



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

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SHORT ABSTRACT

The thesis has been presented under four chapters based on the results gathered by various experimental work undertaken during the entire tenure of the research period. Chapter 1- gives an overview of some selected nitrogen, oxygen and sulfur containing heterocyclic moieties, their biological importance and different reported literature methods for their synthesis. Chapter 2 - describes a methodology for the synthesis of five, six-, and seven-membered 1,3- and 1,4-heterocyclic compounds *via* Intramolecular hydroalkoxylation/hydrothioalkoxylation of alkenols/thioalkenols. Chapter 3 is about a highly regioselective synthesis of 4-tosylthiomorpholine *via* intramolecular cyclization of *N*-tethered thioalkenols. Chapter 4 - presents a diastereoselective synthesis of substituted tetrahydrothiopyrans *via* thia-Prins cyclization of thioenol ethers. The six membered ring heterocycles of oxygen, nitrogen and sulfur are structural motifs of many bioactive molecules. 1,4-oxazines and 1,4-oxazepanes are widely distributed in many naturally occurring and biologically active molecules. These are also versatile synthetic building blocks in organic synthesis. To build this heterocycles, many strategies have been developed over the years. Among these methods stated, this thesis mainly discusses metal free methodologies based on Prins, thia-Prins cyclization and Hydroalkoxylation/Hydrothioalkoxylation reactions.