

Antimicrobial and Antiviral Screening of Novel Indole Carboxamide and Propanamide Derivatives

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A few series of indole derivatives were screened for antimicrobial, antifungal and anti-HBV activities. The compounds were tested for their *in vitro* antibacterial activity against *Staphylococcus aureus*, *Bacillus subtilis*, *Escherichia coli* and for their antifungal activity against *Candida albicans* using a disc diffusion method, which measures the diameter of the inhibition zone around a paper disc soaked in a solution of the test compounds. The antimicrobial activity results showed that all compounds are as active as the standard compound ampicillin against *Staphylococcus aureus*. It was also found that indole carboxamide derivatives, substituted at 3-position with several benzyl groups, showed better inhibition of *Bacillus subtilis* than their congeners substituted at 2-position. Activity patterns of the compounds against *Escherichia coli* and *Staphylococcus aureus* were found slightly different by the same method. In this case, there was no correlation between structure and activity of the compounds. The antifungal activity of carboxamide derivatives was found higher compared to that of the propanamide derivatives. The minimum inhibitory concentration (MIC) values of some indole derivatives were also determined by the tube dilution technique. The MIC values of the compounds were found nearly 20- to 100-fold smaller compared to the standard compounds ciprofloxacin and ampicillin (1.56–3.13 $\mu\text{g/ml}$ and 1.56–12.5 $\mu\text{g/ml}$, respectively) against *Staphylococcus aureus*, *Bacillus subtilis* and *Escherichia coli*. The MIC values of the tested compounds showed that these are better inhibitors for *Candida albicans*. Indole derivatives were screened by the anti-HBV susceptibility test. No compound showed good inhibition against the HBV virus.

Key words: Indole Derivatives, Antibacterial and Antifungal Activity, Inhibition of HBV