X, Y and Z are each independently a carbon atom or at least one heteroatom selected from the group consisting of N, O and S atoms; and

------

denotes a double bond or a single bond.

2. The use of claim 1, wherein R_1, R_2, R_3, R_4 and R_5 are each independently at least one selected from the group consisting of a hydrogen atom, a halogen atom selected from F, Cl, Br and I, a hydroxyl group, a methyl group, an ethyl group, a methoxy group, an ethoxy group, an amino group, a C_5-C_6 aromatic ring, a C_5-C_6 cyclic ring, and a C_5-C_6 heteroaromatic ring.

3. The use of claim 2, wherein R_1, R_2, R_3, R_4 and R_5 are each independently at least one selected from the group consisting of a hydrogen atom, a halogen atom selected from F, Cl, Br and I, a hydroxyl group, a methyl group, a methoxy group, a phenyl group, a pyrrole group, and a pyridine group.

~~4. The use of claim 1, wherein the X, Y and Z are each independently a carbon atom or at least one heteroatom selected from the group consisting of N, O and S atoms.~~

~~54~~. The use of claim ~~41~~, wherein the X, Y and Z are each independently at least one atom selected from the group consisting of a carbon atom and an N atom.

~~65~~. The use of claim 1, wherein the composition comprises a compound selected from the group consisting of:

(1*S*,5*R*)-4-(4-hydroxystyryl)-6,6-dimethylbicyclo[3.1.1]hept-3-en-2-one (3a);

(1*S*,5*R*)-4-(4-hydroxy-2-methoxystyryl)-6,6-dimethylbicyclo[3.1.1]hept-3-en-2-one (3b);

(1*S*,5*R*)-4-(3,4-dihydroxystyryl)-6,6-dimethylbicyclo[3.1.1]hept-3-en-2-one (3c);

(1*S*,5*R*)-4-(3-bromo-4-hydroxystyryl)-6,6-dimethylbicyclo[3.1.1]hept-3-en-2-one (3d);

(1*S*,5*R*)-4-(4-hydroxy-2,6-dimethoxystyryl)-6,6-dimethylbicyclo[3.1.1]hept-3-en-2-one (3e);

(1*S*,5*R*)-4-(3,4-dihydroxy-5-methoxystyryl)-6,6-dimethylbicyclo[3.1.1]hept-3-en-2-one (3f);

(1*S*,5*R*)-4-(3-hydroxystyryl)-6,6-dimethylbicyclo[3.1.1]hept-3-en-2-one (3g);

(1*S*,5*R*)-4-(2-hydroxystyryl)-6,6-dimethylbicyclo[3.1.1]hept-3-en-2-one (3h);

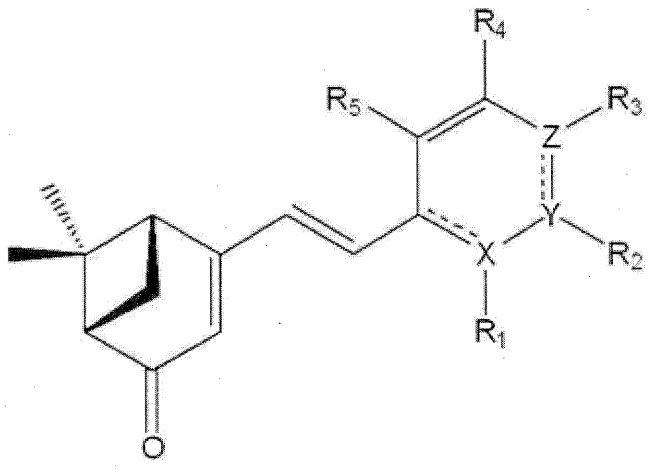
(1*S*,5*R*)-6,6-dimethyl-4-((E)-2-(pyridin-4-yl)-vinyl)-bicyclo[3.1.1]hept-3-en-2-one (5c).

~~7~~6. The use of claim 1, wherein the degenerative brain disease is stroke, palsy, dementia, Alzheimer's disease, Parkinson's disease, or Huntington's disease.

~~8~~7. The use of claim 1, wherein the degenerative brain disease is stroke.

~~9~~8. Use of a health functional food in the manufacture of a medicament for the prevention or improvement of a degenerative brain disease, wherein the health functional food comprises a verbenone derivative represented by a following Formula 1 or a pharmaceutically acceptable salt thereof, as an active ingredient:

Formula 1



wherein R_1, R_2, R_3, R_4 and R_5 are each independently at least one selected from the group consisting of a hydrogen atom, a halogen atom selected from F, Cl, Br and I, a hydroxyl group, a C_1-C_3 alkyl group, a C_1-C_3 alkoxy group, an amino group, a C_1-C_3 alkylamine group, a C_1-C_3 alkyldiamine group, a C_5-C_8 aromatic ring, a C_5-C_8 cyclic ring, and a C_5-C_8 heteroaromatic ring;

X, Y and Z are each independently a carbon atom or at least one heteroatom selected from the group consisting of N, O and S atoms; and

------ denotes a double bond or a single bond.

~~10~~9. The use of claim ~~9~~8, wherein R_1, R_2, R_3, R_4 and R_5 are each independently at least one selected from the group consisting of a hydrogen atom, a halogen atom selected from F, Cl, Br and I, a hydroxyl group, a methyl group, an ethyl group, a methoxy group, an ethoxy group, an

amino group, a C_5-C_6 aromatic ring, a C_5-C_6 cyclic ring, and a C_5-C_6 heteroaromatic ring.

~~11~~10. The use of claim ~~10~~9, wherein R_1, R_2, R_3, R_4 and R_5 are each independently at least one selected from the group consisting of a hydrogen, a halogen atom selected from F, Cl, Br and I, a hydroxyl group, a methyl group, a methoxy group, a phenyl group, a pyrrole group, and a pyridine group.

~~12. The use of claim 9, wherein the X, Y and Z are each independently a carbon atom or at least one heteroatom selected from the group consisting of N, O and S atoms.~~

~~13~~11. The use of claim ~~12~~8, wherein the X, Y and Z are each independently at least one atom selected from the group consisting of a carbon atom and an N atom.

~~14~~12. The use of claim ~~9~~8, wherein the composition comprises a compound selected from the group consisting of:

(1S,5R)-4-(4-hydroxystyryl)-6,6-dimethylbicyclo[3.1.1]hept-3-en-2-one (3a);

(1S,5R)-4-(4-(1H-pyrrol-1-yl)styryl)-6,6-dimethylbicyclo [3.1.1]hept-3-en-2-one (4e);

(1S,5R)-4-(3,4-dimethoxystyryl)-6,6-dimethylbicyclo [3.1.1]hept-3-en-2-one (4f);

(1S,5R)-4-(3,5-dimethoxystyryl)-6,6-dimethylbicyclo [3.1.1]hept-3-en-2-one (4g);

(1S,5R)-4-(2,5-dimethoxystyryl)-6,6-dimethylbicyclo [3.1.1]hept-3-en-2-one (4h);

(1S,5R)-4-(5-bromo-2-methoxystyryl)-6,6-dimethyl bicyclo[3.1.1]hept-3-en-2-one (4i);

(1S,5R)-6,6-dimethyl-4-((E)-2-(pyridin-2-yl)vinyl)-bicyclo[3.1.1]hept-3-en-2-one (5a);

(1S,5R)-6,6-dimethyl-4-((E)-2-(pyridin-3-yl)vinyl)-bicyclo[3.1.1]hept-3-en-2-one (5b); and

(1S,5R)-6,6-dimethyl-4-((E)-2-(pyridin-4-yl)-vinyl)-bicyclo[3.1.1]hept-3-en-2-one (5c).

~~15~~13. The use of claim ~~9~~8, wherein the degenerative brain disease is stroke, palsy, dementia, Alzheimer's disease, Parkinson's disease, or Huntington's disease.

~~16~~14. The use of claim ~~15~~13, wherein the degenerative brain disease is stroke.