【Claims】

【Claim 1】

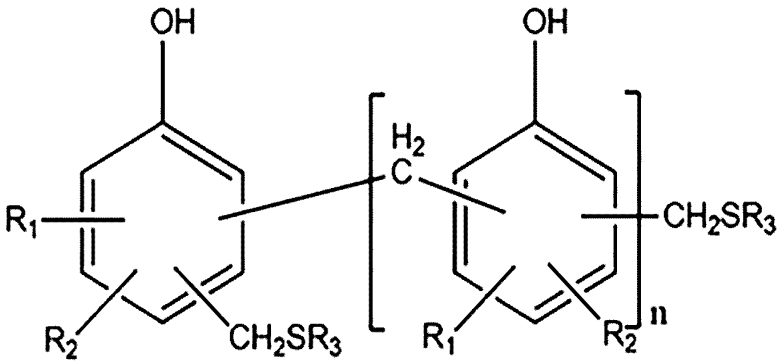
A method of preparing a thiomethylphenol derivative, comprising:

(a) carrying out a primary reaction of a phenol derivative represented by the following Chemical Formula 2, a mercaptan derivative represented by R_4SH, and paraformaldehyde at a reaction temperature T_1 under conditions in which a heterocyclic base having 3 to 10 carbon atoms and an acid are simultaneously present; and

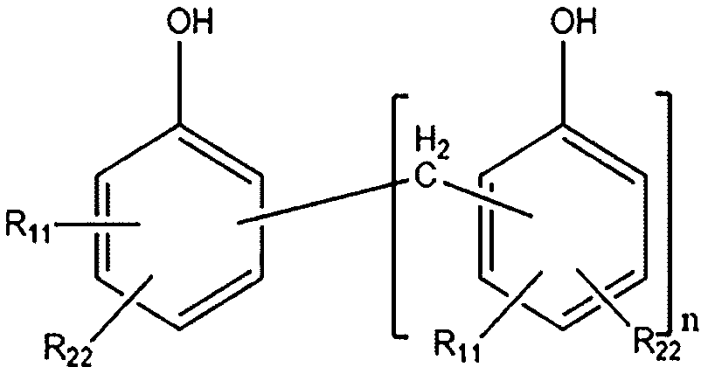
(b) carrying out a secondary reaction at a reaction temperature T_2 to prepare a thiomethylphenol derivative represented by the following Chemical Formula 1;

wherein $95°C < T_1 + 5°C \leqq T_2 < 120°C$ is satisfied,

[Chemical Formula 1]



[Chemical Formula 2]



wherein,

R_1 and R_2 are each independently selected from hydrogen, deuterium, a C_1 to C_{16} straight or branched alkyl group, a C_5 to C_{16} cycloalkyl group or aromatic-containing alkyl group, $-CH_2SR_3$,

R_3 and R_4 are each independently selected from a C_1 to C_{16} straight or branched alkyl group, a C_5 to C_{16} cycloalkyl group, or aromatic-containing alkyl group,

R_{11} and R_{22} are each independently selected from hydrogen, deuterium, a C_1 to C_{16} straight or branched alkyl group, a C_5 to C_{16} cycloalkyl group or aromatic-containing alkyl group,

n is 0 or 1.

~~【Claim 2】~~

~~The method of claim 1, wherein $95°C < T_1 + 5°C < T_2 < 120°C$ is satisfied.~~

【Claim ~~3~~2】

The method of claim 1, wherein steps (a) and (b) are each carried out for 1 to 5 hours.

【Claim ~~4~~3】

The method of claim 1, wherein step (a) is carried out in the presence of 0.5 to 50.0 equivalents of a solvent based on 1 equivalent of the phenol derivative.

【Claim ~~5~~4】

The method of claim ~~4~~3, wherein the solvent is water or an alcohol.

【Claim ~~6~~5】

The method of claim 1, wherein 0.01 to 0.50 equivalents of the base are used based on 1 equivalent of the phenol derivative in step (a).

【Claim ~~7~~6】

The method of claim 1, wherein the base in step (a) is at least one selected from the group consisting of pyrrole, pyrrolidine, imidazole, pyridine, piperidine, piperazine and pyrazine.

【Claim ~~8~~7】

The method of claim 1, wherein 0.01 to 0.90 equivalents of the acid are used based on 1 equivalent of the phenol derivative in step (a).

【Claim ~~98~~8】

The method of claim 1, wherein the acid in step (a) is at least one selected from the group consisting of chlorous acid, phosphoric acid, arsenic acid, chloroacetic acid, hydrofluoric acid, nitrous acid, formic acid, benzoic acid, hydrazoic acid, acetic acid, propionic acid and carbonic acid.

【Claim ~~109~~9】

The method of claim 1, wherein 2.0 to 6.0 equivalents of the mercaptan derivative are used based on 1 equivalent of the phenol derivative in step (a).

【Claim ~~1110~~10】

The method of claim 1, wherein 2.0 to 6.0 equivalents of the paraformaldehyde are used based on 1 equivalent of the phenol derivative in step (a).

【Claim ~~1211~~11】

The method of claim 1, further comprising, after step (b), (c) a purification step of washing an organic layer of the product of step (b) with an acid.

【Claim ~~1312~~12】

The method of claim ~~12~~11, wherein the acid in step (c) has a pKa of 2.0 or higher.

【Claim ~~14~~13】

The method of claim ~~13~~12, wherein the acid in step (c) is at least one selected from the group consisting of chlorous acid, phosphoric acid, arsenic acid, chloroacetic acid, hydrofluoric acid, nitrous acid, formic acid, benzoic acid, hydrazoic acid, acetic acid, propionic acid and carbonic acid.

【Claim ~~15~~14】

The method of claim ~~12~~11, further comprising (d) washing with a base or water after step (c).

【Claim ~~16~~15】

The method of claim ~~15~~14, wherein the base is at least one selected from the group consisting of anhydrous sodium carbonate, sodium percarbonate, sodium hydrogen carbonate and sodium hydrogen carbonate.

【Claim ~~17~~16】

The method of claim ~~15~~14, further comprising, after step (d), (e) isolating the thiomethylphenol derivative represented by Formula 1 by concentration under reduced

pressure at 90 to 120 °C for 1 to 5 hours.

【Claim ~~18~~17】

The method of claim ~~17~~16, wherein the isolated thiomethylphenol derivative has a~~n~~ color (APHA) value of less than 75 after standing at 120 °C for 72 hours.