Synthesis and Structure of 1-Substituted Benzopyrano-[4’,3’-c]benzo[3”,4”-f]-2,8-dioxabicyclo[3.3.1]nonane

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The base catalyzed condensation reaction between 4-hydroxycoumarin and 3-acetylcoumarin (3-benzoylcoumarin) in water at reflux led to the formation of 1-methyl (1-phenyl)-benzopyrano[4’,3’-c]-benzo[3”,4”-f]-2,8-dioxabicyclo[3.3.1]nonane (2 a, b) as final products. When 4-hydroxycoumarin and 3-acetylcoumarin reacted in a glacial acetic acid in the presence of potassium acetate the final product was 7-[3-acetyl-2-oxo-3,4-dihydro-2H-[1]benzopyran-4-yl]methyl-6H,14H,14bH-bis-[1]benzopyrano[4,3-b;4’,3’-d]pyran-6,14-dione (4). 4-Hydroxycoumarin and 4-(5-bromo-2-hydroxyphenyl)-3-buten-2-one were condensed in water at reflux and 1-methylcoumarino-[4’,3’-c]-bromobenzo[3”,4”-f]-2,8-dioxabicyclo[3.3.1]nonane was a final product (3).

Key words: 4-Hydroxycoumarin, 3-Acetylcoumarin, Dioxabicyclononanes, Benzopyranopyrandione