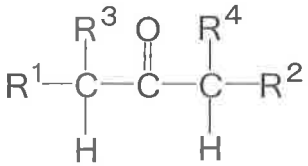
CLAIMS

1. A method for producing compound having acetylenic bond and/or diene, in which at least one compound selected from the group consisting of the following compounds of formula (I)~~,)~~and (II)~~, (III), (IV) and (V)~~ is dehydrated in the presence of a catalyst of at least one selected from the group consisting of a compound containing a group 1 metallic element, a compound containing a group 2 metallic element, a group 1 metallic element, and a group 2 metallic element, supported on a carrier containing silica:

Compound represented by formula (I)



(I)

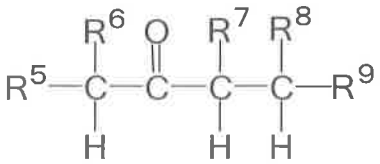
(wherein, in the formula, R^1, R^2, R^3 and R^4 each independently represent hydrogen atom, alkylcycloalkyl group having 4-10 carbon atoms or phenyl group; or R^1 and R^2, together with carbon atom to which they are bonded, and also with carbon atom which those carbon atom are bonded, to form a ring having 5-15 carbon atoms, and R^3 and R^4 each independently represent hydrogen atom, alkyl group having 1-6 carbon atoms, cycloalkyl group having 3-6 carbon atoms, alkylcycloalkyl group having 4-10 carbon atoms,

cycloalkylalkyl group having 4-10 carbon atoms, aralkyl group having 7-10 carbon atoms or phenyl group; or

R^1 and R^3 each independently represent hydrogen atom, alkyl group having 1-6 carbon atoms, alkylcycloalkyl group having 4-10 carbon atoms, cycloalkylalkyl group having 4-10 carbon atoms, aralkyl group having 7-10 carbon atoms or phenyl group, and R^2 and R^4, together with carbon atom to which they are bonded, to form a ring having 3-13 carbon atoms; or

R^1 and R^3, together with carbon atom to which they are bonded, to form a ring having 3-13 carbon atoms, and R^2 and R^4, together with carbon atom to which they are bonded, to form a ring having 3-13 carbon atoms); and

Compound represented by formula (II)

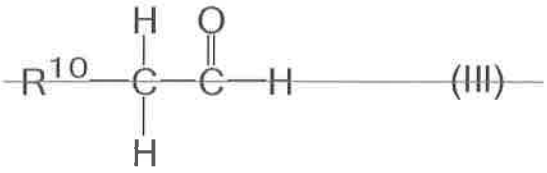


(II)

(wherein, in the formula, R^5, R^6, R^7 ,R^8 and R^9 each independently represent hydrogen atom, alkyl group having 1-6 carbon atoms, cycloalkyl group having 3-6 carbon atoms, alkylcycloalkyl group having 4-10 carbon atoms, cycloalkylalkyl group having 4-10 carbon atoms, aralkyl group having 7-10 carbon atoms or phenyl group; or

atoms, alkylcycloalkyl group having 4-10 carbon atoms, cycloalkylalkyl group having 4-10 carbon atoms, aralkyl group having 7-10 carbon atoms or phenyl group, and R^8 and R^9, together with carbon atom to which they are bonded, to form a ring having 3-13 carbon atoms~~);~~).

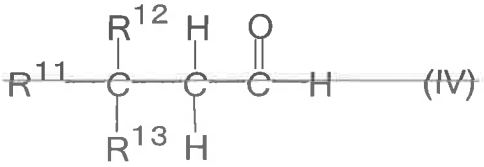
~~Compound represented by formula (III)~~



(III)

~~(wherein, in the formula, R^{10} represents hydrogen atom or phenyl group);~~

~~Compound represented by formula (IV)~~



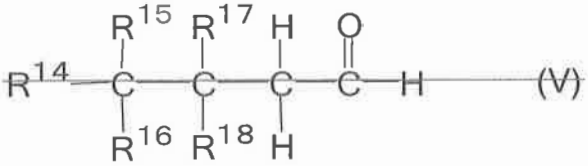
(IV)

~~(wherein, in the formula, R^{11}, R^{12} and R^{13} each independently represent hydrogen atom or phenyl group; or~~

~~R^{11} and R^{12}, together with carbon atom to which they are bonded, to form a ring having 3-13 carbon atoms, and R^{13} represents hydrogen atom, alkyl group having 1-6 carbon atoms, cycloalkyl group having 3-6 carbon atoms, alkylcycloalkyl group having 4-10 carbon atoms,~~

cycloalkylalkyl group having 4-10 carbon atoms, aralkyl group having 7-10 carbon atoms or phenyl group); and

Compound represented by formula (V)



(V)

(wherein, in the formula, R^{14}, R^{15}, R^{16}, R^{17} and R^{18} each independently represent hydrogen atom, alkyl group having 1-6 carbon atoms, cycloalkyl group having 3-6 carbon atoms, alkylcycloalkyl group having 4-10 carbon atoms, cycloalkylalkyl group having 4-10 carbon atoms, aralkyl group having 7-10 carbon atoms or phenyl group; or

R^{14} and R^{15}, together with carbon atom to which they are bonded, to form a ring having 3-13 carbon atoms, and R^{16}, R^{17} and R^{18} each independently represent hydrogen atom, alkyl group having 1-6 carbon atoms, cycloalkyl group having 3-6 carbon atoms, alkylcycloalkyl group having 4-10 carbon atoms, cycloalkylalkyl group having 4-10 carbon atoms, aralkyl group having 7-10 carbon atoms or phenyl group).

2. The method according to claim 1, wherein the

which the compound represented by formula (II) is 2-butanone.

~~7. The method according to any one of claims 1-6, in which the compound represented by formula (IV) is propanal.~~

~~8~~7. The method according to any one of claims 1 to ~~7~~6, wherein the carrier is composed of silica.