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The reaction of *N*-aryl-2,5-dihydropyrrol-2,5-diones with α-furylmethanol

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Abstract

The article describes the interaction of the isomeric *N*-tolyl-*N*-1-naphtyl-2,5-dihydropyrrol-2,5-dines with α-furylmethanol. The research urgency is caused by the fact that 2,5-dihydropyrrol-2,5-dione (imide maleic acid) and their derivatives represent a promising class of organic compounds. Due to the presence of highly reactive double bonds they can easily polymerizied and are copolymerized with various unsaturated monomers, interact with a variety of nucleophilic reagents (primary and secondary amines, cyanate, isocyanates, azomethine, epoxides, etc.), participate in a number ofcycloaddition reactions. For example, the Diels-Alder in the presence of suitable dienes, reaction with double bonds of allyl type. A number of derivatives of maleinimide finds application as pesticides. Thus, they exhibit a high insecticidal, fungicidal and herbicidal activity. In addition, maleinimide proposed as highly effective pharmaceuticals for the treatment of several diseases, including cardiovascular, Alzheimer's, diabetes of the 2nd type, cancer and HIV. Reaction of isomeric *N*-tolyl-, *N*-benzyl- and *N*-1-naphtyl-2,5-dihydropyrrol-2,5-dines with α-furylmethanol carried out at equimolar ratio of reagents at room temperature in absolute 1,4-dioxane or benzene. Methods of gas chromatography-mass spectrometry, IR and ^{1}H NMR spectroscopy established that the reactions proceed according to the scheme of [4+2]-cycloaddition with the formation of 4-*N*-aryl-1-hydroxymethyl-3,5-dioxo-10-oxa-4-azatricyclo[$5.2.1^{1.7}.0^{2.6}$]dec-8-enes. The possibility of education in the molecules synthesized adducts intramolecular hydrogen bonds involving carbonyl and hydroxyl groups. Adducts of diene synthesis are promising objects for the study of fluorescent activity. To study the phenomenon called fluorescence, the crystals of the samples were subjected to microscopy. It was revealed that they observed three peaks of fluorescence at 507, 534 and 569 nm, which corresponds to yellow-green region of the spectrum.

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