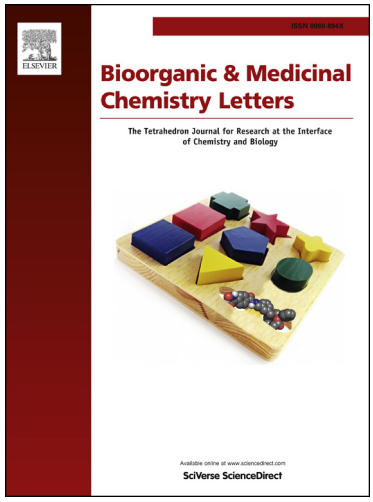

Synthesis and biological evaluation of novel formyl-pyrazoles bearing coumarin moiety as potent antimicrobial and antioxidant agents

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Synthesis and biological evaluation of novel formyl-pyrazoles bearing coumarin moiety as potent antimicrobial and antioxidant agents

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Abstract

A series of coumarin appended formyl-pyrazoles **14-18** were synthesized by a simple and accessible approach. The reaction of 8-acetyl-4-methyl-7-hydroxy coumarin **3** and phenyl hydrazine hydrochlorides **4-8** produces the intermediate compounds 8-acetyl-4-methyl-7-hydroxy coumarin hydrazones **9-13**. The reaction of compounds **9-13** and DMF in the presence of $POCl_3$ yielded formyl-pyrazoles bearing coumarin moiety **14-18** in good yield. The synthesized new compounds **14-18** and the intermediates 8-acetyl-4-methyl-7-hydroxy coumarin hydrazones **9-13** prepared were screened in vitro for their antibacterial, antifungal antioxidant activities. The compounds **12** and **17** having chloro substitution exhibited promising antifungal and antibacterial activity against the different organisms tested. The compound **17** showed remarkable DPPH radical scavenging ability.

Key words: Antibacterial, antifungal, antioxidant, heterocycles, MIC.

Coumarins are chemically known as 2*H*-1-benzopyran-2-ones and were first identified in 1820's as an oxygen heterocycle. Alternariol is chemically a 3,7,9-trihydroxy-1-methyl-6*H*-benzo[*c*]chromen-6-one, a toxic metabolite of *Alternaria* fungi and is an important contaminant in cereals and fruits exhibiting antifungal and phytotoxic activity.[1] Coumarins are widely distributed in plants, for example, umbelliferone (7-hydroxy coumarin) was found in *Apiaceae*, osthole (7-methoxy-8-(3-methylbut-2-en-1-yl)coumarin) was found in *Cnidium monnieri* and