INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

Name of the Student	:	Simra Faraz
Roll Number	:	216122045
Programme of Study	:	Ph.D.
Thesis Title:		Synthesis of Substituted Quinolines & Furocoumarins: Some Naturally Occurring Coumestan Derivatives
Name of Thesis Supervisor(s)	:	Prof. Abu Taleb Khan
Thesis Submitted to the Department/ ~~Center~~	:	Chemistry
Date of completion of Thesis Viva-Voce Exam	:	27.01.2025
Keywords for description of Thesis Work	:	

SHORT ABSTRACT

The contents of the dissertation are divided into two parts, namely Part A and Part B, on two broad research topics. In Part A, the synthesis of various substituted quinolines will be highlighted. Similarly, the synthesis of furocoumarin derivatives, with special emphasis on synthesizing some naturally occurring coumestan derivatives, will be elaborated on in Part B.

Part A of the Thesis will be divided into two chapters, Chapter I and Chapter II. Likewise, Part B of the Thesis will also be organized into Chapter I and Chapter II. Part A of Chapter I of the thesis will describe the motivation of the first research topic and the brief importance of quinoline and its derivatives, as well as the literature survey on the synthesis of substituted quinolines with special emphasis on synthesizing mono- and disubstituted quinoline derivatives. In addition, the outline of the first research will be elaborated on, along with the justifications for choosing the research problems.

Chapter II of Part A will present the results and discussions based on experimental works and findings towards synthesizing various substituted quinolines involving multi-component reactions (MCRs) strategies using arylamines as the key starting material. This chapter will be subdivided into four Sections: Section A, Section B, Section C, and Section D, respectively.

Finally, the conclusion will be drawn for Part A of the thesis on synthesizing various substituted quinoline derivatives using hydrated p-toluene sulfonic acid as an effective acid catalyst.

Chapter I of Part B of the thesis will deal with the inspiration of the second research topic on the synthesis of furocoumarins and their importance, including biological importance, with special emphasis on some naturally occurring coumestan derivatives. In addition, a literature survey will be conducted on the synthesis of furocoumarin, which is mainly derived from 4-hydroxycoumarin and various substituted 4-hydroxycoumarin. Finally, the outline of the second research topic will be given based on the shortcomings of the earlier reported methods. Chapter II of Part B of the thesis is subdivided into four sections: Section A, Section B, Section C, and Section D, respectively.