A Study of 3-Substituted Benzylidene-1,3-dihydro-indoline Derivatives as Antimicrobial and Antiviral Agents

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3-Substituted benzylidene-1,3-dihydro-indoline derivatives were tested for their *in vitro* antibacterial activity against the Gram-negative bacteria *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Escherichia coli*, and the Gram-positive bacteria *Bacillus subtilis*, *Staphylococcus aureus*, and for their their *in vitro* antifungal activity against *Candida krusei* and *Candida albicans*. The minimum inhibitory concentration (MIC) values were determined by the 2-fold serial dilution technique in Mueller Hinton broth and Sabouraud dextrose agar using antibacterial and antifungal assays, respectively. For comparison of the antimicrobial activity, rifampicin, ampicillin trihydrate, gentamicin sulfate, and ofloxacin were used as reference antibacterial agents, and fluconazole and amphotericin B were employed as reference antifungal agents. The most active compound **10** showed notable inhibition against *Bacillus subtilis, Staphylococcus aureus*, and *Candida krusei*. Compounds **1** and **6** were found slightly effective against *Klebsiella pneumoniae* and *Escherichia coli*. In addition, compounds **13** and **14** showed inhibition against *Bacillus subtilis* and *Staphylococcus aureus*. Indole derivatives were also tested *in vitro* for replication of the HepAD38 cell line and compared with lamivudine (3TC, L-2′,3′-dideoxy-3′-thiacytidine). The IC_{50} values of the compounds were found to be >1000 ÕM against HBV except for compound **13** which exhibited activity with an IC_{50} value of 500 ÕM.

Key words: Antibacterial and Antifungal Activity, Inhibition of HBV, Indole-2-thione Derivatives, Indole-2-one Derivatives