



TREATMENT OF MUNICIPAL SEWAGE BY THE COMBINATION OF ANAEROBIC AND FACULTATIVE TREATMENT PROCESS – A CASE STUDY

**Sudheer Kumar Shukla^{*1}, Prerana Tripathi², Mukesh Pandey³, Amit
Dubey⁴, Misra Shiv Mangal⁴, Kumar Vivek¹**

¹*Department of Paper Technology, Indian Institute of Technology Roorkee, Saharanpur Campus,
Saharanpur- 247001, India;* ²*Environmental Planning Department, School of planning and
Architecture New Delhi, India;* ³*Department of Energy and Environment Management, RGPV
Bhopal, India;* ⁴*Environmental Research Laboratory, Lake Conservation Authority Bhopal, India*

Abstract

As a result the waste not properly disposed reaches the water sources and therefore our water sources like rivers, lakes and reservoirs that are in close proximity of these urban centers are highly polluted. Most of our cities developed without a proper development plan. Consequently sewage systems of these cities are not well planned. Therefore wastes of homes and industries mixed with the catchment areas of water by the fault sewage system. In developing country like that of ours emphasis has been laid to treat the wastewater and reuse it using the minimum cost involvement. In this sewage treatment plant there is no energy consumption except pump. The studied Treatment plant based on the treatment of sewage using anaerobic as well as facultative decomposition of organic matter. This is a cost effective and energy efficient technology. During the study of the treatment plant it was observed that reduction of total suspended solid is about 82.78. %. In the out let a 71.93% Reduction was observed in the concentration of BOD and 73.19% reduction in the concentration of COD respectively.

83.49% reduction of the value nitrogen and 85.40% reduction in the concentration of phosphate observed, the concentration has decreased remarkably in the final stages of treatment during the course of study. By present study it is came out that after proper management of STP, higher removal efficiency may be achieved; predicted load removal efficiency is 80.94% for BOD, 81.14% for COD, and 91.68% for TSS, 88.12% for Orthophosphate and 90.80% for Nitrate.

Keywords: Sewage treatment, anaerobic decomposition, facultative decomposition, aerobic treatment, wastewater management

* Author to whom all correspondence should be addressed: Phone: +91-132-2727354, Fax: +91-132-2726456, e-mail: sudheertejasvee@yahoo.co.in, skstejasvee24iitr@gmail.com