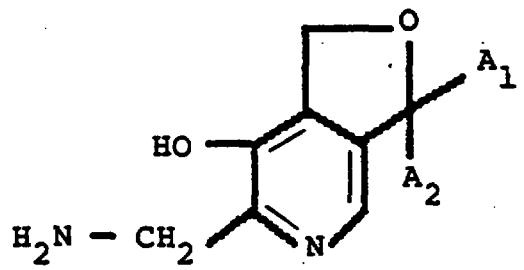
TITLE:

6-Aminomethyl-Furo-(3,4-c)-Pyridine Derivatives

DESCRIPTION:

The invention relates to 6-aminomethyl-furo-(3,4-c)-pyridine derivatives, to a process for their preparation and to pharmaceutical compositions containing them.

The invention provides the 1,3-dihydro-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine derivatives of the general formula I



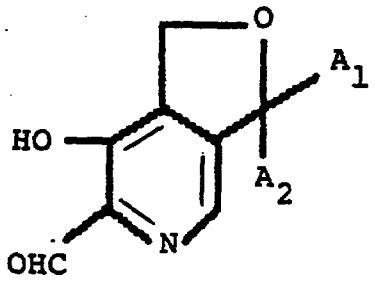
I

wherein each of A_1 and A_2 independently represents a hydrogen atom, a straight chain saturated or unsaturated hydrocarbon group having from 1 to 5 carbon atoms, a heterocyclic group having up to 6 ring atoms, a cycloalkyl group, a phenyl group or a phenylalkyl group, each of the groups represented by A_1 and A_2 being unsubstituted or being substituted by one or more chlorine or fluorine atoms, trifluoromethyl groups, alkyl groups having from 1 to 5 carbon atoms, alkoxy groups having from 1 to 5 carbon atoms, alkylthio groups having from 1 to 5 carbon atoms, dialkylamino groups in which each alkyl group has from 1 to 5 carbon atoms, dialkylaminoalkoxy groups in which each of the two alkyl groups and the alkoxy group has from 1 to 5 carbon atoms or α- or β-(N-pyrrolidinyl)-alkoxy groups in which the alkoxy group has from 1 to 5 carbon

atoms ; and further provides pharmaceutically acceptable salts of such compounds.

The compounds according to the invention are of interest for their therapeutical activity, principally in the field of antiallergic action.

The invention also provides a process for the preparation of the above mentioned compounds, the process comprising reacting the 6-formyl-7-hydroxy-furo-(3,4-c)-pyridine derivatives of the general formula II



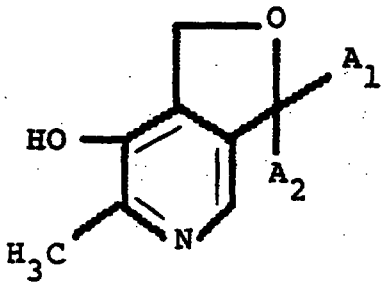
II

or M — CHO

wherein A_1 and A_2 have the above meanings with a stoichiometric amount of hydroxylamine in water, under basic conditions, and catalytically hydrogenating the resultant oxime. The reaction of the compound II with hydroxylamine is preferably carried out in aqueous sodium hydroxide solution at ambient temperature. The oxime is preferably hydrogenated at room temperature, under normal pressure, in acetic acid, by hydrogen in the presence of a Pd/C catalyst. The process is illustrated by the following reaction scheme:

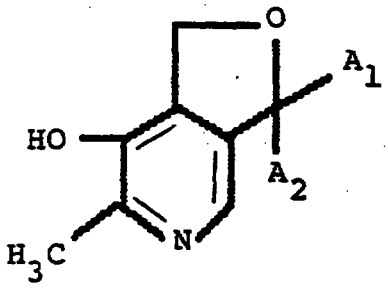
$$M-CHO \xrightarrow{NH_2OH} M-CH=N-OH \xrightarrow[Pd/C]{H_2} I$$

The 6- formyl -7 -hydroxy- furo- (3,4-c) -pyridine derivatives II may be obtained from corresponding 6-methyl-7-hydroxy-furo-(3,4-c)-pyridine derivatives of the general formula III

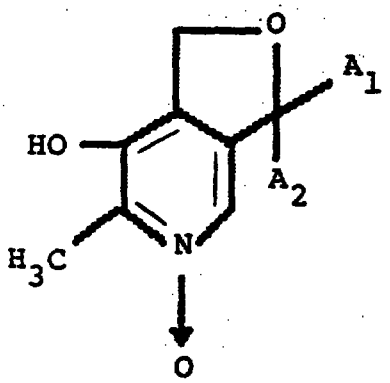


III

wherein A_1 and A_2 have the above meanings by the following sequence of reactions :

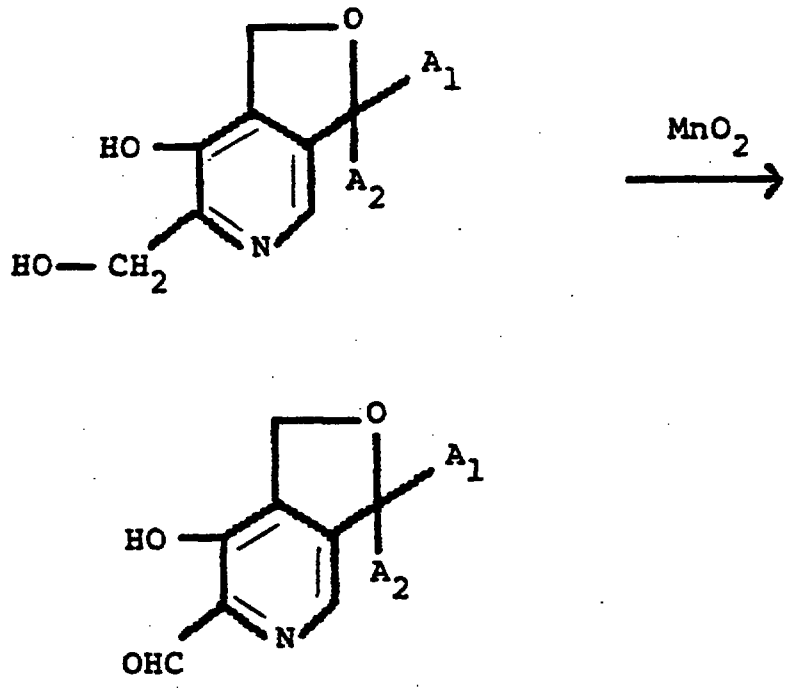


m-chloro peroxybenzoic acid



$(CF_3\ CO)_2\ O$

(11)



The compounds III are disclosed in our Patent No. 2 092 586 and Patent Application No. 84 07082. (2137618)

The preparation of one only of the starting compounds, 1,3-dihydro-3-p-chlorophenyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, is now described in detail, other starting materials being obtained by the same way.

a) Into a one litre reactor fitted with stirring, warming and cooling means, 22.3 g of 1,3-dihydro-3-p-chlorophenyl-6-methyl-7-hydroxy-furo-(3,4-c)-pyridine were treated at 0°C, in the presence of 300 ml of methylene dichloride, with 18.2 g of m-peroxybenzoic acid, slowly added. After stirring overnight at room temperature, there were added 150 ml of 10 % sodium sulphate solution. After stirring and decantation, the methylene dichloride phase was washed with the same amount of sodium sulphate solution, twice with 150 ml of sodium bicarbonate solution and three times with 100 ml of water, and then dried over anhydrous sodium sulphate. On evaporation to dryness, there was obtained a beige precipitate which was washed with petroleum ether, filtered and dried.

Yield 22.9 g (96 %) of 1,3-dihydro-3-p-chlorophenyl-6-methyl-7-hydroxy-furo-(3,4-c)-pyridine-N-oxide.

b) In the same reactor as above, the 22.9 g of the compound obtained in the previous step were treated at 0-5°C, in the presence of 175 ml of methylene dichloride, with 4.3 ml of trifluoroacetic anhydride added dropwise under stirring. The mixture was stirred overnight at room temperature, and then cooled and treated dropwise with 95 ml of methanol. After evaporation to dryness, the residue was taken up in 300 ml of chloroform, washed twice with 75 ml of 10 % sodium bicarbonate solution and three times with 100 ml of water and dried on anhydrous sodium sulphate. The chloroform was evaporated off and the residue was washed with diethyl ether and dried under reduced pressure. Yield 21.3 g (93 %) of 1,3-dihydro-3-p-chlorophenyl-6-hydroxymethyl-7-hydroxy-furo-(3,4-c)-pyridine.

c) In a 2 litre reactor, the 21.3 g of the compound obtained in the previous step were treated with 27 g of manganese dioxide in the presence of 0.9 litre of chloroform at 28-30°C, under stirring for 3 hours. After separation, fitration, washing with chloroform and then with ethyl acetate, the solution was evaporated to dryness and the paste treated with isopropyl oxide then with pentane. There was thus obtained 20.1 g (95 %) of 1,3-dihydro-3-p-chlorophenyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine.

The invention further provides a pharmaceutical composition comprising a 1,3-dihydro-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine derivative of the general formula I as above defined or a pharmaceutically acceptable salt thereof in admixture with a pharmaceutically acceptable diluent or carrier.

The invention is illustrated by the following examples:

Example 1

1,3-dihydro-3-methyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Into a 2 litre reactor, at room temperature, were poured 71.2 g (0.4 mol) of 1,3-dihydro-3-methyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, 270 ml of 1N sodium hydroxide and then, dropwise under stirring, 27.8 g (0.4 mol) of hydroxylamine hydrochloride dissolved in 200 ml of water. Stirring was maintained for 10 hours and the reacting mixture was filtered, to give, after washing with water and drying, 74 g (96 %) of the corresponding 6-oxime derivative.

The 74 g of the 6-oxime derivative were then poured with 0.9 litre of acetic acid into a closed reactor fitted with gaseous circulation means ; after circulating nitrogen 15 g of Palladium on Carbon catalyst were placed in the reactor and the mixture was stirred at room temperature with a measured hydrogen addition under normal pressure, for 4 hours.

After filtration of the reacting mixture, it was evaporated to dryness. The residue was treated with toluene and then with methanol from which were recrystallized 70 g (76 %) of the acetate of 1,3-dihydro-3-methyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine, a beige product melting at 167°C (Tottoli), the analysis of which showed a good correspondence with the formula $C_9H_{12}N_2O_2$, $C_2H_4O_2$. This compound was insoluble in water.

As the same route was used for all the synthetized compounds, operative details will not be repeated in the following examples. The corresponding bases (without the acetic moiety) and other salts of said bases are obtained as usual.

Example 2

1,3-dihydro-3-propyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3-propyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 77 %) a pale beige product, melting at 187°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{11}H_{16}N_2O_2 \cdot C_2H_4O_2$.

Example 3

1,3-dihydro-3-(3',4',5'-trimethoxyphenyl)-ethyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3-(3',4',5'-trimethoxyphenyl)-ethyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 61 %), a white product, melting at 140-144°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{19}H_{24}N_2O_5 \cdot C_2H_4O_2$.

Example 4

1,3-dihydro-3-cyclohexyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3-cyclohexyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 67 %) a white product, melting at 173-177°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{14}H_{20}N_2O_2 \cdot C_2H_4O_2$.

Example 5

1,3-dihydro-3- α -thienyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3- α -thienyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 58 %)

(15)

a yellowish product, melting at 148°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{12}H_{12}N_2O_2S_1 \cdot C_2H_4O_2$.

Example 6

1,3-dihydro-3-phenyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3-phenyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 82 %) a pale beige product, melting at 188°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{14}H_{14}N_2O_2 \cdot C_2H_4O_2$.

Example 7

1,3-dihydro-3-p-chlorophenyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3-p-chlorophenyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 86 %) a pale beige product, melting at 204-206°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{14}H_{13}ClN_2O_2 \cdot C_2H_4O_2$.

Example 8

1,3-dihydro-3-(2',3'-dichlorophenyl)-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3-(2',3'-dichlorophenyl)-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 72 %) a pale yellow product, melting at 193-196°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{14}H_{12}Cl_2N_2O_2 \cdot C_2H_4O_2$.

Example 9
1,3-dihydro-3-p-fluorophenyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3-p-fluorophenyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 69 %) a pale beige product, melting at 183-187°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{14}H_{13}FN_2O_2 \cdot C_2H_4O_2$.

Example 10
1,3-dihydro-3-p-tolyl -6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3-p-tolyl -6-formyl-7-hydroxy -furo-(3,4-c)-pyridine, there was obtained (yield 78 %) a pale beige product, melting at 158-160°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{15}H_{16}N_2O_2 \cdot C_2H_4O_2$.

Example 11
1,3-dihydro-3-p-methoxyphenyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3-p-methoxyphenyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 62 %) a pale beige product, melting at 144-149°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{15}H_{16}N_2O_3 \cdot C_2H_4O_2$.

Example 12
1,3-dihydro-3-(3',4',5'-trimethoxy)-phenyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3-(3',4',5'-trimethoxy)-phenyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was

obtained (yield 49 %) a whitish product, melting at 137-141°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{17}H_{20}N_2O_5 \cdot C_2H_4O_2$.

Example 13

1,3-dihydro-3-m-trifluoromethylphenyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3-m-trifluoromethylphenyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 84 %) of a white product, melting at 197-203°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{15}H_{13}F_3N_2O_2 \cdot C_2H_4O_2$.

Example 14

1,3-dihydro-3-p-dimethylaminoethoxyphenyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3-p-dimethylaminoethoxyphenyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 46 %) a pale yellow product, melting at 160-164°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{19}H_{23}N_3O_2 \cdot C_2H_4O_2$.

Example 15

1,3-dihydro-3-methyl-3-α -thienyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3-methyl-3- α -thienyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 66 %) a white product, melting at 206-208°C (Tottoli), poorly soluble in water, the analysis of which showed a good correspondence with the formula $C_{13}H_{14}N_2O_2S \cdot C_2H_4O_2$.

Example 16

1,3-dihydro-3-ethyl-3-phenyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3-ethyl-3-phenyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 80 %) a white product, melting at 207°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{16}H_{18}N_2O_2 \cdot C_2H_4O_2$.

Example 17

1,3-dihydro-3-phenyl-3-p-trifluoromethylphenyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3-phenyl-3-p-trifluoromethyl-phenyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 65 %) a white product, melting at 221°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{21}H_{17}F_3N_2O_2 \cdot C_2H_4O_2$.

Example 18

1,3-dihydro-3-p-(N-pyrrolidinylmethoxy)-phenyl-6-aminomethyl--7-hydroxy-furo-(3,4-c)-pyridine.

Starting with 1,3-dihydro-3-p-(N-pyrrolidinylmethoxy)-phenyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 41%) a yellowish product, melting at 129-132°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{19}H_{23}N_3O_3$. $C_2H_4O_2$.

Example 19

1,3-dihydro-3,3-di-p-fluorophenyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3,3-di-p-fluorophenyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained

(yield 81 %) a pale yellow product, melting at 214°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{20}H_{16}F_2N_2O_2 \cdot C_2H_4O_2$.

Example 20

1,3-dihydro-3-α-furyl-3-p-thiomethylphenyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3-α-furyl-3-p-thiomethylphenyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 63 %) a whitish product, melting at 153-157°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{19}H_{18}N_2O_3S \cdot C_2H_4O_2$.

Example 21

1,3-dihydro-3,3-di-α-furyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3,3-di-α-furyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 72 %) a white product, melting at 178°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{16}H_{14}N_2O_4 \cdot C_2H_4O_2$.

Example 22

1,3-dihydro-3-cyclohexyl-3-(2',3',-dichloro)-phenyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3-cyclohexyl-3-(2',3'-dichlorophenyl)-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 59 %) a yellow product, melting at 213°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{20}H_{22}Cl_2N_2O_2 \cdot C_2H_4O_2$.

Example 23

1,3-dihydro-3-vinyl-3-p-thiomethylphenyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3-vinyl-3-p-thiomethylphenyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 66 %) a beige product, melting at 155°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{17}H_{18}N_2O_2S. C_2H_4O_2$.

Example 24

1,3-dihydro-3-dimethylaminopropyl-3-p-chlorophenyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine

Starting with 1,3-dihydro-3-dimethylaminopropyl-3-p-chlorophenyl-6-formyl-7-hydroxy-furo-(3,4-c)-pyridine, there was obtained (yield 47 %) a white product, melting at 169°C (Tottoli), insoluble in water, the analysis of which showed a good correspondence with the formula $C_{19}H_{24}Cl N_3O_2. C_2H_4O_2$.

TOXICITY

DL_{50} was determined per os and IP on mice. According to the compounds, it was comprised between 0.7 to over 2.4 g/Kg (per os) and 0.6 to 1.65 g/Kg IP.

PHARMACOLOGY

A complete pharmacological experimentation was conducted and the following tests are reported below.

A - Passive cutaneous anaphylaxy

This experiment was conducted as described in Fiche Technique n° 48 of J.Pharm. Paris 1979 10 (1) pages 69-72.

Male Sprague-Dawley rats (180-200 g) received two intra-dermal injections of immunserum in the back ; 72 hours later, they received a IV (penis vein) injection of 1 ml of a mixture of ovalbumine (5 mg/ml) and Evans blue (2.5 mg/ml) : this induced the formation of wheals around the places of injection of immunserum. Wheals were taken 30 minutes after this formation, measured then incubated for 24 hours at 65°C in 4 ml of formamide (for extracting the Evans blue). Optical density of the supernatant was determined at 620 nm by a spectrophotometer.

A first batch of 8 rats was used for control ; a second batch (8) was used for treatment by a reference compound (theophylline, 25 mg/Kg) and ten other batches (all of 8 rats) were used for the treatment by 10 of the compounds of the present invention (all at 25 mg/Kg) identified by their example number ; for these eleven batches, the appropriate compound was administered per os, one hour before the injection of ovalbumine/Evans blue mixture. The percentage of wheals reduction, in surface and in colour was determined by comparison with the control. The results are reported on the left part of the following table.

B - Anti-histaminic action

This experiment was conducted as described by Doepfner W. and Cerletti A., Int. Arch. Allergy 12, 89 1958 and J. Pharmac. and exp. Ther. (1974) 191 (2) pages 300-310.

Male Sprague-Dawley rats (140-160 g) were submitted to hydric fast for 18 hours before receiving 1 ml/Kg of water (for control), 0.2 of an aqueous solution or suspension of experimented compounds. The volume of the left posterior paw was measured by plethysmography, then 0.1 ml of 5 % histamine hydrochloride was injected. The inflammatory response was evaluated by a subsequent volume determination one hour later.

Batches of each 8 animals were used : one for control ten for tested compounds (the same as in A above) and two for reference compounds mequitazine and promethazine, all at the dose of 25 mg/Kg. The percentage of reduction of inflammatory response was obtained by comparison with control. The results are reported in the right part of the following table.

From these two experiments, it clearly appears that the compounds of the invention present a strong anti-histaminic action.

PRESENTATION - POSOLOGY

For human use by oral route, tablets or gelatine capsules containing 0.20 g of a compound according to the invention are preferred. By IV route, phials containing the same amount, to be injected with a perfusion are retained. Daily doses in human therapy are from 0.20 to 2 g per os and 0.20 to 1 g, IV.

Compounds	% of wheals reduction		Histamine induced Oedema % of inflammatory reduction
	Surface	Colour	
Theophylline	- 60	- 62	
Ex 1	- 77	- 86	- 48
Ex 2	- 58	- 60	- 77
Ex 4	- 61	- 66	- 59
Ex 5	- 49	- 60	- 68
Ex 6	- 75	- 84	- 79
Ex 9	- 68	- 72	- 83
Ex 10	- 68	- 72	- 66
Ex 14	- 71	- 81	- 51
Ex 16	- 53	- 59	- 54
Ex 18	- 65	- 69	- 62
Mequitazine			- 60
Promethazine			- 41

CLAIMS:

1. A 1,3-dihydro-6-aminomethyl-7-hydroxy-furo-(3,4-c)--pyridine derivative having the general formula I as herein defined.

2. 1,3-dihydro-3-methyl-6-aminomethyl-7-hydroxy-furo--(3,4-c)-pyridine.

3. 1,3-dihydro-3-propyl-6-aminomethyl-7-hydroxy-furo--(3,4-c)-pyridine.

4. 1,3-dihydro-3-(3',4',5'-trimethoxyphenyl)-ethyl-6--aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine.

5. 1,3-dihydro-3-cyclohexyl-6-aminomethyl-7-hydroxy--furo-(3,4-c)-pyridine.

6. 1,3-dihydro-3-α-thienyl-6-aminomethyl-7-hydroxy--furo-(3,4-c)-pyridine.

7. 1,3-dihydro-3-phenyl-6-aminomethyl-7-hydroxy-furo--(3,4-c)-pyridine.

8. 1,3-dihydro-3-p-chlorophenyl-6-aminomethyl-7-hydroxy--furo-(3,4-c)-pyridine.

9. 1,3-dihydro-3-(2',3'-dichlorophenyl)-6-aminomethyl--7-hydroxy-furo-(3,4-c)-pyridine.

10. 1,3-dihydro-3-p-fluorophenyl-6-aminomethyl-7-hydroxy--furo-(3,4-c)-pyridine.

11. 1,3-dihydro-3-p-tolyl-6-aminomethyl-7-hydroxy-furo--(3,4-c)-pyridine.

12. 1,3-dihydro-3-p-methoxyphenyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine.

* C L M S *

13. 1,3-dihydro-3-(3',4',5'-trimethoxy)-phenyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine.

14. 1,3-dihydro-3-m-trifluoromethylphenyl-6-aminomethyl--7-hydroxy-furo-(3,4-c)-pyridine.

15. 1,3-dihydro-3-p-dimethylaminoethoxyphenyl-6-aminomethyl-7-hydroxy-furo-(3,4)-pyridine.

16. 1,3-dihydro-3-methyl-3-α-thienyl-6-aminomethyl-7--hydroxy-furo(3,4-c)-pyridine.

17. 1,3-dihydro-3-ethyl-3-phenyl-6-aminomethyl-7-hydroxy--furo-(3,4-c)-pyridine.

18. 1,3-dihydro-3-phenyl-3-p-trifluoromethylphenyl-6--aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine.

19. 1,3-dihydro-3-p-(N-pyrrolidinylmethoxy)-phenyl--6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine.

20. 1,3-dihydro-3,3-di-p-fluorophenyl-6-aminomethyl-7--hydroxy-furo-(3,4-c)-pyridine.

21. 1,3-dihydro-3-α-furyl-3-p-thiomethylphenyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine.

22. 1,3-dihydro-3,3-di-α-furyl-6-aminomethyl-7-hydroxy--furo-(3,4-c)-pyridine.

23. 1,3-dihydro-3-cyclohexyl-3-(2',3',-dichloro)-phenyl-6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine.

24. 1,3-dihydro-3-vinyl-3-p-thiomethylphenyl-6-aminomethyl--7-hydroxy-furo-(3,4-c)-pyridine.

* C L M S *

25. 1,3-dihydro-3-dimethylaminopropyl-3-p-chlorophenyl--6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine.

26. A process for the preparation of a 1,3-dihydro-6--aminomethyl-7-hydroxy-furo(3,4-c)-pyridine derivative having the general formula I as herein defined, the process comprising reacting a 6-formyl-7-hydroxy-furo-(3,4-c)-pyridine derivative having the general formula II as herein defined with a stoichiometric amount of hydroxylamine in water under basic conditions, and catalytically hydrogenating the resultant oxime.

27. A process according to claim 26 in which the reaction of the derivative II with hydroxylamine is carried out in aqueous sodium hydroxide solution at ambient temperature.

28. A process according to claim 26 or claim 27 in which the oxime is dissolved in acetic acid and hydrogenated under normal pressure at ambient temperature in the presence of a palladium-on-carbon catalyst.

29. A process for the preparation of a 1,3-dihydro-6--aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine derivative having the general formula I as herein defined, the process being substantially as described herein with reference to any of the Examples.

30. A pharmaceutical composition comprising a 1,3-dihydro--6-aminomethyl-7-hydroxy-furo-(3,4-c)-pyridine derivative according to any of claims 1 to 25 in admixture with a pharmaceutically acceptable diluent or carrier.

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