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FEATURES OF THE AMINOMETHYLATION OF 7-HYDROXY-4'-FLUOROISOFLAVONES WITH PRIMARY AMINES

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The behavior of 7-hydroxy-4'-fluoroisoflavones under the conditions of the Mannich reaction with primary amines was studied. New 9-alkyl-substituted 3-(4-fluorophenyl)-9,10-dihydro-4H,8H-chromeno-[8,7-e][1,3]oxazin-4-ones were synthesized. A method was developed for the synthesis of 8-amino- methyl derivatives of isoflavones.

Keywords: 8-aminomethylisoflavones, 3-(4-fluorophenyl)-9,10-dihydro-4H,8H-chromeno[8,7-*e*][1,3]oxazin-4-ones, aminomethylation, electrophilic substitution.

The derivatives of oxygen-containing heterocycles are some of the most widely distributed classes of natural compounds. An important position among them is occupied by isoflavones. The low toxicity of these compounds, together with their selective pharmacological action on the human organism, makes it possible to use them widely in the creation of medicines.

The derivatives of isoflavones substituted with fluorine in ring B exhibit various types of biological activity. Thus, derivatives of 4'- and 2'-fluoroisoflavones exhibit hypoglycemic and anabolic activity, while 4'-fluoroisoflavones in addition exhibit hypotensive, anti-inflammatory, hypolipidemic, hepatoprotective, and antioxidant activity [1].

It is well known that N-substituted aminomethyl derivatives of isoflavones and flavones are stimulants of the central nervous system, respiratory stimulants, are anesthetics, and also exhibit high anticonvulsive and antiallergic activity [2, 3]. The interest of investigators in the chemistry of Mannich bases is constantly increasing, and this is due not only to their valuable pharmacological characteristics but also to the possibility of the formation of water-soluble salts suitable for study of their biological activity.

The aim of our work was to develop the procedures and to synthesize new aminomethyl derivatives of 4'-fluoro-7-hydroxyisoflavone (**1a**) and its 2-methyl derivative **1b**. The choice of compounds **1a**,**b** was based on their pharmacological activity and also on the possibility of synthesizing tertiary amines by substitution of the fluorine atom as demonstrated for the case of 4'-fluoroflavones [4].

Earlier in the reaction of 3-hetaryl(aryl)-7-hydroxychromones with aminals (1,1'-methylenebisamines) we obtained their 8-dialkylaminomethyl and 8-(N-heteryl)methyl derivatives respectively [5-13].

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