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Synthesis, spectral studies and antimicrobial activity of coumarin derivatives

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These research study is aimed to synthesize a serious of various substituted derivatives of 8-methyl-2-substituted-6H-chromeno [6, 7-d] oxazol-6-one (6a-6f) and (7a-7b) from 6-Amino-7-hydroxy-4-methyl-2H-chromen-2-one by reaction with different substituted aldehydes and acetic anhydrides in the presence of glacial acetic acid and pyridine. The structure for compounds has been determined by IR, 1H NMR spectroscopy. All the synthesized compounds 1-8 have been screened for their anti-microbial activity with reference drug Ciprofloxacin by using cup-plate method. Among all the synthesized derivatives, compounds which are substituted with 4-phenyl (6a), 4-bromo phenyl (6b), 4-nitro phenyl (6c), 4-chloro phenyl (6d), 2-chlorophenyl (6f) exhibited the most promising antimicrobial activity against Escherichia coli (MTCC 614) and *Staphylococcus aureus* (MTCC 3160). Coumarin nucleus incorporating oxazole moiety also possess synergism with total eight conventional antibacterial agents, i.e. chloramphenicol (CL), gentamycin (CN), fosfomycin (FF), levofloxacin (LE), minocycline (MI), tazobactam (P/T), teicoplanin (TE), vancomycin (VA), against Methicillin-resistant *staphylococcus aureus* (MRSA) strains.

Biography

Davinder Singh has expertise in Pharmaceutical Chemistry as synthesized of various coumarin derivatives. He is currently working as an Assistant Professor at Himachal Pharmacy College. He has synthesized total eight coumarin derivatives and checked their antimicrobial activity against gram positive and gram negative bacteria. To overcome the resistant problem, these derivatives can be used with some herbal medicines to synergism its effect.

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