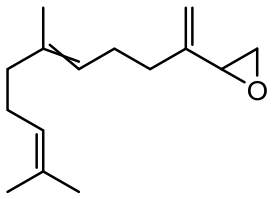
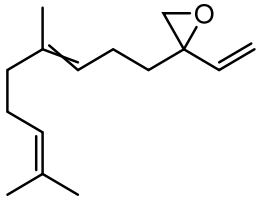
Claims

1. A method for making a compound of Formula (I), a compound of Formula (II) or a mixture thereof,

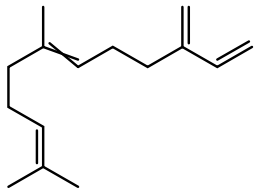


Formula (I)

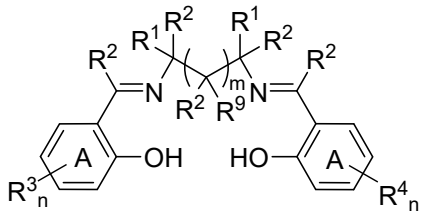


Formula (II)

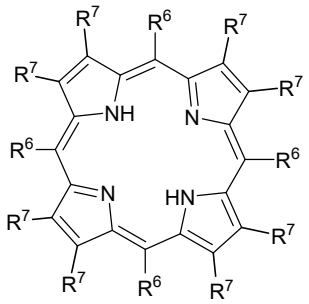
wherein the method comprises contacting a compound of Formula (III) with a catalyst comprising a metal complexed with a salen ligand or a porphyrin ligand, wherein the salen ligand has Formula (IV) and wherein the porphyrin ligand has Formula (XI),



Formula (III)



Formula (IV)



Formula (XI)

wherein

each ring A is independently selected from phenyl or naphthyl;

each R^1 is independently hydrogen, an alkyl group, an aryl group, or both R^1 together with the carbon atoms to which R^1 are attached form a cycloalkylene group, an arylene group, two or more cycloalkylene groups connected by a single bond or an alkyl group, two or more arylene groups connected by a single bond or an alkyl group, or a cycloalkylene and an arylene group connected by a single bond or an alkyl group;

each R^2 is independently hydrogen or an alkyl group;

R^3 is independently an alkyl group, an alkoxy group, an alkaryl group, an alkylsilyl ether group, or a halide;

R^4 is independently an alkyl group, an alkoxy group, an alkaryl group, an alkylsilyl ether group, or a halide;

R^9 is selected from hydrogen, an optionally substituted alkyl group, an optionally substituted aryl group, hydroxyl or an amino group;

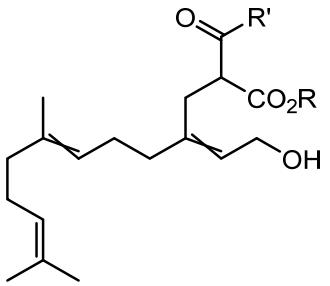
each n is selected from 0 to 4;

m is selected from 0 to 4;

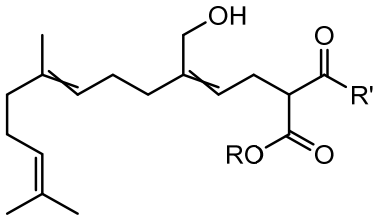
each R^6 is independently selected from hydrogen, an optionally substituted alkyl group, an optionally substituted alkylidene group, an optionally substituted aryl group, or an optionally substituted heteroaromatic group; and

each R^7 is independently selected from hydrogen, an alkyl group, an ester-containing alkyl group or a carboxylic acid containing alkyl group;

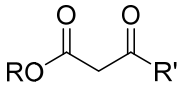
optionally followed by contacting the compound of formula (I), the compound of Formula (II), or the mixture thereof with a compound of Formula (VII) and a palladium catalyst to obtain a compound of Formula (V), a compound of Formula (VI), or a mixture thereof



Formula (V)

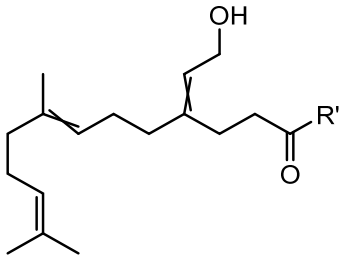


Formula (VI)

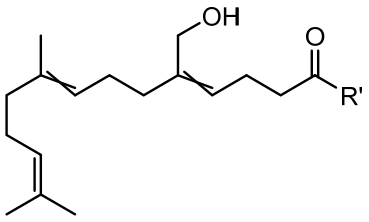


Formula (VII),

optionally followed by hydrolysis and decarboxylation of the compound of Formula (V), the compound of Formula (VI), or a mixture thereof to obtain a compound of Formula (VIII), a compound of Formula (IX), or a mixture thereof



Formula (VIII)



Formula (IX).

wherein R is selected from the group consisting of hydrogen and a C1 to C6 alkyl group; and R' is selected from the group consisting of a C1 to C6 alkyl group and an OR group.

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