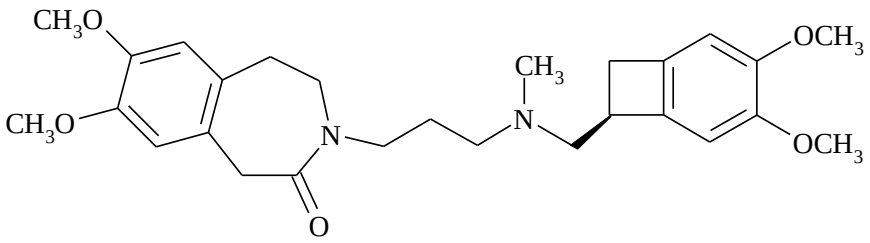
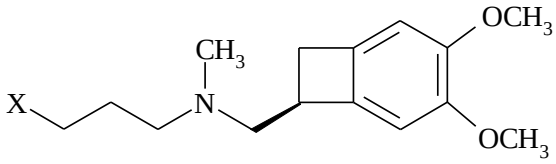
**CLAIMS**

**1.** Process for the synthesis of ivabradine of formula (I), addition salts thereof with a pharmaceutically acceptable acid and hydrates thereof:



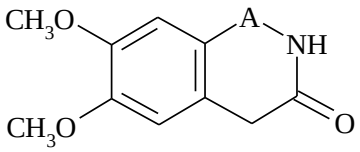

(I),

characterised in that the compound of formula (VIII):



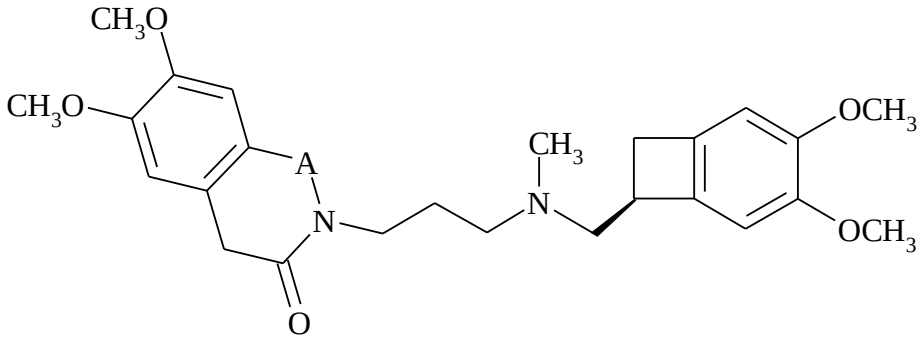

(VIII),

wherein X represents a halogen atom, a mesylate group or a tosylate group,
is subjected to an alkylation reaction with the compound of formula (IX):




(IX),

wherein A represents $H_2C$-$CH_2$ or HC=CH,
in the presence of a base,
in an organic solvent,
to yield the compound of formula (VII):




(VII),

wherein A is as defined hereinbefore,

and then,

- in the case where A represents $H_2C$-$CH_2$, ivabradine of formula (I), a particular case of the compounds of formula (VII) and product of the alkylation reaction of the compound of formula (VIII) with the compound of formula (IX), is isolated and purified and then may be converted into its addition salts 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,

- in the case where A represents CH=CH, the compound of formula (IV), product of the alkylation reaction of the compound of formula (VIII) with the compound of formula (IX), is isolated and purified and then is subjected to a catalytic hydrogenation reaction to yield ivabradine of formula (I), which is isolated and purified and then may be converted into its addition salts 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.

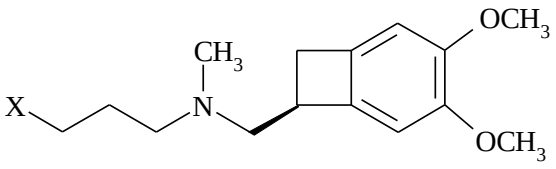
**2.** Synthesis process according to claim 1, characterised in that the base used to carry out the alkylation reaction of the compound of formula (VIII) with the compound of formula (IX) is selected from sodium hydride, potassium *tert*-butylate, sodium

methanolate and potassium hydroxide, sodium hydroxide, potassium carbonate and caesium carbonate.

**3.** Synthesis process according to either claim 1 or claim 2, characterised in that the base used to carry out the alkylation reaction of the compound of formula (VIII) with the compound of formula (IX) is potassium *tert*-butylate.

**4.** Synthesis process according to any one of claims 1 to 3, characterised in that the solvent used to carry out the alkylation reaction of the compound of formula (VIII) with the compound of formula (IX) is selected from tetrahydrofuran, 1,4-dioxane, dimethyl sulphoxide, *tert*-butanol, *N*,*N*-dimethylformamide, *N*,*N*-dimethyl acetamide and *N*-methylpyrrolidone.

**5.** Compound of formula (VIIIa), a particular case of the compounds of formula (VIII):




(VIIIa),

wherein X represents a bromine or iodine atom, a mesylate group or a tosylate group.