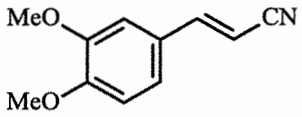
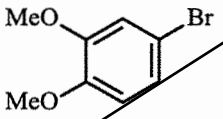
CLAIMS

1. Process for the synthesis of the compound of formula (I):



(I),

characterised in that the compound of formula (IX):



(IX)

is subjected to a coupling reaction with acrylonitrile in the presence of a palladium catalyst, a ligand, a base and a phase transfer agent in an organic solvent to yield the compound of formula (I).

2. Process according to claim 1, characterised in that the palladium catalyst used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is selected from palladium(II) acetate, palladium on carbon, and palladium(II) chloride.

3. Process according to claim 2, characterised in that the palladium catalyst used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is palladium on carbon.

4. Process according to any one of claims 1 to 3, characterised in that the ligand used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is selected from triphenylphosphine and tri(*o*-tolyl)phosphine.

5. Process according to claim 4, characterised in that the ligand used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is tri(*o*-tolyl)phosphine.

6. Process according to any one of claims 1 to 5, characterised in that the base used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is selected from triethylamine, sodium acetate, sodium carbonate and potassium carbonate.

7. Process according to claim 6, characterised in that the base used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is sodium acetate.

8. Process according to any one of claims 1 to 7, characterised in that the phase transfer agent used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is selected from tetrabutylammonium bromide and tetrabutylammonium chloride.

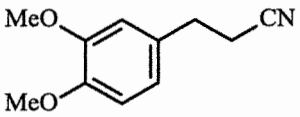
9. Process according to claim 8, characterised in that the phase transfer agent used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is tetrabutylammonium bromide.

10. Process according to any one of claims 1 to 9, characterised in that the organic solvent used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is selected from *N*,*N*-dimethylacetamide and *N*,*N*-dimethylformamide.

11. Process according to claim 10, characterised in that the organic solvent used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is *N*,*N*-dimethylacetamide.

12. Process according to any one of claims 1 to 11, characterised in that the conversion of the compound of formula (IX) into the compound of formula (I) is carried out at a temperature between 100°C and 170°C, inclusive.

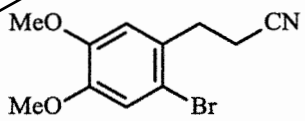
13. Process according to claim 1, characterised in that the compound of formula (I) obtained is subsequently converted into the compound of formula (X):



(X)

by a reduction reaction,

which compound is converted into the compound of formula (VIII):



(VIII)

by a bromination reaction.

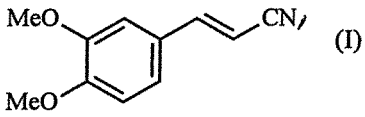
14. Process for the synthesis of ivabradine, pharmaceutically acceptable salts thereof and hydrates thereof, characterised in that:

- the compound of formula (IX) is converted into the compound of formula (I) in accordance with the process of claim 1,
- the compound of formula (I) is subsequently converted into the compound of formula (VIII) in accordance with the process according to claim 13,
- the compound of formula (VIII) is subsequently converted into ivabradine, which may be converted into addition salts thereof with a pharmaceutically acceptable acid selected from hydrochloric acid, hydrobromic acid, sulphuric acid, phosphoric acid, acetic acid, trifluoroacetic acid, lactic acid, pyruvic acid, malonic acid, succinic acid, glutaric acid, fumaric acid, tartaric acid, maleic acid, citric acid,

ascorbic acid, oxalic acid, methanesulphonic acid, benzenesulphonic acid and camphoric acid, and into hydrates thereof.

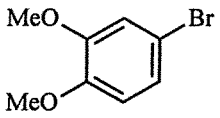
CLAIMS

1. Process for the synthesis of a compound of formula (I):



(I)

wherein the compound of formula (IX):



(IX)

is subjected to a coupling reaction with acrylonitrile in the presence of a palladium catalyst, a ligand, a base and a phase transfer agent in an organic solvent to yield the compound of formula (I).

2. The process according to claim 1, wherein the palladium catalyst used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is selected from palladium(II) acetate, palladium on carbon, and palladium(II) chloride.

3. The process according to claim 2, wherein the palladium catalyst used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is palladium on carbon.

4. The process according to claim 1, wherein the ligand used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is selected from triphenylphosphine and tri(o-tolyl)phosphine.

5. The process according to claim 4, wherein the ligand used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is tri(o-tolyl)phosphine.

6. The process according to claim 1, wherein the base used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is selected from triethylamine, sodium acetate, sodium carbonate and potassium carbonate.

7. The process according to claim 6, wherein the base used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is sodium acetate.

8. The process according to claim 1, wherein the phase transfer agent used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is selected from tetrabutylammonium bromide and tetrabutylammonium chloride.

9. The process according to claim 8, wherein the phase transfer agent used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is tetrabutylammonium bromide.

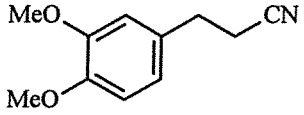
10. The process according to claim 1, wherein the organic solvent used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is selected from N,N-dimethylacetamide and N,N-dimethylformamide.

11. The process according to claim 10, wherein the organic solvent used to carry out the conversion of the compound of formula (IX) into the compound of formula (I) is N,N-dimethylacetamide.

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12. The process according to claim 1, wherein the conversion of the compound of formula (IX) into the compound of formula (I) is carried out at a temperature between 100°C and 170°C, inclusive.

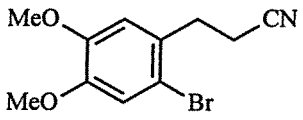
13. The process according to claim 1, wherein the compound of formula (I) obtained is subsequently converted into the compound of formula (X):



(X)

by a reduction reaction,

which compound of formula (X) is converted into compound of formula (VIII):

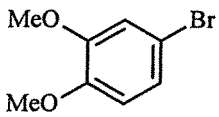


(VIII)

by a bromination reaction.

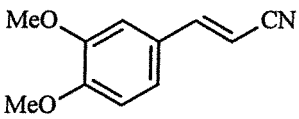
14. A process for the synthesis of ivabradine, pharmaceutically acceptable salt thereof, wherein:

a compound of formula (IX)



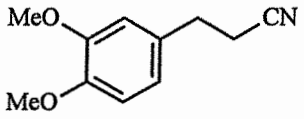
(IX)

is subjected to a coupling reaction with acrylonitrile in the presence of a palladium catalyst, a ligand, a base and a phase transfer agent in an organic solvent to yield a compound of formula (I)



(I)

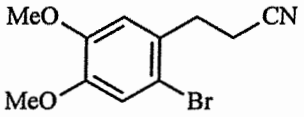
the compound of formula (I) is subsequently converted into a compound of a compound of formula (X):



(X)

by a reduction reaction,

which compound of formula (X) is converted into a compound of formula (VIII):

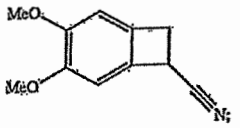


(VIII)

by a bromination reaction;

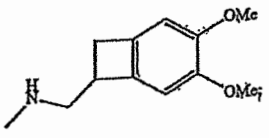
the compound of formula (VIII) is subjected to na intramolecular cyclization reaction in a basic medium to yield a compound of formula (III):

(III)



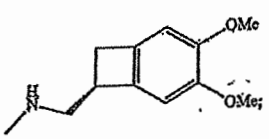
the compound of formula (III) is subject to reduction conditions to yield a compound of formula (IV):

(IV)

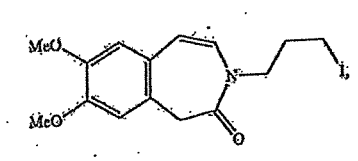


the compound of formula (IV) is subjected to optical resolution conditions to yield a compound of formula (V);

(V)

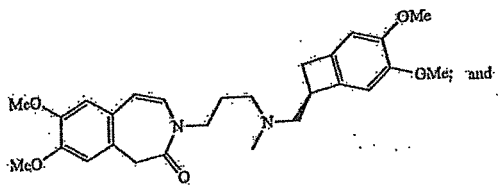


the compound of formula (V) is reacted with a compound of formula (VI):



(VI)

to yield a compound of formula (VII):



(VII)

the compound of formula (VII) is subjected to catalytic hydrogenation conditions to yield ivabradine, which may optionally be converted into an addition salt thereof with a pharmaceutically acceptable acid selected from hydrochloric acid, hydrobromic acid, sulphuric acid, phosphoric acid, acetic acid, trifluoroacetic acid, lactic acid, pyruvic acid, malonic acid, succinic acid, glutaric acid, fumaric acid, tartaric acid, maleic acid, citric acid, ascorbic acid, oxalic acid, methanesulphonic acid, benzenesulphonic acid and camphoric acid.