Synthesis of New Pyrazole Derivatives, Their Anti-Inflammatory and Analgesic Activities, and Molecular Docking Studies

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Abstract—A new series of coupled benzofuran derivatives that contain the trifluoromethyl group and pyrazole moiety is synthesized for evaluation of their anti-inflammatory and analgesic activities. Their synthesis proceeds via cyclocondensation of 2-hydroxy-4-(trifluoromethyl)benzaldehyde with chloroacetone with formation of 2-acetylbenzofuran, which upon treatment with different aldehydes via the Claisen–Schmidt condensation gives the corresponding chalcones. Cyclization of chalcones with hydrazine hydrate leads to pyrazoline derivatives, that exhibit significant anti-inflammatory and analgesic activities. Docking modelling of selected active compounds are correlated well with their anti-inflammatory tests data.

Keywords: benzofuran, pyrazoles, trifluoromethyl, anti-inflammatory; analgesic agents

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