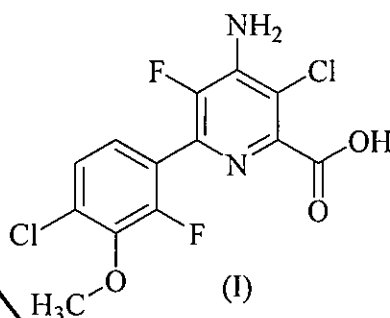


CLAIMS

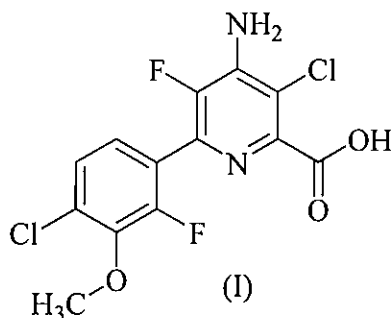
1. A synergistic herbicidal composition comprising a herbicidally effective amount of (a) a compound of the formula (I):



or an agriculturally acceptable salt or ester thereof and (b) at least one herbicide, wherein the at least one herbicide inhibits very long chain fatty acid and fatty acid synthesis, where (b) is selected from the group consisting of acetochlor, alachlor, anilofos, benfuresate, cafenstrole, dimethenamid-P, fentrazamide, indanofan, flufenacet, mefenacet, s-metolachlor, molinate, pethoxamid, pretilachlor, prosulfocarb, pyroxasulfone, tehnylchlor, and thiobencarb, or an agriculturally active salt thereof, wherein (a) and (b) are present in the combination in a ratio such that the combination exhibits herbicidal synergy, and wherein the ratio of (a):(b) is between about 1:3350 to about 12:1.

2. The composition of claim 1, wherein (a) is the compound of formula (I), a C₁₋₄ alkyl ester of the compound of formula (I), or a benzyl ester of the compound of formula (I).
3. The composition of any of claims 1-2, further comprising an agriculturally acceptable adjuvant or carrier.
4. The composition of any of claims 1-3, further comprising a herbicide safener.
5. A method of controlling undesirable vegetation, comprising the steps of: contacting a plant, wherein the plant is undesirable vegetation, or the locus thereof, soil or water, wherein the

soil or the water allows for the growth of the undesirable vegetation, with a herbicidally effective amount of a combination comprising (a) a compound of the formula (I):



or an agriculturally acceptable salt or ester thereof and (b) at least one herbicide, wherein the at least one herbicide inhibits very long chain fatty acid and fatty acid synthesis, where (b) is selected from the group consisting of acetochlor, alachlor, anilofos, benfuresate, cafenstrole, dimethenamid-P, fentrazamide, indanofan, flufenacet, mefenacet, s-metolachlor, molinate, pethoxamid, pretilachlor, prosulfocarb, pyroxasulfone, teahnylchlor, and thiobencarb, or an agriculturally active salt thereof, wherein (a) and (b) are present in the combination in a ratio such that the combination exhibits herbicidal synergy, and wherein the ratio of (a):(b) is between about 1:3350 to about 12:1.

6. The method of claim 5, wherein (a) is the compound of formula (I), a C₁₋₄ alkyl ester of the compound of formula (I), or a benzyl ester of the compound of formula (I).

7. The method of any of claims 5-6, wherein the undesirable vegetation is controlled in direct-seeded, water-seeded and transplanted rice, cereals, wheat, barley, oats, rye, sorghum, corn/maize, sugarcane, sunflower, oilseed rape, canola, sugar beet, soybean, cotton, pineapple, pastures, grasslands, rangelands, fallowland, turf, tree and vine orchards, aquatics, industrial vegetation management (IVM) or rights of way (ROW).

8. The method of any of claims 5-7, wherein the (a) and (b) are applied pre-emergently to the weed or the crop.

9. The method of any of claims 5-8, wherein the undesirable vegetation is controlled in glyphosate-, 5-enolpyruvylshikimate-3-phosphate (EPSP) synthase inhibitor-, glufosinate-, glutamine synthetase inhibitor-, dicamba-, phenoxy auxin-, pyridyloxy auxin-, synthetic auxin-, auxin transport inhibitor-, aryloxyphenoxypropionate-, cyclohexanedione-, phenylpyrazoline-, acetyl CoA carboxylase (ACCase) inhibitor-, imidazolinone-, sulfonyleurea-, pyrimidinylthiobenzoate-, triazolopyrimidine-, sulfonylaminocarbonyltriazolinone-, acetolactate synthase (ALS) or acetohydroxy acid synthase (AHAS) inhibitors-, 4-hydroxyphenyl-pyruvate dioxygenase (HPPD) inhibitor-, phytoene desaturase inhibitor-, carotenoid biosynthesis inhibitor-, protoporphyrinogen oxidase (PPO) inhibitor-, cellulose biosynthesis inhibitor-, mitosis inhibitor-, microtubule inhibitor-, very long chain fatty acid inhibitor-, fatty acid and lipid biosynthesis inhibitor-, photosystem I inhibitor-, photosystem II inhibitor-, triazine-, or bromoxynil- tolerant crops.

10. The method of claim 9, wherein the tolerant crop possesses multiple or stacked traits conferring tolerance to multiple herbicides or multiple modes of action.

11. The method of any of claims 5-10, wherein the undesirable vegetation comprises a herbicide resistant or tolerant plant.

12. The composition according to claim 1, wherein the ratio of (a):(b) is selected from the group consisting of: between about 1:1680 to about 6:1 when (b) is acetochlor; between about 1:3350 to about 2:1 when (b) is alachlor; between about 1:250 and about 1.5:1 when (b) is anilofos; between about 1:750 to about 2:1 when (b) is benfuresate; between about 1:150 to about 2:1 when (b) is cafenstrole; between about 1:850 to about 1:1 when (b) is dimethenamid-P; between about 1:150 to about 3:1 when (b) is fentrazamide; between about 1:150 to about 12:1 when (b) is indanofan; between about 1:125 to about 12:1 when (b) is flufenacet; between about 1:800 to about 1:1 when (b) is mefenacet; between about 1:1500 to about 4:1 when (b) is s-metolachlor; between about 1:2780 to about 1:4 when (b) is molinate; between about 1:625 to about 1.5:1 when (b) is pethoxamid; between about 1:375 to about 2:1 when (b) is pretilachlor; between about 1:2000 to about 1:1.5 when (b) is prosulfocarb; between about 1:200 to about

12:1 when (b) is pyroxasulfone; between about 1:375 to about 4:1 when (b) is thenylchlor; and between about 1:2250 to about 1:4 when (b) is thiobencarb, and wherein any aforementioned compound for (b) may be an agriculturally acceptable salt thereof.

13. The composition according to claim 1, wherein the ratio of (a):(b) is selected from the group consisting of: between about 1:46 to about 1:3 when (b) is acetochlor; between about 1:78 to about 1:39 when (b) is alachlor; between about 1:50 to about 1:3 when (b) is anilofos; between about 1:57 to about 1:2 when (b) is benfuresate; between about 1:24 to about 1:2 when (b) is cafenstrole; between about 1:51 to about 1:9 when (b) is dimethenamid-P; between about 1:19 to about 1:1 when (b) is fentrazamide; between about 1:19 to about 1:1 when (b) is indanofan; between about 1:94 to about 1:6 when (b) is flufenacet; between about 1:150 to about 1:2 when (b) is mefenacet; between about 1:97 to about 1:12 when (b) is s-metolachlor; between about 1:350 to about 1:44 when (b) is molinate; between about 1:150 to about 1:38 when (b) is pethoxamid; between about 1:34 to about 1:4 when (b) is pretilachlor; between about 1:800 to about 1:200 when (b) is prosulfocarb; between about 1:15 to about 1:2 when (b) is pyroxasulfone; between about 1:34 to about 1:4 when (b) is thenylchlor; and between about 1:511 to about 1:32 when (b) is thiobencarb, and wherein any aforementioned compound for (b) may be an agriculturally acceptable salt thereof.

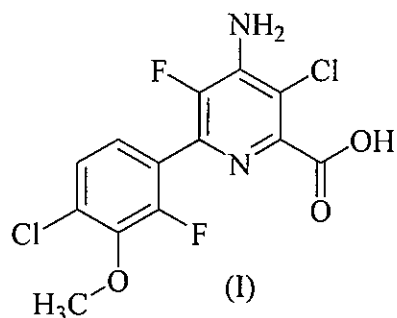
14. The method according to claim 5, wherein the ratio of (a):(b) is selected from the group consisting of: between about 1:1680 to about 6:1 when (b) is acetochlor; between about 1:3350 to about 2:1 when (b) is alachlor; between about 1:250 and about 1.5:1 when (b) is anilofos; between about 1:750 to about 2:1 when (b) is benfuresate; between about 1:150 to about 2:1 when (b) is cafenstrole; between about 1:850 to about 1:1 when (b) is dimethenamid-P; between about 1:150 to about 3:1 when (b) is fentrazamide; between about 1:150 to about 12:1 when (b) is indanofan; between about 1:125 to about 12:1 when (b) is flufenacet; between about 1:800 to about 1:1 when (b) is mefenacet; between about 1:1500 to about 4:1 when (b) is s-metolachlor; between about 1:2780 to about 1:4 when (b) is molinate; between about 1:625 to about 1.5:1 when (b) is pethoxamid; between about 1:375 to about 2:1 when (b) is pretilachlor; between about 1:2000 to about 1:1.5 when (b) is prosulfocarb; between about 1:200 to about 12:1 when

(b) is pyroxasulfone; between about 1:375 to about 4:1 when (b) is thenylchlor; and between about 1:2250 to about 1:4 when (b) is thiobencarb, and wherein any aforementioned compound for (b) may be an agriculturally acceptable salt thereof.

15. The method according to claim 5, wherein the ratio of (a):(b) is selected from the group consisting of: between about 1:46 to about 1:3 when (b) is acetochlor; between about 1:78 to about 1:39 when (b) is alachlor; between about 1:50 to about 1:3 when (b) is anilofos; between about 1:57 to about 1:2 when (b) is benfuresate; between about 1:24 to about 1:2 when (b) is cafenstrole; between about 1:51 to about 1:9 when (b) is dimethenamid-P; between about 1:19 to about 1:1 when (b) is fentrazamide; between about 1:19 to about 1:1 when (b) is indanofan; between about 1:94 to about 1:6 when (b) is flufenacet; between about 1:150 to about 1:2 when (b) is mefenacet; between about 1:97 to about 1:12 when (b) is s-metolachlor; between about 1:350 to about 1:44 when (b) is molinate; between about 1:150 to about 1:38 when (b) is pethoxamid; between about 1:34 to about 1:4 when (b) is pretilachlor; between about 1:800 to about 1:200 when (b) is prosulfocarb; between about 1:15 to about 1:2 when (b) is pyroxasulfone; between about 1:34 to about 1:4 when (b) is thenylchlor; and between about 1:511 to about 1:32 when (b) is thiobencarb, and wherein any aforementioned compound for (b) may be an agriculturally acceptable salt thereof.

CLAIMS

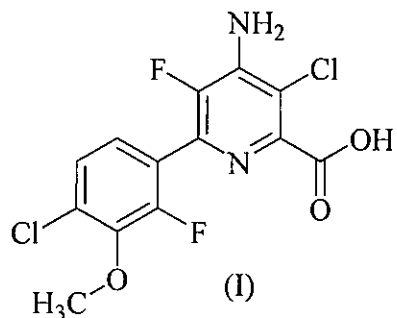
1. A synergistic herbicidal composition comprising a herbicidally effective amount of (a) a compound of the formula (I):



or an agriculturally acceptable salt or ester thereof and (b) at least one herbicide, wherein the at least one herbicide inhibits very long chain fatty acid and fatty acid synthesis, where (b) is selected from the group consisting of acetochlor, alachlor, anilofos, benfuresate, cafenstrole, dimethenamid-P, fentrazamide, indanofan, flufenacet, mefenacet, s-metolachlor, molinate, pethoxamid, pretilachlor, prosulfocarb, pyroxasulfone, thenylchlor, butachlor, and thiobencarb, or an agriculturally active salt thereof, wherein (a) and (b) are present in the combination in a ratio such that the combination exhibits herbicidal synergy, and wherein the ratio of (a):(b) is from about 1:1 to about 1:800.

2. The composition of claim 1, wherein (a) is the compound of formula (I), a C₁₋₄ alkyl ester of the compound of formula (I), or a benzyl ester of the compound of formula (I).
3. The composition of any of claims 1-2, further comprising an agriculturally acceptable adjuvant or carrier.
4. The composition of any of claims 1-3, further comprising a herbicide safener.
5. A method of controlling undesirable vegetation, comprising the steps of: contacting a plant, wherein the plant is undesirable vegetation, or the locus thereof, soil or water, wherein the

soil or the water allows for the growth of the undesirable vegetation, with a herbicidally effective amount of a combination comprising (a) a compound of the formula (I):



or an agriculturally acceptable salt or ester thereof and (b) at least one herbicide, wherein the at least one herbicide inhibits very long chain fatty acid and fatty acid synthesis, where (b) is selected from the group consisting of acetochlor, alachlor, anilofos, benfuresate, cafenstrole, dimethenamid-P, fentrazamide, indanofan, flufenacet, mefenacet, s-metolachlor, molinate, pethoxamid, pretilachlor, prosulfocarb, pyroxasulfone, thenylchlor, butachlor, and thiobencarb, or an agriculturally active salt thereof, wherein (a) and (b) are present in the combination in a ratio such that the combination exhibits herbicidal synergy, and wherein the ratio of (a):(b) is from about 1:1 to about 1:800.

6. The method of claim 5, wherein (a) is the compound of formula (I), a C₁₋₄ alkyl ester of the compound of formula (I), or a benzyl ester of the compound of formula (I).

7. The method of claims 5-6, wherein the undesirable vegetation is controlled in direct-seeded, water-seeded and transplanted rice, cereals, wheat, barley, oats, rye, sorghum, corn/maize, sugarcane, sunflower, oilseed rape, canola, sugar beet, soybean, cotton, pineapple, pastures, grasslands, rangelands, fallowland, turf, tree and vine orchards, aquatics, industrial vegetation management (IVM) or rights of way (ROW).

8. The method of any of claims 5-7, wherein the (a) and (b) are applied pre-emergently to the weed or the crop.

9. The method of any of claims 5-8, wherein the undesirable vegetation is controlled in glyphosate-, 5-enolpyruvylshikimate-3-phosphate (EPSP) synthase inhibitor-, glufosinate-, glutamine synthetase inhibitor-, dicamba-, phenoxy auxin-, pyridyloxy auxin-, synthetic auxin-, auxin transport inhibitor-, aryloxyphenoxypropionate-, cyclohexanedione-, phenylpyrazoline-, acetyl CoA carboxylase (ACCase) inhibitor-, imidazolinone-, sulfonyleurea-, pyrimidinylthiobenzoate-, triazolopyrimidine-, sulfonylaminocarbonyltriazolinone-, acetolactate synthase (ALS) or acetohydroxy acid synthase (AHAS) inhibitors-, 4-hydroxyphenyl-pyruvate dioxygenase (HPPD) inhibitor-, phytoene desaturase inhibitor-, carotenoid biosynthesis inhibitor-, protoporphyrinogen oxidase (PPO) inhibitor-, cellulose biosynthesis inhibitor-, mitosis inhibitor-, microtubule inhibitor-, very long chain fatty acid inhibitor-, fatty acid and lipid biosynthesis inhibitor-, photosystem I inhibitor-, photosystem II inhibitor-, triazine-, or bromoxynil- tolerant crops.

10. The method of claim 9, wherein the tolerant crop possesses multiple or stacked traits conferring tolerance to multiple herbicides or multiple modes of action.

11. The method of any of claims 5-10, wherein the undesirable vegetation comprises a herbicide resistant or tolerant plant.

12. The composition according to claim 1, wherein the ratio between (a):(b) is selected from the group consisting of: from about 1:46 to about 1:3 when (b) is acetochlor; from about 1:78 to about 1:39 when (b) is alachlor; from about 1:50 to about 1:3 when (b) is anilofos; from about 1:57 to about 1:2 when (b) is benfuresate; from about 1:24 to about 1:2 when (b) is cafenstrole; from about 1:51 to about 1:9 when (b) is dimethenamid-P; from about 1:19 to about 1:1 when (b) is fentrazamide; from about 1:19 to about 1:2 when (b) is indanofan; from about 1:94 to about 1:12 when (b) is flufenacet; from about 1:150 to about 1:2 when (b) is mefenacet; from about 1:97 to about 1:12 when (b) is s-metolachlor; from about 1:350 to about 1:44 when (b) is molinate; from about 1:153 to about 1:38 when (b) is pethoxamid; from about 1:34 to about 1:2 when (b) is pretilachlor; from about 1:800 to about 1:200 when (b) is prosulfocarb; from about 1:15 to about 1:4 when (b) is pyroxasulfone; from about 1:34 to about 1:4 when (b) is thenylchlor; from about 1:6 to about 1:103 when (b) is butachlor, and from about 1:511 to about

1:32 when (b) is thiobencarb, and wherein any aforementioned compound for (b) may be an agriculturally acceptable salt thereof.

13. The method according to claim 6, wherein the ratio between (a):(b) is selected from the group consisting of: from about 1:46 to about 1:3 when (b) is acetochlor; from about 1:78 to about 1:39 when (b) is alachlor; from about 1:50 to about 1:3 when (b) is anilofos; from about 1:57 to about 1:2 when (b) is benfuresate; from about 1:24 to about 1:2 when (b) is cafenstrole; from about 1:51 to about 1:9 when (b) is dimethenamid-P; from about 1:19 to about 1:1 when (b) is fentrazamide; from about 1:19 to about 1:2 when (b) is indanofan; from about 1:94 to about 1:12 when (b) is flufenacet; from about 1:150 to about 1:2 when (b) is mefenacet; from about 1:97 to about 1:12 when (b) is s-metolachlor; from about 1:350 to about 1:44 when (b) is molinate; from about 1:153 to about 1:38 when (b) is pethoxamid; from about 1:34 to about 1:2 when (b) is pretilachlor; from about 1:800 to about 1:200 when (b) is prosulfocarb; from about 1:15 to about 1:4 when (b) is pyroxasulfone; from about 1:34 to about 1:4 when (b) is thenylchlor; from about 1:6 to about 1:103 when (b) is butachlor, and from about 1:511 to about 1:32 when (b) is thiobencarb, and wherein any aforementioned compound for (b) may be an agriculturally acceptable salt thereof.

14. The composition of claim 1, wherein (b) is selected from the group consisting of: acetochlor, alachlor, anilofos, benfuresate, cafenstrole, dimethenamid-P, fentrazamide, indanofan, flufenacet, mefenacet, s-metolachlor, molinate, pethoxamid, pretilachlor, prosulfocarb, pyroxasulfone, thenylchlor, and thiobencarb, or an agriculturally acceptable salt thereof.

15. The method according to claim 6, wherein (b) is selected from the group consisting of: acetochlor, alachlor, anilofos, benfuresate, cafenstrole, dimethenamid-P, fentrazamide, indanofan, flufenacet, mefenacet, s-metolachlor, molinate, pethoxamid, pretilachlor, prosulfocarb, pyroxasulfone, thenylchlor, and thiobencarb, or an agriculturally acceptable salt thereof.