



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

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Thesis Title: **Exploring the Reactivity of 4-Hydroxydithicoumarin to Access Novel Organosulfur Compounds and Some of Their Anticancer Activity Study**

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SHORT ABSTRACT

The title of the thesis is “*Exploring the Reactivity of 4-Hydroxydithicoumarin to Access Novel Organosulfur Compounds and Some of Their Anticancer Activity Study*”. The whole thesis work is organized into six chapters.

The first chapter describes the brief introduction about elemental sulfur, organosulfur compounds, 4-hydroxycoumarin and reactivity of 4-hydroxydithicoumarin. The second chapter describe about the synthesis of 2-aryl-2*H*,5*H*-thiopyrano[2,3-*b*] thiochromen-5-ones from 4-hydroxydithicoumarins utilising L-Proline as a catalyse. Chapter third Include the Copper-catalysed regioselective S-alkylation and C-3(*H*)activation: Easy access to 4-methyl-3,4-dihydrothiopyran derivatives. Chapter four demonstrate the Regioselective synthesis of (*E*)-3-((alkylamino)methylene)-2-thioxothio- chroman-4-one derivatives and its applications towards cyclo-addition reaction. Chapter five explain the Green synthesis of 4-hydroxydithicoumarin-Imidazole bis-heterocycle scaffold, and their antiproliferative study. Each of these chapters comprises several subsections, which include an introduction, previous work, present work, results and discussion, conclusions, experimental section, references, characterization data, and a few representative spectra.

Chapter VI serves as the concluding chapter, integrating the summary of all the previous chapters future scopes, publication, and conferences attended during the PhD program.