Synthesis of 9-Substituted Imidazo[1,2-*a*]benzimidazoles Containing a 5-Nitrofuran-2-yl Fragment

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Abstract—9-Substituted 2-(5-nitrofuran-2-yl)-9*H*-imidazo[1,2-*a*]benzimidazoles were synthesized for the first time by cyclization of quaternary salts obtained from 1-substituted benzimidazol-2-amines and 2-bromo-1-(5-nitrofuran-2-yl)ethan-1-one. 9-R-2-Methyl(aryl)-9*H*-imidazo[1,2-*a*]benzimidazoles reacted with 5-nitrofuran-2-carbaldehyde and 4-nitrobenzaldehyde to give the corresponding secondary alcohols as a result of aldehyde addition to the 3-position of the tricyclic system. The Witting olefination of ethyl 2-(bromomethyl)-9-methyl-9*H*-imidazo[1,2-*a*]benzimidazole-3-carboxylate afforded 2-ethenylimidazo[1,2-*a*]benzimidazoles.

Keywords: 2-amino-1-R-benzimidazoles, 2-bromo-1-(5-nitrofuran-2-yl)ethan-1-one, cyclization, 9-R-2-(5-nitrofuran-2-yl)-9*H*-imidazo[1,2-*a*]benzimidazoles, [9-R-2-methyl(aryl)-9*H*-imidazo[1,2-*a*]benzimidazol-3-yl]-(5-nitrofuran-2-yl)methanols, ethyl 9-methyl-2-[(*E*,*Z*)-(2-(5-nitrofuran-2-yl)ethenyl]-9*H*-imidazo[1,2-*a*]benzimidazole-3-carboxylate.

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