PREFACE

The research embodied the present thesis entitled "Studies on the production of carbohydrate enzymes by Aspergillusoryzae on solid substrate" deals with fermentative production of carbohydrate enzymes viz. amylases, cellulases and xylanase using low cost solid substrates, their bio-chemical characterization, downstream processing and industrial applications. In addition production of fibrolytic enzymes viz. cellulase and xylanase was also studied using inert support during solid state fermentation.

The present investigations have been carried out in the Department of Food Technology & Biochemical Engineering, Jadavpur University, Kolkata, under the supervision of Prof. Lalitagauri Ray Department of Food Technology & Biochemical Engineering, Jadavpur University, Kolkata. & Prof. Subhabrata Sengupta, Department of Biotechnology, Heritage Institute of Technology, Kolkata-700107.

The thesis has been presented in five chapters.

Chapter 1 consists of optimization of fermentative conditions of Aspergillusoryzae for the production of extracellular amylases, cellulases and xylanase on a suitable cheap substrate (Viz. agricultural wastes as carbon source).

Chapter 2 deals with the physico-chemical properties (temperature, pH optima etc) of amylases, cellulases and xylanase produced during fermentation.

Chapter 3 describes the polyurethane based solid state fermentation of Aspergillusoryzae for production of fibrolytic enzymes (cellulases and xylanases)

Chapter 4 deals with down-stream processing of enzyme composition produced during optimized solid state fermentation for commercial application (concentration, stability assessment etc).

Chapter 5 describes the application of enzyme solution for the hydrolysis of different starchy and cellulotic materials.

Each Chapter begins with a short introduction followed by Experimental, Results & Discussion.