



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

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SHORT ABSTRACT

The contents of the thesis have been divided into five chapters based on the results gathered by various experiment work performed during the complete course of the research period. The chapter **1** presents an introduction to oxygen, nitrogen and sulfur containing heterocyclic compounds, their biological importance and different literature methods for their synthesis. Chapter **2** describes synthesis of tetrahydro-1*H*-indeno[1,2-*b*]pyridine *via* cascade cyclization and Friedel-Crafts reaction. The methodology has been used for the total synthesis of antidepressant agent (+)-5-phenyl-2,3,4,4a,5,9b-hexahydro-1*H*-indeno[1,2-*b*]pyridine. In Chapter **3**, use of vinylsilanes in diastereo- and regio-selective synthesis of dihydropyrans *via* oxonium-ene cyclization reaction has been reported. Chapter **4** is about the use of vinylsilanes in highly diastereo- and regio-selective synthesis of 1,10b-dihydropyrido[2,1-*a*]isoindol-6(4*H*)-one *via* iminium-ene cyclization reaction. Chapter **5** deals with bismuth triflate catalyzed highly diastereoselective synthesis of substituted tetrahydrothiophene *via* tandem isomerization, Michael and aldol reactions.