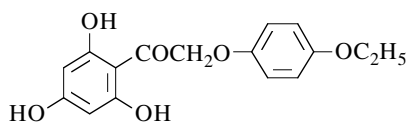
<sup>1</sup>H NMR [397], IR [397], MS [397].

**2-(4-Ethoxyphenoxy)-1-(2,4,6-trihydroxyphenyl)ethanone**

[243657-66-1]

C<sub>16</sub>H<sub>16</sub>O<sub>6</sub>

mol.wt. 304.30

**Synthesis**

-Preparation by Hoesch condensation of p-ethoxyphenoxyacetonitrile with phloroglucinol in benzene/ethyl ether in the presence of zinc chloride and hydrogen chloride at 0° (81%) [541].

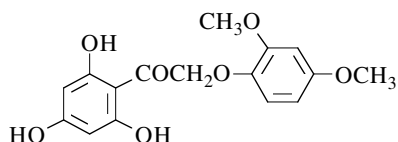
m.p. 223° [541]; <sup>1</sup>H NMR [541].

**2-(2,4-Dimethoxyphenoxy)-1-(2,4,6-trihydroxyphenyl)ethanone**

[149312-75-4]

C<sub>16</sub>H<sub>16</sub>O<sub>7</sub>

mol.wt. 320.30

**Synthesis**

-Obtained by reaction of 2,4-dimethoxyphenoxyacetonitrile with phloroglucinol in THF in the presence of zinc chloride and hydrogen chloride in an ice bath for 4 h (53%) (Hoesch reaction) [1575].

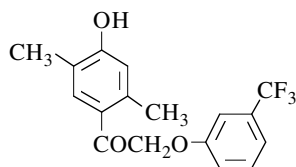
m.p. 105-107° [1575]; monohydrate [1575];  
<sup>1</sup>H NMR [1575], <sup>13</sup>C NMR [1575], IR [1575], UV [1575], MS [1575].

**1-(4-Hydroxy-2,5-dimethylphenyl)-2-[3-(trifluoromethyl)phenoxy]ethanone**

[107584-80-5]

C<sub>17</sub>H<sub>15</sub>F<sub>3</sub>O<sub>3</sub>

mol.wt. 324.30

**Synthesis**

-Obtained by coupling 2,5-dimethyl-4-hydroxy-α-bromoacetophenone with m-(trifluoromethyl)phenol (87%) [397].

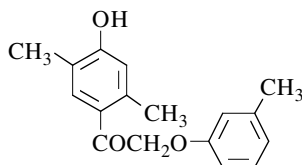
m.p. 191-194° [397];  
<sup>1</sup>H NMR [397], IR [397], MS [397].

**1-(4-Hydroxy-2,5-dimethylphenyl)-2-(3-methylphenoxy)ethanone**

[107584-79-2]

C<sub>17</sub>H<sub>18</sub>O<sub>3</sub>

mol.wt. 270.33

**Synthesis**

-Obtained by coupling 2,5-dimethyl-4-hydroxy-α-bromoacetophenone with m-cresol (54%) [397].

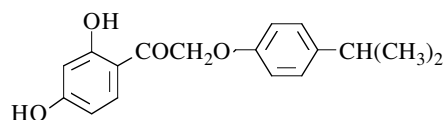
m.p. 188°5-190°5 [397];  
<sup>1</sup>H NMR [397], IR [397], MS [397].

**1-(2,4-Dihydroxyphenyl)-2-[4-(1-methylethyl)phenoxy]ethanone**

[201284-86-8]

C<sub>17</sub>H<sub>18</sub>O<sub>4</sub>

mol.wt. 286.33

**Synthesis**

-Obtained by condensation of (p-isopropylphenoxy)acetonitrile with resorcinol in ethyl ether/benzene in the presence of zinc chloride according to Houben-Hoesch method (90%) [78].

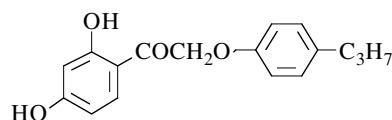
m.p. 167° [78]; <sup>1</sup>H NMR [78].

**1-(2,4-Dihydroxyphenyl)-2-(4-propylphenoxy)ethanone**

[201283-81-3]

C<sub>17</sub>H<sub>18</sub>O<sub>4</sub>

mol.wt. 286.33

**Synthesis**

-Obtained by condensation of (p-propylphenoxy)acetonitrile with resorcinol in ethyl ether/benzene in the presence of zinc chloride according to Houben-Hoesch method (88%) [78].

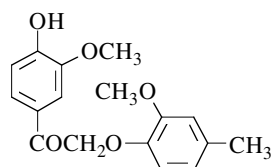
m.p. 149-150° [78]; <sup>1</sup>H NMR [78].

**1-(4-Hydroxy-3-methoxyphenyl)-2-(2-methoxy-4-methylphenoxy)ethanone**

[152306-57-5]

C<sub>17</sub>H<sub>18</sub>O<sub>5</sub>

mol.wt. 302.33

**Synthesis**

-Obtained by coupling α-bromoacetoguaiacone (1 equiv) with sodium creosolate (8 equiv) (compound 8) (19%) [395].

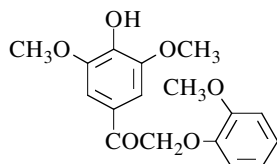
m.p. 109-111° [395];  
<sup>1</sup>H NMR [395], <sup>13</sup>C NMR [395], IR [395], MS [395].

**1-(4-Hydroxy-3,5-dimethoxyphenyl)-2-(2-methoxyphenoxy)ethanone**

[18167-90-3]

C<sub>17</sub>H<sub>18</sub>O<sub>6</sub>

mol.wt. 318.33

**Syntheses**

-Preparation by reaction of α-bromoacetosyringone (m.p. 130°) with guaiacol in the presence of sodium hydroxide in refluxing ethanol for 3 h (64%) [809].

-From degradation of the lignin model compound syringylglycol β-guaiacyl ether (m.p. 70-71°) (SM) by *Polyporus versicolor* and *Stereum frustulatum* [809].

SM was obtained by reduction of α-guaiacoxysyringone in ethyl acetate with hydrogen over 10% Pd/C or with sodium borohydride in isopropanol (almost quantitative yield).

m.p. 85-86° [809].

**2-(2,6-Dimethoxy-4-methylphenoxy)-1-(4-hydroxy-3-methoxyphenyl)ethanone**

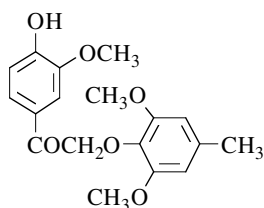
[105153-11-5]

C<sub>18</sub>H<sub>20</sub>O<sub>6</sub>

mol.wt. 332.35

Synthesis

-Refer to: [396].

**1-(4-Hydroxy-3-methoxyphenyl)-2-[4-(3-hydroxypropyl)-2-methoxyphenoxy]ethanone**

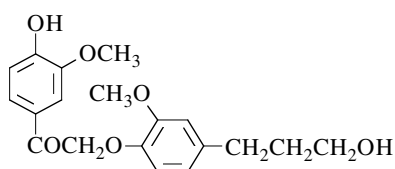
[120936-27-8]

C<sub>19</sub>H<sub>22</sub>O<sub>6</sub>

mol.wt. 346.38

Synthesis

-Refer to: [62].

**2-([1,1'-Biphenyl]-2-yloxy)-1-(4-hydroxy-3-methoxyphenyl)ethanone**

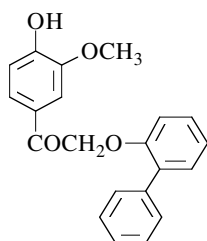
[108434-12-4]

C<sub>21</sub>H<sub>18</sub>O<sub>4</sub>

mol.wt. 334.37

Synthesis

-Obtained by degradation of 1-(4-benzyloxy-3-methoxyphenyl)-2-(2-phenylphenoxy)ethanol in the presence of *Aspergillus flavus*. Initial reactions in the degradation of this compound were oxidation of the  $\alpha$ -hydroxy group to the corresponding ketone and debenylation of the benzyloxy group [167].



<sup>1</sup>H NMR [167], IR [167], MS [167];  
TLC [167]; GC [167].

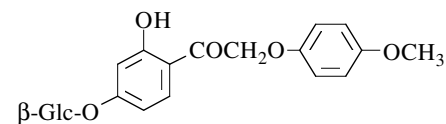
**1-[4-( $\beta$ -D-Glucopyranosyloxy)-2-hydroxyphenyl]-2-(4-methoxyphenoxy)ethanone**

[121361-58-8]

C<sub>21</sub>H<sub>24</sub>O<sub>10</sub>

mol.wt. 436.42

Synthesis



refluxing dilute methanol for 30 min (93%) [1187].

-Obtained by hydrolysis of 1-[2-hydroxy-4-[(2,3,4,6-tetra-O-acetyl- $\beta$ -D-glucopyranosyl)oxy]phenyl]-2-(4-methoxyphenoxy)ethanone with 2 N sodium hydroxide in

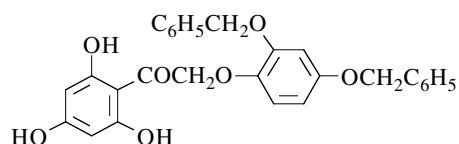
m.p. 144° [1187]; ( $\alpha$ )<sub>D</sub><sup>23</sup> = -38° (c = 0.7 in acetone) [1187]; IR [1187].

**2-[2,4-Bis(phenylmethoxy)phenoxy]-1-(2,4,6-trihydroxyphenyl)ethanone**

[149312-76-5]

C<sub>28</sub>H<sub>24</sub>O<sub>7</sub>

mol.wt. 472.49

**Synthesis**

-Obtained by reaction of 2,4-(dibenzyl-oxy)phenoxyacetonitrile with phloroglucinol in THF in the presence of zinc chloride and hydrogen chloride in an ice bath for 4 h (57%) (Hoesch reaction) [1575].

m.p. 91-92° [1575]; monohydrate [1575];

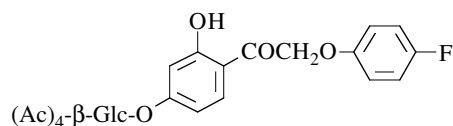
<sup>1</sup>H NMR [1575], <sup>13</sup>C NMR [1575], IR [1575], UV [1575], MS [1575].

**2-(4-Fluorophenoxy)-1-[2-hydroxy-4-[(2,3,4,6-tetra-O-acetyl-β-D-glucopyranosyl)oxy]phenyl]ethanone**

[121377-35-3]

C<sub>28</sub>H<sub>29</sub>FO<sub>13</sub>

mol.wt. 592.53

**Synthesis**

-Obtained by glycosylation of 1-(2,4-dihydroxyphenyl)-2-(4-fluorophenoxy)ethanone with acetobromoglucose (34%) [1187].

m.p. 174° [1187]; ( $\alpha$ )<sub>D</sub><sup>23</sup> = -28° (c = 1 in chloroform) [1187];

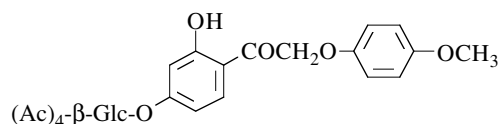
<sup>1</sup>H NMR [1187], IR [1187].

**1-[2-Hydroxy-4-[(2,3,4,6-tetra-O-acetyl-β-D-glucopyranosyl)oxy]phenyl]-2-(4-methoxyphenoxy)ethanone**

[121361-57-7]

C<sub>29</sub>H<sub>32</sub>O<sub>14</sub>

mol.wt. 604.56

**Synthesis**

-Obtained by glycosylation of 1-(2,4-dihydroxyphenyl)-2-(4-methoxyphenoxy)ethanone with acetobromoglucose (45%) [1187].

m.p. 180° [1187]; ( $\alpha$ )<sub>D</sub><sup>23</sup> = -27° (c = 1 in chloroform) [1187];

<sup>1</sup>H NMR [1187], IR [1187].