



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

Name of the Student : JYOTI CHANDRA

Roll Number : 136122039

Programme of Study : Ph.D.

Thesis Title: **Development of Greener Coupling Reagents and Methodologies for the Syntheses of Esters, Amides and Peptides**

Name of Thesis Supervisor(s) : Dr. Bhubaneswar Mandal

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SHORT ABSTRACT

The contents of this thesis have been divided into six chapters. Chapter 1 contains the introduction. Chapter 2 contains the detailed studies on the halogen-free synthesis of sulphonates of alcohol, Oxyma-*O*-sulphonates, and oxime-*O*-sulphonates under microwave irradiation. Chapter 3 contains our works on the greener approach towards the synthesis of amides and esters using the catalytic amount of *o*-NosylOXY. Chapter 4 contains the racemization free synthesis of peptides and polypeptides using the sub-stoichiometric amount of *o*-NosylOXY. The research works on the synthesis of 1,2,4-oxadiazoles by using the catalytic amount of *o*-NosylOXY is incorporated in the Chapter 5. Our efforts on the development of a new generation of an efficient coupling reagent, TCBOXY, for the synthesis of esters, thioesters, amides, and peptides are incorporated in the Chapter 6.