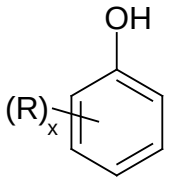
CLAIMS

1. A process for the preparation of aromatic compound(s) carrying at least one mandelic –CHOH-COOH group comprising a condensation reaction of at least one phenol or substituted phenol with glyoxylic acid, said condensation reaction being carried out substantially in the absence of any acid or any base added to the reaction medium, whereinsaid substituted phenols correspond to the following formula (I):



(I)

in said formula:

- R represents one or more identical or different substituents, selected from the group consisting of alkyl, alkenyl, alkoxy, hydroxyalkyl, alkoxyalkyl, cycloalkyl, aryl or arylalkyl group, a hydroxyl group, a nitro group, a halogen atom, a halo- or perhaloalkyl group, a formyl group, an acyl group having from 2 to 6 carbon atoms, a carboxyl group, or an amino or amido group substituted or unsubstituted by one or two alkyl or phenyl groups,
- x, the number of substituents on a ring, is an integer between 1 and 4,
- when x is greater than 1, two R groups placed on two vicinal carbon atoms can form, together and with the carbon atoms which carry them, a saturated, unsaturated or aromatic ring having from 5 to 7 atoms and optionally comprising one or more heteroatoms.

2. The process for the preparation of aromatic compound(s) as claimed in claim 1, in which the position para with respect to the hydroxyl group is unsubstituted.

3. The process for the preparation of aromatic compound(s) as claimed in claim 1 or claim 2, in which the substituted phenols are: o-cresol, m-cresol, 3-ethylphenol, 2-(tert-butyl)phenol, guaiacol or guaethol.

4. The process for the preparation of aromatic compound(s) as claimed in one of claims 1 to 3, in which the glyoxylic acid is used in the monohydrate form ($CHO\text{-}CO_2H.H_2O$).

5. The process for the preparation of aromatic compound(s) as claimed in one of claims 1 to 4, in which said condensation reaction is carried out in the presence of at least one catalyst added to said reaction medium in a catalytic amount.

6. The process for the preparation of aromatic compound(s) as claimed in claim 5, in which said catalyst is a catalyst based on transition metals chosen from transition metal complexes comprising oxygen-comprising ligands.

7. The process for the preparation of aromatic compound(s) as claimed in claim 5 or claim 6, in which said catalyst is chosen from iron(II) acetate ($Fe(OAc)_2$) and iron(III) acetate ($Fe(OAc)_3$), copper(II) acetate ($Cu(OAc)_2$), iron(II) acetylacetonate ($Fe(acac)_2$) and iron(III) acetylacetonate ($Fe(acac)_3$), copper(II) acetylacetonate ($Cu(acac)_2$) and copper(III) acetylacetonate ($Cu(acac)_3$).

8. The process for the preparation of aromatic compound(s) as claimed in claim 6 or claim 7, in which said catalyst is a complex composed of a transition metal, preferably iron or copper, and of at least one glyoxylate ligand, this complex being formed in situ or prepared prior to the condensation reaction.

9. The process for the preparation of aromatic compound(s) as claimed in one of claims 1 to 8, in which said condensation reaction is carried out in the presence of a solvent chosen from water, an aromatic hydrocarbon, an alcohol or a water-alcohol mixture.

10. The process for the preparation of aromatic compound(s) as claimed in one of claims 1 to 8, in which said condensation reaction is carried out in the absence of a solvent.

11. The process for the preparation of aromatic compound(s) as claimed in one of claims 1 to 10, in which the molar ratio of the aromatic compound to glyoxylic acid or its derivatives is in the vicinity of 1.

12. The process for the preparation of aromatic compound(s) as claimed in one of claims 1 to 11, such that it consists in carrying out the condensation reaction of glyoxylic acid with guaiacol or the condensation reaction of glyoxylic acid with guaethol or also the condensation reaction of glyoxylic acid with guaiacol and guaethol.

13. A process for the preparation of aromatic aldehyde(s) comprising the condensation reaction carried out according to the process of one of claims 1 to 12, followed by an

oxidation reaction of said aromatic compound(s) carrying at least one mandelic –CHOH-COOH group.

14. The process for the preparation of aromatic aldehyde(s) as claimed in claim 13, in which said oxidation reaction is carried out without addition of alkaline agent.

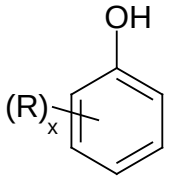
15The process for the preparation of aromatic aldehyde(s) as claimed in claim 13 or claim 14, in which said oxidation reaction is carried out in the presence of water as solvent.

16. The process for the preparation of aromatic aldehyde(s) as claimed in one of claims 13 to 15, in which said oxidation reaction is carried out in the presence of a catalyst chosen from chromium, cobalt, copper, vanadium, manganese, iron, nickel and osmium derivatives.

17. The process for the preparation of aromatic aldehyde(s) as claimed in one of claims 13 to 16, such that it consists in preparing vanillin and/or ethylvanillin.

18. A process for the preparation of aromatic aldehyde(s) by oxidation of the corresponding mandelic derivative(s), said oxidation reaction being carried out in the presence of at least one oxidizing agent and of at least one catalyst and substantially in the absence of any acid or any base added to the reaction medium subjected to said oxidation reaction wherein said mandelic derivative(s) is an aromatic compound wherein at least two hydrogen atoms of which directly bonded to the aromatic nucleus are replaced, one by a hydroxyl group and the other by a glycolic group of formula –CHOH-COOH.

19. The process for the preparation of aromatic aldehyde(s) by oxidation as claimed in claim 18, in which said mandelic derivative(s) is/are obtained by condensation of at least one phenol or substituted phenol with glyoxylic acid, said condensation reaction being carried out in the presence of acid or base or substantially in the absence of any acid or any base added to said reaction medium, wherein said substituted phenols correspond to the following formula (I):



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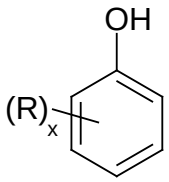
- x, the number of substituents on a ring, is an integer between 1 and 4,
- when x is greater than 1, two R groups placed on two vicinal carbon atoms can form, together and with the carbon atoms which carry them, a saturated, unsaturated or aromatic ring having from 5 to 7 atoms and optionally comprising one or more heteroatoms.

20. A process for the preparation of aromatic compound(s) carrying at least one mandelic –CHOH-COOH group comprising a condensation reaction of at least one phenol or substituted phenol with glyoxylic acid, said condensation reaction being carried out in the absence of solvent and the glyoxylic acid being glyoxylic acid monohydrate, wherein said substituted phenols correspond to the following formula (I):



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