benzofuran residue, and benzothiophene residue. In a case where the arylsulfonium compound has two or more aryl groups, the two or more aryl groups may be the same as or different from each other.

[0315] An alkyl group or a cycloalkyl group which the arylsulfonium compound has according to necessity is preferably a linear or branched alkyl group having 1 to 15 carbon atoms or a cycloalkyl group having 3 to 15 carbon atoms, and examples thereof include a methyl group, an ethyl group, a propyl group, an n-butyl group, a sec-butyl group, a t-butyl group, a cyclopropyl group, a cyclobutyl group, and a cyclohexyl group.

[0316] The aryl group, the alkyl group, and the cycloalkyl group represented by each of R_{201} to R_{203} may have an alkyl group (having 1 to 15 carbon atoms, for example), a cycloalkyl group (having 3 to 15 carbon atoms, for example), an aryl group (having 6 to 14 carbon atoms, for example), an alkoxy group (having 1 to 15 carbon atoms, for example), a halogen atom, a hydroxyl group, or a phenylthio group, as a substituent.

[0317] Next, the compound (ZI-2) will be described.

[0318] The compound (ZI-2) is a compound in which each of R_{201} to R_{203} in Formula (ZI) independently represents an organic group not having an aromatic ring. The aromatic ring herein also includes an aromatic ring containing a hetero atom.

[0319] The organic group not containing an aromatic ring represented by each of R_{201} to R_{203} generally has 1 to 30 carbon atoms, and preferably has 1 to 20 carbon atoms.

[0320] Each of R_{201} to R_{203} independently preferably represents an alkyl group, a cycloalkyl group, an allyl group, or a vinyl group, more preferably a linear or branched 2-oxoalkyl group, a 2-oxocycloalkyl group, or an alkoxycarbonylmethyl group, and particularly preferably a linear or branched 2-oxoalkyl group.

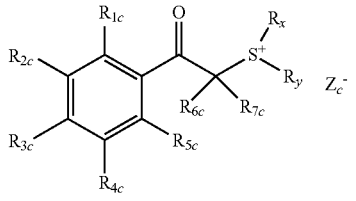
[0321] Preferable examples of the alkyl group and the cycloalkyl group represented by each of R_{201} to R_{203} include a linear or branched alkyl group having 1 to 10 carbon atoms (for example, a methyl group, an ethyl group, a propyl group, a butyl group, or a pentyl group) and a cycloalkyl group having 3 to 10 carbon atoms (a cyclopentyl group, a cyclohexyl group, or a norbornyl group).

[0322] Each of R_{201} to R_{203} may be further substituted with a halogen atom, an alkoxy group (which has 1 to 5 carbon atoms, for example), a hydroxyl group, a cyano group, or a nitro group.

[0323] Next, the compound (ZI-3) will be described.

[0324] The compound (ZI-3) is a compound which is represented by the following General Formula (ZI-3) and has a phenacylsulfonium salt structure.

(ZI-3)



[0325] In General Formula (ZI-3), each of R_{1c} to R_{5c} independently represents a hydrogen atom, an alkyl group, a cycloalkyl group, an aryl group, an alkoxy group, an aryloxy group, an alkoxycarbonyl group, an alkylcarbonyloxy group, a cycloalkylcarbonyloxy group, a halogen atom, a hydroxyl group, a nitro group, an alkylthio group, or an arylthio group.

[0326] Each of R_{6c} and R_{7c} independently represents a hydrogen atom, an alkyl group, a cycloalkyl group, a halogen atom, a cyano group, or an aryl group.

[0327] Each of R_x and R_y independently represents an alkyl group, a cycloalkyl group, a 2-oxoalkyl group, a 2-oxocycloalkyl group, an alkoxycarbonylalkyl group, an allyl group, or a vinyl group.

[0328] Any two or more of R_{1c} to R_{5c}, R_{5c} and R_{6c}, R_{6c} and R_{7c}, R_{5c} and R_x, and R_x and R_y may be respectively bonded to each other to form a ring structure, and the ring structure may include an oxygen atom, a sulfur atom, a ketone group, an ester bond, or an amide bond.

[0329] Examples of the ring structure include an aromatic or non-aromatic hydrocarbon ring, an aromatic or non-aromatic heterocycle, or a polycyclic condensed ring formed by combination of two or more of these rings. Examples of the ring structure include 3- to 10-membered rings, and among these, 4- to 8-membered rings are preferable, and 5- or 6-membered rings are more preferable.

[0330] Examples of the group formed by bonding of any two or more of R_{1c} to R_{5c}, R_{6c} and R_{7c}, or R_x and R_y to each other include a butylene group and a pentylene group.

[0331] As the group that R_{5c} and R_{6c}, and R_{5c} and R_x respectively form by bonding to each other, a single bond or an alkylene group is preferable, and examples of the alkylene group include a methylene group and an ethylene group.

[0332] Zc^- represents a non-nucleophilic anion, and as Zc^-, the same as the non-nucleophilic anion represented by Z^- in General Formula (ZI) can be exemplified.

[0333] Specific examples of the alkoxy group in the alkoxycarbonyl group represented by each of R_{1c} to R_{5c} are the same as the specific examples of the alkoxy group represented by each of R_{1c} to R_{5c} described above.

[0334] Specific examples of the alkyl group in the alkylcarbonyloxy group and the alkylthio group represented by each of R_{1c} to R_{5c} are the same as the specific examples of the alkyl group represented by each of R_{1c} to R_{5c} described above.

[0335] Specific examples of the cycloalkyl group in the cycloalkylcarbonyloxy group represented by each of R_{1c} to R_{5c} are the same as the specific examples of the cycloalkyl group represented by each of R_{1c} to R_{5c} described above.

[0336] Specific examples of the aryl group in the aryloxy group and the arylthio group represented by each of R_{1c} to R_{5c} are the same as the specific examples of the aryl group represented by each of R_{1c} to R_{5c} described above.

[0337] Examples of the cation in the compound (ZI-2) or (ZI-3) in the present invention include the cations described in paragraphs "0036" and later of US2012/0076996A.

[0338] Next, the compound (ZI-4) will be described.

[0339] The compound (ZI-4) is represented by the following General Formula (ZI-4).

(ZI-4)