ABSTRACT

Heterocyclic systems are one of the most important classes of organic compounds present in nature or synthesized in the laboratory. These compounds possess an array of biological activities and are employed in the treatment of commonly occurring diseases.

Literature survey revealed that Chalcones, Pyrimidines and Pyrazolines possess a broad spectrum of biological activities like antimicrobial, anti-inflammatory, antimalarial, antidepressant, antihistamine, antitubercular and anticancer. This thesis is an endeavour in this direction of synthesis and characterization of such compounds based on Elemental analysis, IR, $^1$H NMR and Mass spectroscopy. The pharmacological and microbial screening of synthesized compounds has also been included.

Chalcones afford a facile route of access to many heterocyclic systems containing Nitrogen and Oxygen. Hence an attempt is made to synthesize chalcones from 3’- methoxy - 4’- hydroxyacetophenone with various substituted aromatic / heteroaromatic aldehydes by the Claisen – Schmidt condensation. The resulting chalcones after purification and characterization by physical and spectral methods have been converted successfully into Pyrimidines and 2 – Pyrazolines by reaction with Guanidine hydrochloride and Phenylhydrazine hydrochloride respectively. The resultant compounds were identified by physical and spectral methods and were also screened for selected biological activities based on the reported literature.