SYNTHESIS OF SOME NITROGEN CONTAINING HETEROCYCLIC COMPOUNDS AND THEIR ANTIMICROBIAL ACTIVITIES

A Thesis

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ABSTRACT

The chalcones are intermediate compounds useful for the synthesis of various heterocyclic compounds such as flavones, flavanols, pyrimidines, pyrazolines, anthocyanins, benzal coumarones as well as certain compounds like deoxybenzoins and hydantoins which are of some therapeutic value.

Chalcones used here are synthesized by condensation reaction between 1-(5-hydroxynaphthalen-1-yl) ethan-1-one with 1-chloro-5-fluoro-2-methyl-4-nitrobenzene in the presence of sodium hydroxide under ethanol as the solvent. Chalcones obtained above give various pyrimidines on further reaction with various aromatic aldehydes.

The novel pyrimidine compounds having fluorine atom were synthesized by condensation reaction between urea/Guanidine and above prepared Chalcones.

All synthesized compounds were characterized by ^{1}H NMR, ^{13}C NMR, IR, MASS techniques. Antimicrobial activities of synthesized compounds were done by open disc method. Gram positive bacteria such as *Staphylococcus aureus*, *Bacillus megaterium* and gram-negative bacteria such as *Escherichia coli*, *Proteus vulgaris* were taken for study.

The work presented in the proposed thesis deals with the synthesis and characterization of novel chalcones from readily available starting materials and modified prepared products using urea and guanidine to produce a library of compounds which gives good antimicrobial activities. This thesis incorporates six chapters dealing with the synthesis of two different pyrimidine moieties. The biological activity of all the synthesized compounds is discussed in chapter VI.

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