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REDUCTION OF MICROBIAL POLLUTION IN WATER ENVIRONMENT USING MICROWAVE AND OXYGEN DEMAND TECHNIQUES

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Abstract

Water contamination has become a global challenge due to large inflow of sewage into river or an open area. The responsibility goes to every citizen of this universe equally because it may lead to environmental disorder. Hence, there is an urgent requirement to take a preventive measure to preserve water pollution by reducing pollutant from sewage line. The traditional method of monitoring and killing the pathogens is a difficult process or it is very expensive to safe guard entire area. In this work, we have used microwave system at X band frequency with power 5 to 300 watts to kill the pathogens at different levels of pollution and tested the quality of water using Biological Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) process. The justification of microwave technology is achieved using reflection principle of Electromagnetic (EM) wave and results are appended in different tables. The results of tested parameters find a suitable solution to process sewage water before mixing into a river or pond to reduce microbial water pollution. The process achieved 10 to 18 % reduction in contamination and finds a reliable solution for current scenario within a short span of time.

Key words: biological oxygen demand, chemical oxygen demand, environmental, microwave, microbial

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