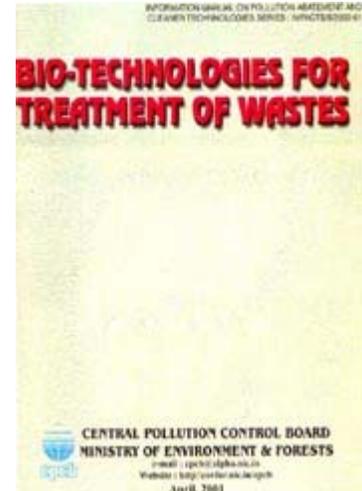


Bio-Technologies for Treatment of Wastes

Foreword

Bio-technologies for treatment of wastes have unique advantages over other treatment technologies since these are less expensive, easy to operate and do not produce secondary pollutants. Over the years, significant developments have taken place in biological treatment technologies. Elucidation of some biochemical reaction mechanisms and the growth-kinetics phenomena has permitted a better control over the operations of the treatment plants resulting in higher efficiencies and reduction in the cost of treatment. Another important aspect is the selection of a particular treatment system to minimise the capital as well as operational costs of treatment. In recent years, the application of anaerobic technologies has become more popular as compared to aerobic one, as it reduces the land requirement for the treatment plant, avoids heavy equipment and also helps in recovery of useful end-products such as biogas as an alternate source of energy and the digester-sludge as a fertilizer.



This report covers the general as well as industry specific pollution control measures through various biological treatment routes. Issues relating to pre-treatment of effluents containing toxic and persistent chemicals, recent developments in the field of biological waste treatment and future perspectives including the thrust areas for the improvement of biological treatment of certain persistent and toxic effluents are also discussed in this report. I hope, the scientists and engineers working in the field of waste treatment will find it useful.

This report is prepared by Dr. B.K.Chaudhuri, Senior Environmental Engineer and his group who have made sincere Efforts to bring out this document. I convey my sincere thanks to Shri A.K.Mhaskar, Ex.Environmental Engineer of this Board for his expert comments on this report.

Acclimatization of microorganisms to survive, grow and metabolise in the alkaline environment; Primary treatment of effluent by commercially available coagulants and their use in combination instead of acid treatment; and, Use of the acclimatized microbes for treatment of the wastewater.

Dilip Biswas
Chairman, CPCB