



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI  
SHORT ABSTRACT OF THESIS

Name of the Student : Dinabandhu Sar  
Roll Number : 11612201  
Programme of Study : Ph.D.  
Thesis Title : Studies Toward the Reactivity of Hydrazones for the Synthesis of Functionalized Pyrazoles and Nitromethyl Sulfones and the Application of Pyrazoles Thereof  
Name of Thesis Supervisor(s) : Prof. Tharmalingam Punniyamurthy  
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The thesis contains four chapters. The first chapter focuses on synthesis of bisarylnitromethyl sulfones via iron-mediated radical nitration of bisarylsulfonylhydrazones followed by elimination of  $N_2$ . The second chapter deals with vanadium catalyzed C-N bond formation of alkenyl hydrazones via dehydrogenative cross-coupling for the synthesis of highly substituted pyrazoles. The third chapter contains 2,2,6,6-tetramethylpiperidine-1-oxyl (TEMPO)/N-bromosuccinimide (NBS) mediated C-H oxidative cyclization of vinylhydrazones for the synthesis of functionalized pyrazoles. The fourth chapter describes UV-visible and fluorescence photophysical properties of some of the synthesized pyrazoles and interaction of two of the pyrazole compounds with BSA protein.