

# **PREFACE**

Past several decades' attention of scientists, researchers and environmentalist has been focused on Environmental Biotechnology. Environmental Biotechnology is co-branch of biotechnology and its goal is to manage the environmental problems. It attempts to develop few biological processes which is cost-effective and ecofriendly. The applications of environmental biotechnology include development of cheap and rapid degradation process of pollutants.

Bioreactor process has been demonstrated to be an efficient technology for removal of pesticides and hazardous material. Bioreactor packing media has very important and categorized as natural, inert or synthetic packing materials. During the long-term operation of bioreactor, natural packing materials like agro waste, loofa, compost, peat, soil etc. are used as media. These natural materials after crack and causes the medium compaction which results in failure of the bioreactor system. Synthetic non-biodegradable media was used to overcome these problems in the present work. Inert materials like PUF, Alginate beads etc. are mechanically strong but usually require a periodical nutrient supply during the operation of any bioreactor and also these materials are cost effective.

Synthetic packing materials are of good option because they are mechanically strong and also there is no need to supply nutrients to the microorganisms because it is added in the packing media during the preparation of such packing materials. The integrated bioreactor system has been developed for the treatment of mixture of pesticides. One of the most challenging problems to use the bioreactor at industrial scale is continuous supply of nutrients in the operation. In present research work an integrated as well as combined bioreactor was studied

**Chapter 1** deals with the pesticides application, bioremediation of pesticide and types of biological processes. **Chapter 2** includes literature survey and **Chapter 3** includes and material and method of experimentation.

**Results and discussion are explained in Chapter 4** about batch, continuous system, integrated aerobic treatment plant (IATP). **Chapter 5** deals with conclusion.

\*\*\*\*\*