

Chapter 1 - The Nature of Biotechnology

1.1 Introduction

- A. Global economic impact
- B. 21st century vs. 20th century

1.2 What is biotechnology

- A. Definition
- B. Traditional
 - 1. examples
- C. New = Modern
- D. NOT
- E. IS
- F. Historical
 - 1. began 10,000 years ago
 - 2. Ancient - fermentations
 - 3. Antibiotics discovery
 - a. lg scale production
 - 4. Table 1.2 - Historical development
 - a. foods & beverages
 - b. 1800s
 - c. 1940s
 - d. current
 - 5. 1970s - modern biotech

1.3 Biotechnology: an interdisciplinary pursuit

- A. Not just molec. biologists
 - 1. multidisciplinary
 - 2. interdisciplinary
 - 3. mission oriented
- B. Companies - Table 1.3
- C. Main objectives
 - 1. biochemical catalysis
 - 2. two clear features
- D. Scale
 - 1. biologist
 - 2. biotechnologist
 - 3. scale up
- E. Future
- F. Immediate New applications

1.4 Biotechnology: a three-component central core

- A. Catalyst
 - 1. whole organism
 - a. microorganism
 - 1) 4 reasons
- B. Environment
- C. Downstream processing
 - 1. Steps
- D. Main areas of application - Table 1.6

1.5 Product safety

- A. govern regulations

1.6 Public perception

- A. impacts what?
- B. why education considered important?

1.7 Biotechnology in the developing world