



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI  
SHORT ABSTRACT OF THESIS

Name of the Student : G. MURUGAVEL

Roll Number : 10612236

Programme of Study : Ph.D.

Thesis Title: COPPER-CATALYZED MULTI-COMPONENT SYNTHESIS AND BIOLOGICAL PROPERTIES

Name of Thesis Supervisor(s) : Prof. THARMALINGAM PUNNIYAMUTHY

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**SHORT ABSTRACT**

The thesis is consisted of five chapters. The first chapter describes about the general introduction and enunciates the scope of copper-catalyzed multicomponent reactions for heterocycle synthesis *via in situ* generated highly reactive ketenimine intermediate. The second chapter describes the synthesis of highly functionalized iminocoumarin aryl methyl ether using Cu-catalyzed multicomponent reaction of ynals, sulfonyl azides and phenols. The third chapter is devoted to microwave-assisted Cu-catalyzed four component cascade reaction for the synthesis of substituted coumarin-3*N*-sulfonamide derivatives. The fourth chapter designates the studies on interaction of (*Z*)-7-(diethylamino)-*N,N*-diisopropyl-2-oxo-*N'*-tosyl-2*H*-chromene-3-carboximidamide as a new solvatochromic fluorescent probe with bovine serum albumin (BSA). The fifth chapter is solely dedicated to study the anticancer activity of iminocoumarin aryl methyl ethers against triple negative breast cancer cell line MDA- MB-231.