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A CONVENIENT METHOD TO SYNTHESIZE 3-CHLOROIMIDAZO[1,5-*a*]QUINOXALINES

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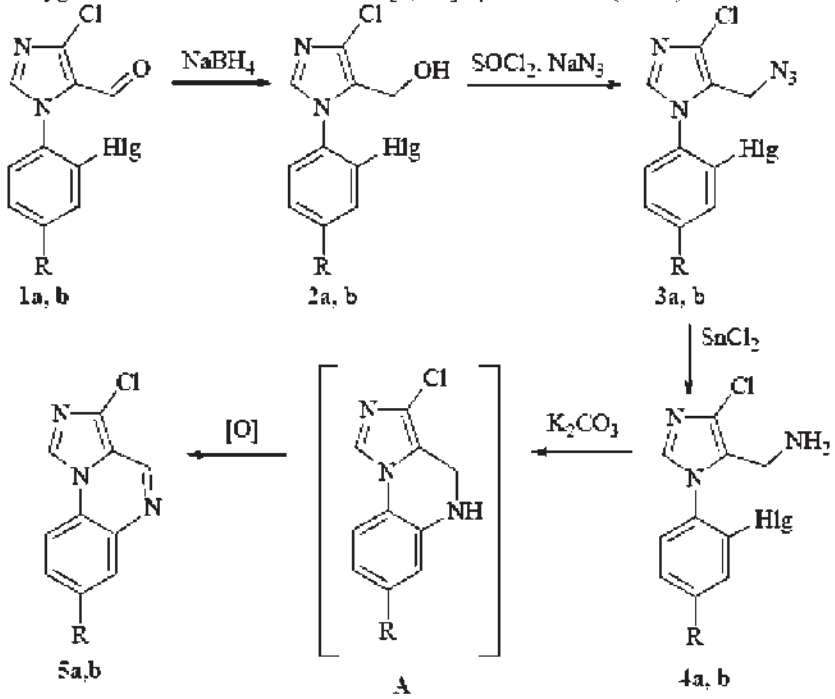
Imidazo[1,5-*a*]quinoxaline system is a promising background to design new biologically important objects. Annelation of quinoxaline cycle to imidazole is the most popular approach to synthesize of imidazo[1,5-*a*]quinoxaline derivatives. Cyclization of 5-unsubstituted 1-(2-aminoaryl)imidazole with the one-centered electrophylic reagents or intramolecular cyclocondensation of their 5-oxoderivatives are usually used for this synthesis.

We have found that the pyrazine cycle of imidazo[1,5-a]quinoxaline can be formed by the non-catalytic intramolecular N-arylation of 1-(2-halogenaryl)-5-aminomethylimidazoles. This synthesis was based on 1-(2-halogenaryl)-5-formyl-4-chloroimidazoles (1 a,b). Then they were transformed into intermediate 5-hydroxymethyl (2 a,b) and 5-azydomethyl derivatives (3 a, b) using some simple methods and then these compounds were transformed into 5-aminomethyl-1-(2-halogenaryl)-4-chlorimidazoles (4 a, b). Then the latter compounds were boiled in DMFA during 20 hours with K_2CO_3 that resulted in formation of 4,5-dihydroimidazoquinoxalines A, followed by their oxidation by the air oxygen into novel 3-chloroimidazo [1,5-a]xquinoxalines (5 a, b).



1-4, R = H, Hlg = Cl (a); R = Me, Hlg = Br (b); **5**, R = H (a), Me (b)

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EFFECT OF TWO WEEKS DAILY MELATONIN INJECTION ON CHANGES IN THE CONTENT OF REDUCED GLUTATHIONE IN MUSCLES OF RATS WITH ALLOXAN DIABETES

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Diabetes refers to the most common endocrine diseases. In diabetes, in addition to disorders of the metabolism of carbohydrates, lipids and proteins, there is also the disruption of antioxidant defense, including glutathione system.

Metabolic disorders in diabetes occur especially in insulin-dependent organs. Skeletal muscles belong to insulin-dependent tissues.

In recent years, hypoglycemic and antioxidant effect of exogenous melatonin has been established.

The aim of this investigation was to determine the effect of two weeks daily melatonin injection on the content of reduced glutathione in skeletal muscles of rats.

The experiments were carried out on 18 mature male albino rats with the body weight 0,18 – 0,20 kg. Alloxan diabetes was induced via injecting the rats with 5% solution of alloxan monohydrate intraperitoneally in a dose of 170 mg/kg of body weight. The animals were divided into three subgroups: 1) control group; 2) diabetic rats; 3) diabetic animals which were introduced the melatonin intraperitoneally in a dose of 10 mg/kg of body weight at 8 a.m. daily during 14 days starting with a 5-th 24 hour period after the injection of alloxan. Tissues of skeletal muscles were taken immediately after the decapitation of animals and used to prepare 10% homogenates on 6% sulfosalicylic acid. Determination of reduced glutathione (RG) was conducted by a titration method by I.V. Meschyshen. Statistical analysis of results was conducted by Student's test. The results of the study were statistically processed by means of