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Communication

Synthesis and Anti-Bacterial Activities of a Bis-Chalcone Derived from Thiophene and Its Bis-Cyclized Products

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Abstract: A chalcone was prepared by the reaction of terephthalaldehyde with 3-acetyl-2,5-dimethylthiophene. Treatment of this chalcone with thiosemicarbazide/phenyl hydrazine/guanidine hydrochloride/thiourea afforded the corresponding pyrazoline, pyrazole, and pyrimidine in good yields. All the new compounds have been characterized by IR, ^{1}H-NMR, ^{13}C-NMR, GC-MS and elemental analyses. The anti-bacterial activity of these compounds were first tested *in vitro* by the disk diffusion assay against two Gram-positive and two Gram-negative bacteria, and then the minimum inhibitory concentration (MIC) was determined with the reference of standard drug chloramphenicol. The results showed that the pyrazoline derivative is better at inhibiting growth of both types of bacteria (Gram-positive and Gram-negative) compared to chloramphenicol.

Keywords: chalcone; pyrazoline; pyrimidine; anti-bacterial activity; chloramphenicol