



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

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SHORT ABSTRACT

The contents of this thesis have been divided into five chapters based on the results of experimental work performed during complete course of research period. Chapter 1 mainly discusses about tandem reactions, its types and tandem reactions carried out on alkynes and donor-acceptor cyclopropanes. Chapter 2 describes the synthesis of dibenzocyclohepta[1,2-a]naphthalene derivatives from alkynyl benzyl alcohols and phenylacetaldehydes via sequential electrophilic addition and double Friedel–Crafts reactions. Chapter 3 illustrates $\text{In}(\text{OTf})_3$ -catalyzed one-pot tandem Mannich/Conia-ene cyclization reaction for the construction of tetrahydro-1*H*-pyrrolo[2,1-*a*]isoindolone-1,1-dicarboxylates from *N*-propargyl amido alcohols with 1,3-dicarbonyl compounds. Chapter 4 discloses a direct method for the synthesis of dibenzoyl tetrahydro-[1,5]diazocinodiisoindolones from *N*-propargyl amido alcohols employing $\text{Bi}(\text{OTf})_3$ as catalyst. Chapter 5 demonstrates the synthesis of 3C-homologated active methylene substituted 2*H*-indazoles via a sequential Ni(II) catalysed ring opening of donor acceptor cyclopropanes with arylamines followed by Sn(II) mediated reductive cyclization reaction