



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

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Programme of Study : **Ph.D.**

Thesis Title: **Syntheses of Unnatural Meroterpenoids and Evaluation of Their Anticancer Potential**

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SHORT ABSTRACT

The contents of this thesis entitled “*Syntheses of Unnatural Meroterpenoids and Evaluation of Their Anticancer Potential*” have been divided into seven chapters. The contents are based on the results obtained from the experiments which were performed during the complete course of the research work. The first chapter presents an introduction on meroterpenoids with their structural diversities and biological activities. In the second chapter, the first example of diastereoselective regiodivergent γ and γ' -arylations across an all-carbon quaternary center of cycloalkanols to access a series of enantioenriched fused carbotetracycles of dysideanones and its bridged isomer is described. Chapter three illustrates the biological studies for the evaluation of anti-colon cancer properties of fused and bridged tetracyclic unnatural meroterpenoids. Chapter four describes the studies towards the synthesis of spiro tetracyclic core of meroterpenoids. In chapter five, efforts for the development of a general synthetic route for the synthesis of fused meroterpenoids, such as chromazonarol, puupehedione and kampanol A have been described. The development of hydride free formal reductive *N*-benzylation of *N*-heterocycles is also described. Finally, Chapter six contain the experimental details and in chapter seven copies of ^1H and ^{13}C NMR spectra are provided.