ABSTRACT OF THE THESIS

Heterocyclic compounds are the most frequently encountered scaffolds in drugs and pharmaceuticals. Halogenated heterocyclic compounds have a wide range of pharmacological activities such as hypoglycemic, analgesic, anti-inflammatory, antibacterial and antiviral. The conventional methods have been used for synthesis of various heterocyclic compounds. In conventional methods oil bath, sand bath, water bath or heating mantle are used as external heat source, therefore heat is transferred by conductance. These are slow, inefficient methods for transferring energy into the system and often yields are very low. Consequently, technologies that could accelerate and facilitate both synthesis and screening of substances have become highly desirable. The advent of microwave technology enabled medicinal chemists to reduce time of synthesis of heterocycles from days and hours to minutes and even seconds. In addition, suppressed formation of side products and improved yields has been frequently observed under microwave heating conditions. In view of these observation the entitled thesis is an endeavor to synthesis of halogenated heterocyclic compounds by microwave irradiation. In the present study some new halogen containing isoxazoles, thiocarbamoyl pyrazolines, thiazolidinones and quinazolinone formazans were synthesized by microwave irradiation. All synthesized compounds were purified by chromatographic techniques, characterized by spectral data (IR, HNMR, Mass) and here evaluated for antibacterial,
antifungal, and anthelmintic activities. The experimental results of present investigation indicated that all newer halogenated heterocyclic compounds were synthesized by microwave irradiation in 1.5 to 6 min. The results also indicated that the yield has higher by microwave methods. Some of the compounds exhibited significant activities when compared to standard drugs.