CLAIMS

1. A method for producing a carbonate derivative, comprising

irradiating light on a composition containing a C_{1-4} halogenated hydrocarbon having one or more kinds of halogen atoms selected from the group consisting of a chlorine atom, a bromine atom and an iodine atom, a nucleophilic functional group-containing compound and a base in the presence of oxygen,

wherein the nucleophilic functional group-containing compound is represented by the following formula (i) and the carbonate derivative is a linear carbonate derivative represented by the following formula (I), or

the nucleophilic functional group-containing compound is represented by the following formula (ii), Bisphenol A, Bisphenol AP, Bisphenol B, Bisphenol BP, Bisphenol TMC or Bisphenol Z, and the carbonate derivative is a polycarbonate derivative containing a unit represented by the following formula (II-1), a polycarbonate ester of Bisphenol A, Bisphenol AP, Bisphenol B, Bisphenol BP, Bisphenol TMC or Bisphenol Z, or a cyclic carbonate derivative represented by the following formula (II-2), and

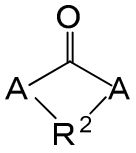
wherein the base is one or more bases selected from the group consisting of a heterocyclic aromatic amine, a non-nucleophilic strong base in which a nucleophilicity of a lone pair on the nitrogen atom is weak due to a steric obstruction and of which basicity (pK_{BH+}) in acetonitrile is 20 or more, and an inorganic base.

(i) R^1-A-H

(ii) H-A-R^2-A-H

(I) R^1-A-C(=O)-A-R^1

(II-1) [-A-R^2-A-C(=O)-]

(II-2) 

wherein

A is O, S or NR^3 wherein R^3 is H or a C_{1-4} alkyl group, or R^3 forms a nitrogen-containing heterocyclic group with R^1 and N,

R^1 is a C_{6-14} aryl group, a C_{4-14} heteroaryl group or a C_{2-24} alkylpolyoxyalkylene group,

R^2 is a C_{2-10} alkylene group, a C_{6-14} arylene group, a C_{4-14} heteroarylene group or a C_{2-24} polyoxyalkylene group.

2. The production method according to claim 1, wherein the C_{1-4} halogenated hydrocarbon is a C_{1-4} polyhalogenated hydrocarbon.

3. The production method according to claim 1, wherein the C_{1-4} halogenated hydrocarbon is chloroform.

4. The production method according to any one of claims 1 to 3, wherein the heterocyclic aromatic amine is pyridine, picoline or lutidine.

5. The production method according to any one of claims 1 to 4, wherein the non-nucleophilic strong base is 1,5,7-triazabicyclo[4.4.0]dec-5-ene, 7-methyl-1,5,7-triazabicyclo[4.4.0]dec-5-ene, 1,8-diazabicyclo[5.4.0]undec-7-ene, 1,5-diazabicyclo[4.3.0]non-5-ene or 1,1,3,3-tetramethylguanidine.

6. The production method according to any one of claims 1 to

5, wherein the inorganic base is an alkali metal hydroxide, an alkali metal hydrogen carbonate or an alkali metal carbonate.

7. The production method according to any one of claims 1 to 6, wherein 0.001 times or more by mole and 1 time or less by mole of the nucleophilic functional group-containing compound is used to the C_{1-4} halogenated hydrocarbon.

8. The production method according to any one of claims 1 to 7, wherein 1.5 times or more by mole and 10 times or less by mole of the base is used to the nucleophilic functional group-containing compound.

9. The production method according to any one of claims 1 to 8, wherein a wavelength of the light irradiated on the composition is 180 nm or more and 500 nm or less.