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Synthesis and Evaluation of Antimicrobial Activity of New 3-Hydroxy-6-methyl-4-oxo-4H-pyran-2-carboxamide Derivatives

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Abstract: The synthesis of a range of 3-hydroxy-4-oxo-4H-pyran-2- carboxamide with antimicrobial activity is described. Amide derivatives of pyranone were synthesised using TBTU [2-(1H-benzotriazol-1-yl)-1,1,3,3-tetramethyluronium tetrafluoroborate] as a coupling agent and NMM (N-methylmorpholine) as a base. Antimicrobial activities were determined as MIC values using the microdilution broth method against Staphylococcus aureus, Entrococcus faecalis, Escherichia coli and Pseudomonas aeruginosa for bacteria and Candida albicans, C. krusei and C. parapsilosis for fungi. 3-Hydroxy-6-methyl-4-oxo-4H-pyran-2-[N-(4'-methylcoumarin-7-yl) carboxamide] (8c) exhibited higher antibacterial activity against S. aureus, E. faecalis and E. coli than the other compounds. In addition, 8c was more active against C. krusei than the other synthesised compounds.

Key Words: Chlorokojic acid, amide derivatives of pyranone, antibacterial activity, antifungal activity

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