

Preface

Recombinant enzyme is a substance that has many applications in industry. Studies on the productivity, efficiency, durability and its applications have been conducted by many researchers worldwide. However, suitable and focus research on a larger scale production is rarely discussed in detail because it is kept as secret by giant companies producing recombinant enzyme. Often the good findings on the latest discoveries in the laboratory were put on shelf and not suitable to be commercialized. Therefore, this book aims to share basic science that should be emphasized by the researchers so that their bench scale results will translates into a commercial product in the future.

In the first chapter, the reader will be introduced to the recombinant enzyme and why it is so important in our daily lives. This chapter is also discussing the importance of research and commercialization strategies. The second chapter highlights the recombinant DNA strategies in producing recombinant enzyme clone.

The fourth and fifth chapters discuss in more detailed studies that need to be carried out on the recombinant enzyme especially on the characterization and purification stages. When the basic rules have been strengthened, research methods in the up-stream processing of fermentation condition including media formulation that is able to produce high productivity is discusses in the fifth chapter, followed by strategies to scale up the production volume to higher scale is discuss in Chap. 7.

Later, Chap. 8 discuss the downstream processing of recombinant enzyme. In this chapter there are four stages of processes that need to carry out to ensure that the resulting recombinant enzyme has high quality and purity. To ensure a product is suitable to be produced in large scale manufacturing plant, engineering design is required. Chapter nine highlights procedure on how to produce engineering design along with appropriate software. The important of economic and environmental evaluation analysis carried out by the software are also discussed.

Finally, Chaps. 10, 11 and 12 bring readers to the case study of recombinant bromelain. This enzyme has been cloned by recombinant DNA methods and has gone through phases of many research stages those discussed in chapters two to nine.

Finally, this book would not be a reality if there are no supports from all parties involved, namely editors, authors and publisher. We hope this book will encourage researchers to keep continue their basic research related to recombinant enzyme

and finally able to commercialize it. This book is dedicated to all recombinant enzyme researchers especially those who are in Malaysia. Editor dreams that one day Malaysia will have our own recombinant enzyme manufacturing plant where many students and biochemical engineer will be able to practice their knowledge.

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Recombinant Enzymes - From Basic Science to
Commercialization

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2015, X, 188 p. 61 illus., Hardcover

ISBN: 978-3-319-12396-7