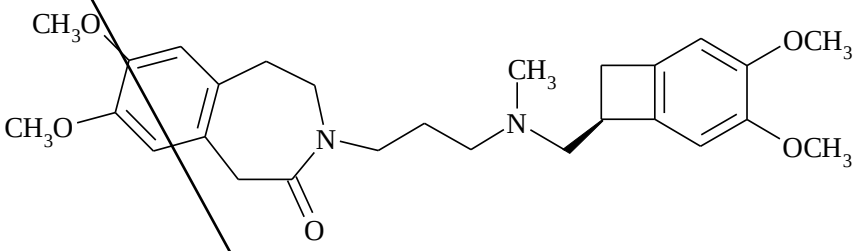
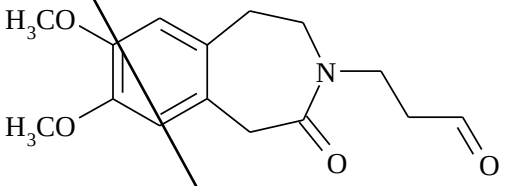
CLAIMS

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



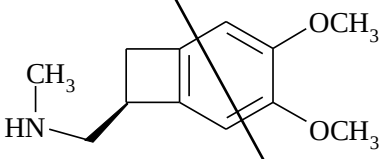
(I),

characterised in that the compound of formula (V):



(V)

is subjected to a reductive amination reaction with the amine of formula (VI):



(VI)

in the presence of formic acid in an amount greater than 1 equivalent per equivalent of aldehyde

and of triethylamine in an amount greater than 1 equivalent per equivalent of aldehyde,

at a temperature from 15 to 100°C,

in the absence of solvent or in an alcoholic solvent.

2. Synthesis process according to claim 1, characterised in that the reductive amination reaction is carried out in the absence of solvent.

3. Synthesis process according to one of claims 1 or 2, characterised in that the amount of formic acid used in the reductive amination reaction is from 2 to 50 equivalents per equivalent of aldehyde.

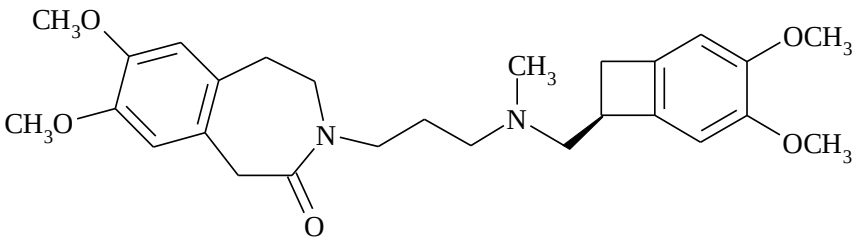
4. Synthesis process according to one of claims 1 to 3, characterised in that the amount of triethylamine used in the reductive amination reaction is from 2 to 50 equivalents per equivalent of aldehyde.

5. Synthesis process according to one of claims 1 to 4, characterised in that the temperature of the reductive amination reaction is from 30 to 100°C.

CLAIMS

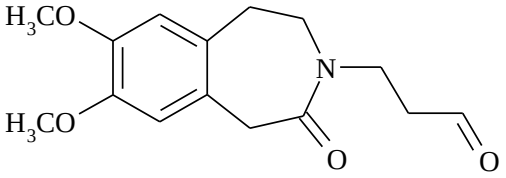
The invention claimed is:

1. A process for the synthesis of ivabradine of formula (I):



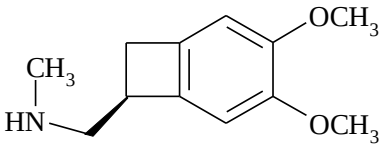
(I),

wherein a compound of formula (V):



(V)

is subjected to a reductive amination reaction with the amine of formula (VI):



(VI)

in the presence of formic acid in an amount greater than 1 equivalent per equivalent of aldehyde

and of triethylamine in an amount greater than 1 equivalent per equivalent of aldehyde,

at a temperature from 15 to 100°C,

in the absence of solvent or in an alcoholic solvent.

2. The process according to claim 1, wherein the reductive amination reaction is carried out in the absence of solvent.

3. The process according to claim 1, wherein the amount of formic acid used in the reductive amination reaction is from 2 to 50 equivalents per equivalent of aldehyde.

4. The process according to claim 1, wherein the amount of triethylamine used in the reductive amination reaction is from 2 to 50 equivalents per equivalent of aldehyde.

5. The process according to claim 1, characterised in that the temperature of the reductive amination reaction is from 30 to 100°C.