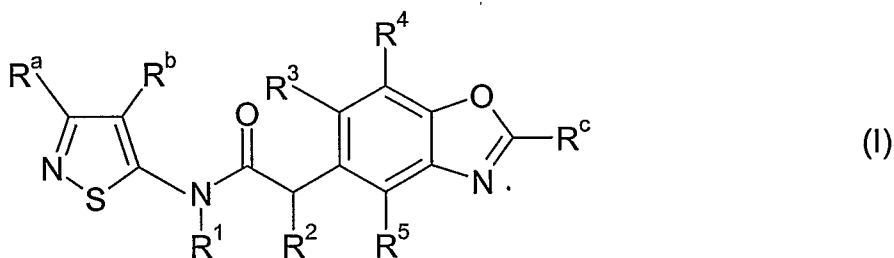


- 1 -

CHEMICAL PROCESS

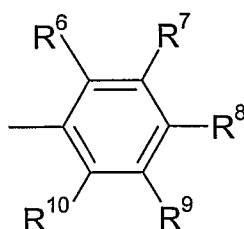
The present invention relates to an improved process for making azole derivatives useful as insecticidal, acaricidal, molluscicidal and nematocidal compounds.

- 5 Azole derivatives with useful insecticidal properties are disclosed in WO00/06566, WO00/63207, WO01/55144 and WO03/011861. The applicants have found a method of making the compounds in improved yield. There is therefore provided a process for the preparation of compounds of formula (I)



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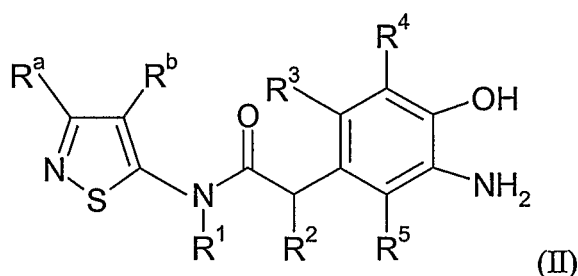
wherein R^a is C_{1-3} alkyl; R^b is halogen; R^c is C_{1-6} alkoxy(C_{1-6})alkyl, C_{1-6} haloalkyl, C_{1-6} alkyl or C_{1-6} alkoxy, or is a group



- 15 R^1 is hydrogen, C_{1-2} alkyl, (C_{1-6}) alkoxymethyl or propargyl; R^2 is hydrogen, methyl or fluoro; R^3 , R^4 and R^5 are, independently, hydrogen, halogen, C_{1-2} alkyl, C_{1-2} alkoxy or C_{1-2} haloalkyl; R^6 and R^{10} are, independently, hydrogen, halogen, C_{1-3} alkyl, C_{1-2} haloalkyl, C_{1-2} alkoxy, nitro, cyano, C_{1-2} haloalkoxy, C_{1-8} alkylthio, C_{1-6} alkylsulfinyl,

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C_{1-6} alkylsulfonyl, amino, C_{1-3} alkylamino or $di(C_{1-3})$ alkylamino; R^7 , R^8 and R^9 are, independently, hydrogen, halogen, C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{1-6} haloalkyl, C_{1-6} alkoxy(C_{1-6})alkyl, C_{1-6} alkoxy, C_{1-6} alkoxy(C_{1-6})alkoxy, C_{2-6} alkynyloxy, C_{3-6} cycloalkyl, nitro, cyano, C_{1-6} haloalkoxy, C_{2-6} haloalkenyloxy, $S(O)_pR^{11}$, OSO_2R^{12} ,
 5 $NR^{13}SO_2R^{14}$, $NR^{15}R^{16}$, $NR^{17}COR^{18}$, COR^{19} , $SiR^{20}R^{21}R^{22}$, SCN , optionally substituted aryl or optionally substituted heteroaryl or optionally substituted heterocycl; R^{11} , R^{12} and R^{14} are, independently, C_{1-6} alkyl, C_{1-6} haloalkyl or optionally substituted aryl; R^{13} and R^{17} are, independently, hydrogen or C_{1-2} alkyl; R^{15} and R^{16} are, independently, hydrogen or C_{1-3} alkyl; or R^{15} and R^{16} together with the N atom to which
 10 they are attached form a five or six-membered optionally substituted heterocyclic ring which may contain a further heteroatom selected from O and S; R^{18} and R^{19} are, independently, hydrogen, C_{1-6} alkyl, C_{1-6} alkoxy, optionally substituted aryl, optionally substituted heteroaryl or $NR^{23}R^{24}$; R^{20} , R^{21} and R^{22} are, independently, C_{1-4} alkyl or aryl; R^{23} and R^{24} are, independently, hydrogen or C_{1-3} alkyl; or R^{23} and R^{24} together with the N
 15 atom to which they are attached form a five or six-membered optionally substituted heterocyclic ring which may contain a further heteroatom selected from O and S; and p is 0, 1 or 2, the process comprising reacting a formula of compound II



20

where R^a , R^b , R^1 , R^2 , R^3 , R^4 and R^5 are as defined in relation to formula (I) with a compound of formula III

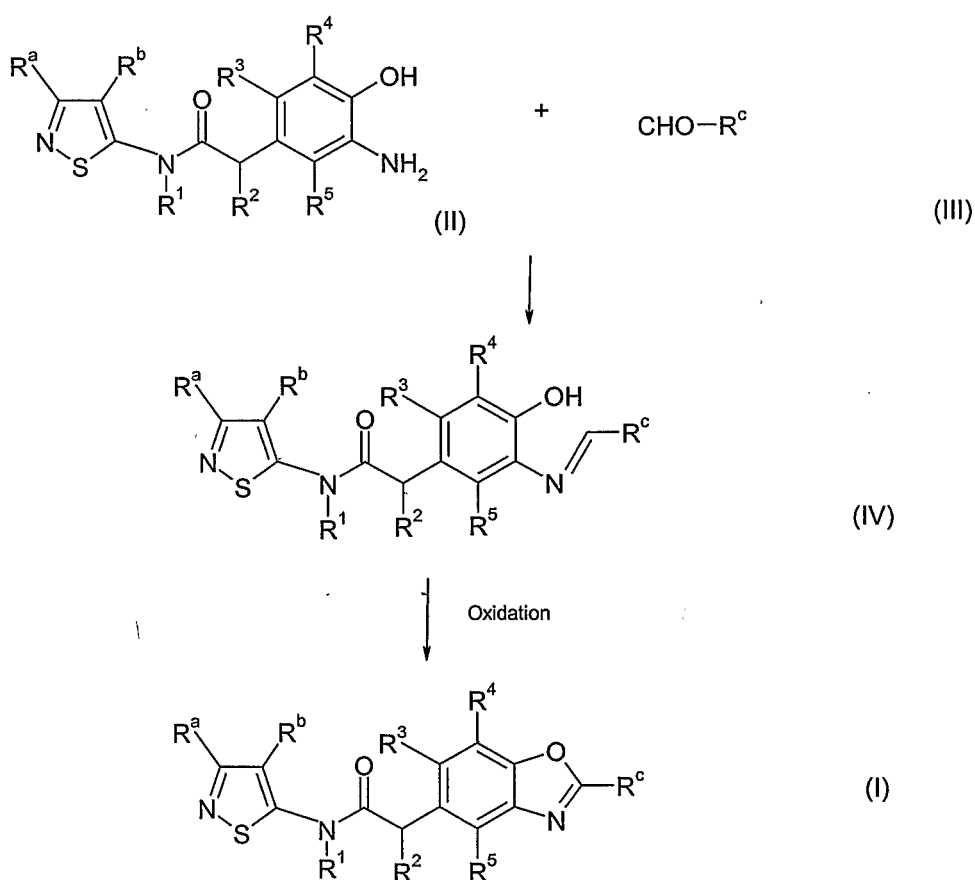
- 3 -



where R^c is as defined in relation to formula (I) and an oxidising agent.

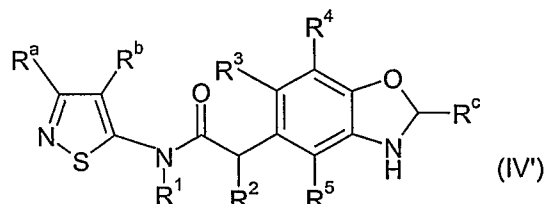
The reaction proceeds via compounds of formula (IV) as shown below.

5



The intermediate compound of formula (IV) may, depending on the exact reaction conditions and the value of R^c , be formed either as a Schiff base as shown or in the form of a cyclic amide of formula (IV')

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In a preferred embodiment of the invention the reactions are performed stepwise so that the intermediate of formula (IV) or (IV') is formed first and the intermediate is then converted into a compound of formula I by treatment with the oxidising agent.

5 The intermediate of formula (IV) or (IV') may be isolated or the process can be performed without isolation of the intermediate.

Certain compounds of formula (IV) and (IV') are novel and as such form a further aspect of the invention.

Suitable oxidising agents for use in the reaction include UV light; air; oxygen;
 10 bromine; acetates such as lead tetraacetate, iodosobenzenediacetate and manganese triacetate; perchlorates such as sodium perchlorate and thianthrene cation radical perchlorate; manganates such as barium manganate; peroxides such as nickel peroxide; oxides such as manganese dioxide; dichloro-5,6-dicyano-1,4-benzoquinone and N-bromosuccinimide.

15 Preferred oxidising agents are air, oxygen, bromine, acetates such as lead tetraacetate, perchlorates such as sodium perchlorate and N-bromosuccinimide.

The oxidation reaction is suitably performed at a temperature of 0 to 100°C, preferably 10 to 50 °C, more preferably at 15 to 30 °C.

20 The oxidation reaction is preferably performed in a solvent. Preferred solvents are acids, preferably carboxylic acids for example acetic acid or halogenated alkanes such as carbon tetrachloride.

The oxidation reaction may optionally be performed in the presence of radical initiators. Suitable free-radical initiators are well known to the person skilled in the art

- 5 -

and include for example aroyl peroxides such as dibenzoyl peroxide, and azo compounds such as azobisisobutyronitrile, which is particularly preferred.

The addition of the aldehyde to a compound of formula II may suitably be performed at 20-150°C. The reaction is suitably performed in any suitable solvent such as toluene, xylene etc.

Each alkyl moiety is a straight or branched chain and is, for example, methyl, ethyl, *n*-propyl, *n*-butyl, *n*-pentyl, *n*-hexyl, *iso*-propyl, *n*-butyl, *sec*-butyl, *iso*-butyl, *tert*-butyl or *neo*-pentyl.

Halogen is fluorine, chlorine, bromine or iodine.

Haloalkyl groups are alkyl groups which are substituted with one or more of the same or different halogen atoms and are, for example, CF₃, CF₂Cl, CF₃CH₂ or CHF₂CH₂.

Alkenyl and alkynyl moieties can be in the form of straight or branched chains. The alkenyl moieties, where appropriate, can be of either the (*E*)- or (*Z*)-configuration. Examples are vinyl, allyl, ethynyl and propargyl.

Haloalkenyl moieties are alkyl moieties which are substituted with one or more of the same or different halogen atoms, an example being CH₂CH=CCl₂.

Aryl includes naphthyl, anthracyl, fluorenyl and indenyl but is preferably phenyl.

The term heteroaryl refers to an aromatic ring containing up to 10 atoms including one or more heteroatoms (preferably one or two heteroatoms) selected from O, S and N.

Examples of such rings include pyridine, pyrimidine, furan, quinoline, quinazoline, pyrazole, thiophene, thiazole, oxazole and isoxazole.

The terms heterocycle and heterocyclyl refer to a non-aromatic ring containing up to 10 atoms including one or more (preferably one or two) heteroatoms selected from O, S and N. Examples of such rings include 1,3-dioxolane, tetrahydrofuran and morpholine.

Cycloalkyl includes cyclopropyl, cyclopentyl and cyclohexyl.

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When present, the optional substituents on aryl, heteroaryl or heterocyclyl are selected, independently, from hydrogen, halogen, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, C₁₋₆ haloalkyl, C₁₋₆ alkoxy(C₁₋₆)alkyl, C₁₋₆ alkoxy, C₃₋₆ cycloalkyl, nitro, cyano, C₁₋₆ haloalkoxy, C₁₋₂ alkylthio, SO₂CH₃, SO₂CH₂CH₃, OSO₂CH₃ and SCN.

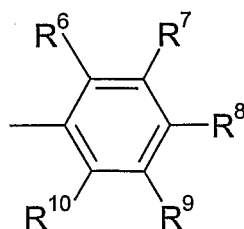
5 It is to be understood that dialkylamino substituents include those where the dialkyl groups together with the N atom to which they are attached form a five, six or seven-membered heterocyclic ring which may contain one or two further heteroatoms selected from O, N or S and which is optionally substituted by one or two independently selected (C₁₋₆)alkyl groups. When heterocyclic rings are formed by joining two groups on
 10 an N atom, the resulting rings are suitably pyrrolidine, piperidine, thiomorpholine and morpholine each of which may be substituted by one or two independently selected (C₁₋₆) alkyl groups.

Preferred groups for R^a, R^b, R^c, R¹, R², R³, R⁴ and R⁵ in any combination thereof are set out below.

15 Preferably R^a is methyl or ethyl.

It is preferred that R^b is bromo or chloro, especially chloro.

The group R^c is preferably is a group



or is C₁₋₆ alkyl or is C₁₋₆ haloalkyl.

20 More preferably R^c is C₁₋₆ alkyl or C₁₋₆ haloalkyl, more especially C₁₋₃ haloalkyl.

Preferably R¹ is hydrogen, C₁₋₂ alkyl or (C₁₋₆) alkoxymethyl.

It is more preferred that R¹ is hydrogen, ethyl, CH₂OCH₃ or CH₂OC₂H₅.

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Yet more preferably R^1 is hydrogen, ethyl or $CH_2OC_2H_5$.

It is even more preferred that R^1 is hydrogen or $CH_2OC_2H_5$, especially hydrogen.

Preferably R^2 is hydrogen or fluoro.

In one aspect of the invention, it is preferred that R^2 is fluoro.

5 Preferably R^3 , R^4 and R^5 are each, independently, hydrogen or halogen.

It is preferred that R^3 is hydrogen or fluorine.

More preferably R^3 is hydrogen.

It is preferred that R^4 is hydrogen or fluorine.

More preferably R^4 is hydrogen.

10 It is preferred that R^5 is hydrogen or fluorine.

More preferably R^5 is hydrogen.

It is preferred that R^7 , R^8 and R^9 are each, independently, hydrogen, halogen, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6} alkoxy, C_{1-6} alkoxy(C_{1-6})alkoxy, C_{2-6} alkynyloxy, nitro, cyano, C_{1-6} alkylthio, C_{1-6} alkylsulfonyl or C_{2-6} haloalkenyloxy.

15 It is preferred that R^7 is hydrogen, halogen, C_{1-6} alkyl, C_{1-6} alkoxy(C_{1-6})alkoxy, nitro or cyano.

More preferably R^7 is hydrogen, chlorine, fluorine, methyl, $OC_2H_4OCH_3$, nitro or cyano.

It is even more preferred that R^7 is hydrogen or chlorine.

20 It is yet more preferred that R^7 is hydrogen.

It is preferred that R^8 is hydrogen, halogen, C_{1-6} haloalkyl, C_{1-6} alkoxy, C_{1-6} alkoxy(C_{1-6})alkoxy, C_{2-6} alkynyloxy, cyano, C_{1-6} alkylsulfonyl or C_{2-6} haloalkenyloxy.

More preferably R^8 is hydrogen, chlorine, fluorine, bromine, CF_3 , ethoxy, $OC_2H_4OCH_3$, $OCH_2C\equiv CH$, cyano, SO_2CH_3 or $OCH_2CH=CCl_2$.

25 It is even more preferred that R^8 is hydrogen, chlorine, CN, CF_3 or SO_2CH_3 .

Yet more preferably R^8 is hydrogen.

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It is preferred that R^9 is hydrogen, halogen or C_{1-6} alkylthio.

More preferably R^9 is hydrogen, chlorine, fluorine, iodine or SCH_3 .

It is even more preferred that R^9 is hydrogen, chlorine or fluorine.

Yet more preferably R^9 is hydrogen.

5 It is preferred that R^6 and R^{10} are, independently, hydrogen, halogen, C_{1-3} alkyl, C_{1-2} haloalkyl, C_{1-2} alkoxy, nitro, cyano, C_{1-2} haloalkoxy, C_{1-8} alkylthio or C_{1-6} alkylsulfinyl, C_{1-6} alkylsulfonyl; provided that at least one of R^6 and R^{10} is not hydrogen.

10 In one aspect of the invention, it is preferred that R^6 and R^{10} are, independently, hydrogen, halogen, C_{1-3} alkyl, C_{1-2} haloalkyl, C_{1-2} alkoxy, nitro, cyano, C_{1-2} haloalkoxy or C_{1-2} alkylthio, provided that at least one of R^6 and R^{10} is not hydrogen.

It is more preferred that R^6 is hydrogen, methyl, chlorine, fluorine or bromine and R^{10} is hydrogen, methyl, chlorine, fluorine, OCH_3 , SCH_3 , CF_3 or nitro, provided that at least one of R^6 and R^{10} is not hydrogen.

15 It is still more preferred that R^6 is hydrogen, chlorine, fluorine or bromine and R^{10} is hydrogen, chlorine, fluorine, OCH_3 , SCH_3 , CF_3 or nitro, provided that at least one of R^6 and R^{10} is not hydrogen.

Even more preferably R^6 is hydrogen, chlorine, fluorine or bromine and R^{10} is chlorine, fluorine or bromine.

20 It is most preferred that when R^6 is hydrogen, R^{10} is fluorine, chlorine or bromine and that when R^6 is chlorine or fluorine, R^{10} is fluorine.

The invention is illustrated by the following Examples:

EXAMPLE 1

25 **This Example illustrates the preparation of N-(4-chloro-3-ethylisothiazol-5-yl)-2-[2-(2,6-dichlorophenyl)benzoxazol-5-yl] propionamide.**

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Step a)

N-(4-chloro-3-ethylisothiazol-5-yl)-2-(3-amino-4-hydroxyphenyl)propionamide prepared as described in WO03/011861 (20.0 gm, 0.06 mole) was dissolved in toluene (520 ml) and 2,6-dichlorobenzaldehyde (12.0 gm, 0.068 mole) was added. The resulting mixture was refluxed for 12 hours. The reaction was allowed to cool, and the solvent evaporated under reduced pressure, leaving the intermediate as pale yellow crystals (32.4 gm).

Step b)

The intermediate from step a) was suspended in acetic acid (400 ml) to which was added Lead tetraacetate (33.6 gm, 0.076 mole) in portions. During the addition of the oxidant, external cooling with an ice bath was employed to maintain the exotherm at around room temperature. After stirring at room temperature for 3 hours, the reaction mixture was poured onto stirred ice-water (1.6l) and then extracted three times with ethyl acetate. The organic phase was then washed four times with water, twice with a saturated sodium chloride solution, and finally dried over sodium sulphate. After filtration, and removal of solvent under reduced pressure, the resulting product was recrystallised from ether to give N-(4-chloro-3-ethylisothiazol-5-yl)-2-[2-(2,6-dichlorophenyl)benzoxazol-5-yl] propionamide. 8.5 gm. The solvent was removed from the filtrate, and the residue was purified by chromatography on silica gel, using a mixture of ethyl acetate:hexane 1:2. A further 9.1 gm product was obtained, giving a total yield of 17.6 gm N-(4-chloro-3-ethylisothiazol-5-yl)-2-[2-(2,6-dichlorophenyl)benzoxazol-5-yl] propionamide with melting point 180-183°C.

EXAMPLE 2

Preparation of N-(4-chloro-3-ethyl-5-isothiazolyl)-2-(heptafluoropropyl)-5-benzoxazoleacetamide

- 10 -

Step a)

N-(4-chloro-3-ethylisothiazol-5-yl)-2-(3-amino-4-hydroxyphenyl)acetamide prepared as described in WO03/011861 (3.1 gm, 10.0 mmol) was dissolved in toluene (100ml) and heptafluorobutyraldehyde hydrate (2.6 gm, 11.2 mmol) was added followed by para-
5 toluenesulphonic acid (0.19 gm, 1 mmol) at room temperature. The resulting mixture was fitted with a Dean-Stark apparatus and refluxed for 12 hours allowing water to be separated. The reaction was allowed to cool, a small amount of a gummy material removed by filtration and the filtrate was concentrated under reduced pressure. The residue was purified by chromatography using a mixture of hexane:ethyl acetate (3:1.8).
10 After chromatography the product was further purified by stirring in hot hexane (20 ml) adding ethyl acetate (10 ml), cooling to -20°C and isolating the product by filtration to give white crystals with melting point 122-124°C.

Step b)

The product from step a) (0.393 gm, 0.8 mmol) was suspended in carbon tetrachloride
15 (20 ml) and N-Iodosuccinimide (0.36 gm, 1.6 mmol) was added. The resulting mixture was heated to reflux for 1 hour. The reaction mixture was allowed to cool and stirred with 10% sodiumsulphite solution (20 ml) to destroy any iodine formed. The organic layer was separated, washed twice with dilute saline solution and then dried over sodium sulphate. After removal of the solvent the residue was purified by chromatography using a mixture
20 of hexane:ethyl acetate (3:1) to give the product as white crystals. ¹H nmr: δ 1.3 (3H, t), 2.75 (2H, q), 4.0 (2H, s), 7.55 (1H, d), 7.7 (1H, d), 7.9 (1H, s), 8.2 (1H, br.s).

EXAMPLE 2A

Preparation of N-(4-chloro-3-ethyl-5-isothiazolyl)-2-(heptafluoropropyl)-5-benzoxazoleacetamide

25 The product from Example 2, step a) (0.393 gm, 0.8 mmol) was suspended in acetonitrile (10 ml) and (diacetoxyiodo)benzene (0.283 gm, 0.88 mmol) was added. The resulting

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mixture was stirred at room temperature for 0.5 hour. The solvent was removed under reduced pressure and the residue purified by chromatography to give a product identical to that obtained in Example 2, step b).

EXAMPLE 2B

5 **Preparation of N-(4-chloro-3-ethyl-5-isothiazolyl)-2-(heptafluoropropyl)-5-Benzoxazoleacetamide**

The product from Example 2, step a) (0.393 gm, 0.8 mmol) was suspended in acetic acid (5 ml) and lead tetraacetate (0.391 gm, 0.88 mmol) was added in five portions. The resulting mixture was stirred at room temperature for 3 hours. The mixture was then
10 poured onto ice/water and extracted into an organic phase by washing twice with ethyl acetate (2x 15 ml). The combined organic layer was dried, the solvent removed under reduced pressure and the residue purified by chromatography to give a product identical to that obtained in Example 2, step b).

EXAMPLE 3

15 **Preparation of N-(4-chloro-3-methyl-5-isothiazolyl)-2-(heptafluoropropyl)- α -methyl-5-benzoxazoleacetamide**

Step a)

N-(4-chloro-3-methylisothiazol-5-yl)-2-(3-amino-4-hydroxyphenyl)propionamide prepared as described in WO01/055139 (6.2 gm, 20.0 mmol) was dissolved in toluene
20 (200ml) and heptafluorobutyraldehyde hydrate (5.2 gm, 24 mmol) was added followed by para-toluenesulphonic acid (0.3 gm, 1.7 mmol) at room temperature. The resulting mixture was fitted with a Dean-Stark apparatus and refluxed for 12 hours allowing water to be separated. The reaction was allowed to cool, a small amount of a gummy material removed by filtration and the filtrate was concentrated under reduced pressure. The
25 residue was purified by chromatography using a mixture of hexane:ethyl acetate (1:1). The product was obtained as white crystals with melting point 140 °C.

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Step b)

The product from step a) (0.492 gm, 1.0 mmol) was suspended in carbon tetrachloride (25 ml) and N-Iodosuccinimide (0.45 gm, 2.0 mmol) was added. The resulting mixture was heated to reflux for 1 hour. The reaction mixture was allowed to cool and stirred with 10% sodiumsulphite solution (20 ml) to destroy any iodine formed. The organic layer was separated, washed twice with dilute saline solution and then dried over sodium sulphate. After removal of the solvent the residue was purified by chromatography using a mixture of hexane:ethyl acetate (3:1) to give the product as white crystals. ¹H nmr: δ 1.7 (3H, d), 2.4 (3H, s), 4.0 (1H, q), 7.55 (1H, d), 7.7 (1H, d), 7.9 (1H, s), 8.0 (1H, br.s).

EXAMPLE 3A

Preparation of N-(4-chloro-3-methyl-5-isothiazolyl)-2-(heptafluoropropyl)- α -methyl-5-benzoxazoleacetamide

The product from Example 3, step a) (0.492 gm, 1.0 mmol) was suspended in acetonitrile (10 ml) and (diacetoxyiodo)benzene (0.354 gm, 1.1 mmol) was added. The resulting mixture was stirred at room temperature for 0.5 hour. The solvent was removed under reduced pressure and the residue purified by chromatography to give a product identical to that obtained in Example 3, step b).

EXAMPLE 3B

Preparation of N-(4-chloro-3-methyl-5-isothiazolyl)-2-(heptafluoropropyl)- α -methyl-5-benzoxazoleacetamide

The product from Example 3, step a) (0.492 gm, 1.0 mmol) was suspended in acetic acid (6 ml) and lead tetraacetate (0.488 gm, 1.1 mmol) was added in five portions. The resulting mixture was stirred at room temperature for 3 hours. The mixture was then poured onto ice/water and extracted into an organic phase by washing twice with ethyl acetate (2x 15 ml). The combined organic layer was dried, the solvent removed under

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reduced pressure and the residue purified by chromatography to give a product identical to that obtained in Example 3, step b).

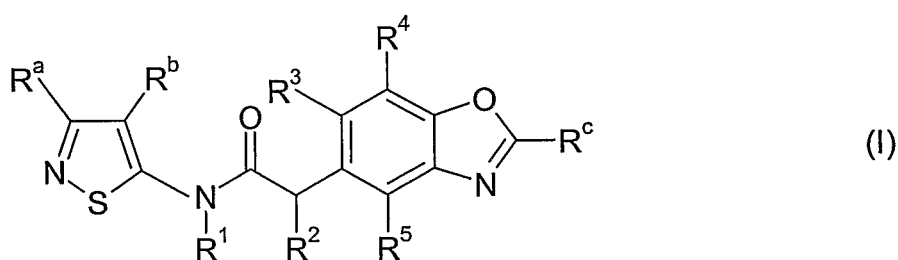
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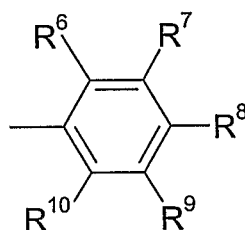
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CLAIMS

1. A process for the preparation of a compound of formula (I)



wherein R^a is C_{1-3} alkyl; R^b is halogen; R^c is C_{1-6} alkoxy(C_{1-6})alkyl, C_{1-6} haloalkyl, C_{1-6} alkyl or C_{1-6} alkoxy, or is a group



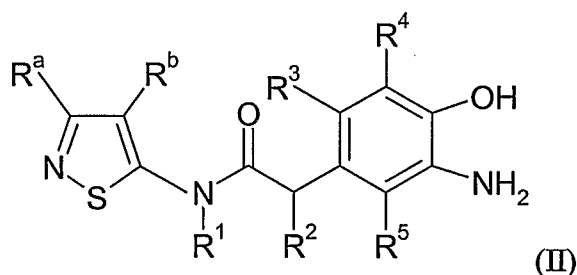
- 10 R^1 is hydrogen, C_{1-2} alkyl, (C_{1-6})alkoxymethyl or propargyl; R^2 is hydrogen, methyl or fluoro; R^3 , R^4 and R^5 are, independently, hydrogen, halogen, C_{1-2} alkyl, C_{1-2} alkoxy or C_{1-2} haloalkyl; R^6 and R^{10} are, independently, hydrogen, halogen, C_{1-3} alkyl, C_{1-2} haloalkyl, C_{1-2} alkoxy, nitro, cyano, C_{1-2} haloalkoxy, C_{1-8} alkylthio, C_{1-6} alkylsulfinyl, C_{1-6} alkylsulfonyl, amino, C_{1-3} alkylamino or di(C_{1-3})alkylamino; R^7 , R^8 and R^9 are, independently, hydrogen, halogen, C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{1-6} haloalkyl, C_{1-6} alkoxy(C_{1-6})alkyl, C_{1-6} alkoxy, C_{1-6} alkoxy(C_{1-6})alkoxy, C_{2-6} alkynyloxy, C_{3-6} cycloalkyl, nitro, cyano, C_{1-6} haloalkoxy, C_{2-6} haloalkenyloxy, $S(O)_p R^{11}$, $OSO_2 R^{12}$, $NR^{13} SO_2 R^{14}$, $NR^{15} R^{16}$,
- 15

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NR¹⁷COR¹⁸, COR¹⁹, SiR²⁰R²¹R²², SCN, optionally substituted aryl or optionally substituted heteroaryl or optionally substituted heterocyclyl;

R¹¹, R¹² and R¹⁴ are, independently, C₁₋₆ alkyl, C₁₋₆ haloalkyl or optionally substituted aryl; R¹³ and R¹⁷ are, independently, hydrogen or C₁₋₂ alkyl; R¹⁵ and R¹⁶ are, independently, hydrogen or C₁₋₃ alkyl; or R¹⁵ and R¹⁶ together with the N atom to which they are attached form a five or six-membered optionally substituted heterocyclic ring which may contain a further heteroatom selected from O and S; R¹⁸ and R¹⁹ are, independently, hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, optionally substituted aryl, optionally substituted heteroaryl or NR²³R²⁴; R²⁰, R²¹ and R²² are, independently, C₁₋₄ alkyl or aryl;

R²³ and R²⁴ are, independently, hydrogen or C₁₋₃ alkyl; or R²³ and R²⁴ together with the N atom to which they are attached form a five or six-membered optionally substituted heterocyclic ring which may contain a further heteroatom selected from O and S; and p is 0, 1 or 2 the process comprising reacting a formula of compound II



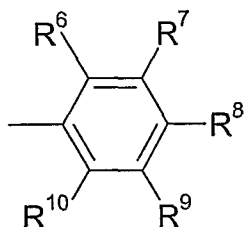
where R^a, R^b, R¹, R², R³, R⁴ and R⁵ are as defined in relation to formula (I) with a compound of formula III



where R^c is as defined in relation to formula (I) and an oxidising agent.

2. A process as claimed in claim 1 where R^c is a group

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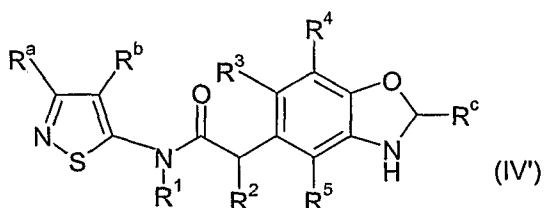
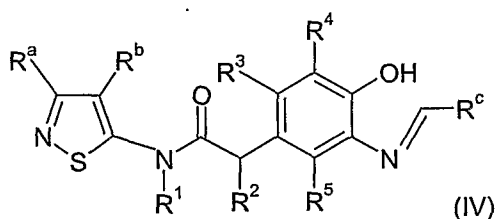
wherein R^6 and R^{10} are, independently, hydrogen, halogen, C_{1-3} alkyl, C_{1-2} haloalkyl, C_{1-2} alkoxy, nitro, cyano, C_{1-2} haloalkoxy, C_{1-2} alkylthio, amino, C_{1-3} alkylamino or $di(C_{1-3})$ alkylamino, provided that at least one of R^6 and R^{10} is not hydrogen; and R^7 , R^8 and R^9 are, independently, hydrogen, halogen, C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{1-6} haloalkyl, C_{1-6} alkoxy(C_{1-6})alkyl, C_{1-6} alkoxy, C_{3-6} cycloalkyl, nitro, cyano, C_{1-6} haloalkoxy, $S(O)_pR^{11}$, OSO_2R^{12} , $NR^{13}SO_2R^{14}$, $NR^{15}R^{16}$, $NR^{17}COR^{18}$, COR^{19} , $SiR^{20}R^{21}R^{22}$, SCN , optionally substituted aryl or optionally substituted heteroaryl.

3. A process as claimed in claim 1 where R^c is C_{1-6} alkyl or C_{1-6} haloalkyl.
4. A process as claimed in any of the preceding claims where R^1 is hydrogen, C_{1-2} alkyl or (C_{1-6}) alkoxymethyl.
5. A process as claimed in any of the preceding claims where R^2 is hydrogen or fluouro.
6. A process as claimed in any of the preceding claims where R^3 , R^4 and R^5 are each, independently, hydrogen or halogen.

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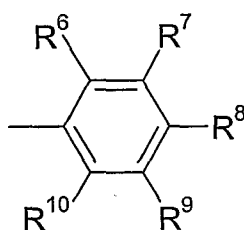
7. A process for the preparation of a compound of formula I as defined in claim 1 which process comprises reacting a compound of formula II as defined in claim 1 with a compound of formula III as defined in claim 1 to produce a compound of formula (IV) or formula (IV')

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wherein R^a is C₁₋₃ alkyl; R^b is halogen; R^c is C₁₋₆ alkoxy(C₁₋₆)alkyl, C₁₋₆ haloalkyl, C₁₋₆ alkyl or C₁₋₆ alkoxy, or is a group

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R¹ is hydrogen, C₁₋₂ alkyl, (C₁₋₆)alkoxymethyl or propargyl; R² is hydrogen, methyl or fluoro; R³, R⁴ and R⁵ are, independently, hydrogen, halogen, C₁₋₂ alkyl, C₁₋₂ alkoxy or C₁₋₂ haloalkyl; R⁶ and R¹⁰ are, independently, hydrogen, halogen, C₁₋₃ alkyl, C₁₋₂ haloalkyl, C₁₋₂ alkoxy, nitro, cyano, C₁₋₂ haloalkoxy, C₁₋₈ alkylthio, C₁₋₆ alkylsulfinyl, C₁₋₆ alkylsulfonyl, amino, C₁₋₃ alkylamino or di(C₁₋

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3)alkylamino; R^7 , R^8 and R^9 are, independently, hydrogen, halogen, C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{1-6} haloalkyl, C_{1-6} alkoxy(C_{1-6})alkyl, C_{1-6} alkoxy, C_{1-6} alkoxy(C_{1-6})alkoxy, C_{2-6} alkynyloxy, C_{3-6} cycloalkyl, nitro, cyano, C_{1-6} haloalkoxy, C_{2-6} haloalkenyloxy, $S(O)_pR^{11}$, OSO_2R^{12} , $NR^{13}SO_2R^{14}$, $NR^{15}R^{16}$, $NR^{17}COR^{18}$, COR^{19} , $SiR^{20}R^{21}R^{22}$, SCN, optionally substituted aryl or optionally substituted heteroaryl or optionally substituted heterocyclyl;

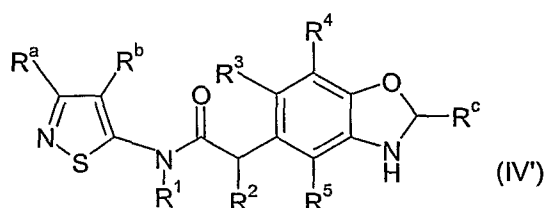
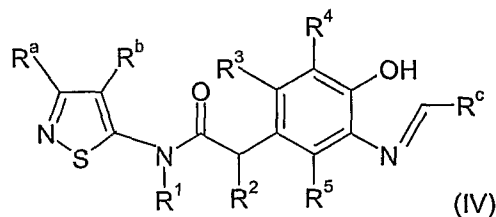
R^{11} , R^{12} and R^{14} are, independently, C_{1-6} alkyl, C_{1-6} haloalkyl or optionally substituted aryl; R^{13} and R^{17} are, independently, hydrogen or C_{1-2} alkyl; R^{15} and R^{16} are, independently, hydrogen or C_{1-3} alkyl; or R^{15} and R^{16} together with the N atom to which they are attached form a five or six-membered optionally substituted heterocyclic ring which may contain a further heteroatom selected from O and S; R^{18} and R^{19} are, independently, hydrogen, C_{1-6} alkyl, C_{1-6} alkoxy, optionally substituted aryl, optionally substituted heteroaryl or $NR^{23}R^{24}$; R^{20} , R^{21} and R^{22} are, independently, C_{1-4} alkyl or aryl;

R^{23} and R^{24} are, independently, hydrogen or C_{1-3} alkyl; or R^{23} and R^{24} together with the N atom to which they are attached form a five or six-membered optionally substituted heterocyclic ring which may contain a further heteroatom selected from O and S; and p is 0, 1 or 2 and reacting the compound of formula (IV) or (IV') with an oxidising agent.

8. A process according to any preceeding claim where the oxidising agent is UV light; air; oxygen; bromine; acetates such as lead tetraacetate, iodosobenzenediacetate and manganese triacetate; perchlorates such as sodium perchlorate and thianthrene cation radical perchlorate; manganates such as barium manganate; peroxides such as nickel peroxide; oxides such as manganese dioxide; dichloro-5,6-dicyano-1,4-benzoquinone and N-bromosuccinimide.

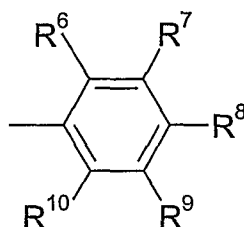
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9. A compound of formula IV or formula IV'



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wherein R^a is C_{1-3} alkyl; R^b is halogen; R^c is C_{1-6} alkoxy(C_{1-6})alkyl, C_{1-6} haloalkyl, C_{1-6} alkyl or C_{1-6} alkoxy, or is a group



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R^1 is hydrogen, C_{1-2} alkyl, (C_{1-6})alkoxymethyl or propargyl; R^2 is hydrogen, methyl or fluoro; R^3 , R^4 and R^5 are, independently, hydrogen, halogen, C_{1-2} alkyl, C_{1-2} alkoxy or C_{1-2} haloalkyl; R^6 and R^{10} are, independently, hydrogen, halogen, C_{1-3} alkyl, C_{1-2} haloalkyl, C_{1-2} alkoxy, nitro, cyano, C_{1-2} haloalkoxy, C_{1-8} alkylthio, C_{1-6} alkylsulfinyl, C_{1-6} alkylsulfonyl, amino, C_{1-3} alkylamino or di(C_{1-3})alkylamino; R^7 , R^8 and R^9 are, independently, hydrogen, halogen, C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{1-6} haloalkyl, C_{1-6} alkoxy(C_{1-6})alkyl, C_{1-6} alkoxy, C_{1-6} alkoxy(C_{1-6})alkoxy, C_{2-6} alkynyloxy, C_{3-6} cycloalkyl, nitro, cyano, C_{1-6}

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haloalkoxy, C₂₋₆ haloalkenyloxy, S(O)_pR¹¹, OSO₂R¹², NR¹³SO₂R¹⁴, NR¹⁵R¹⁶, NR¹⁷COR¹⁸, COR¹⁹, SiR²⁰R²¹R²², SCN, optionally substituted aryl or optionally substituted heteroaryl or optionally substituted heterocyclyl;

R¹¹, R¹² and R¹⁴ are, independently, C₁₋₆ alkyl, C₁₋₆ haloalkyl or optionally substituted aryl; R¹³ and R¹⁷ are, independently, hydrogen or C₁₋₂ alkyl; R¹⁵ and R¹⁶ are, independently, hydrogen or C₁₋₃ alkyl; or R¹⁵ and R¹⁶ together with the N atom to which they are attached form a five or six-membered optionally

substituted heterocyclic ring which may contain a further heteroatom selected from O and S; R¹⁸ and R¹⁹ are, independently, hydrogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, optionally substituted aryl, optionally substituted heteroaryl or NR²³R²⁴; R²⁰, R²¹ and R²² are, independently, C₁₋₄ alkyl or aryl;

R²³ and R²⁴ are, independently, hydrogen or C₁₋₃ alkyl; or R²³ and R²⁴ together with the N atom to which they are attached form a five or six-membered optionally substituted heterocyclic ring which may contain a further heteroatom selected from O and S; and p is 0, 1 or 2.