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Post treatment of up-flow anaerobic sludge blanket based sewage treatment plant effluents: A review

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ABSTRACT

Biological processes are aerobic and anaerobic commonly used for wastewater treatment. Treated sewage from various wastewater treatment plants is mostly used for irrigation purposes or simply discharged into rivers. However, major drawbacks of this disposal are the input of contaminants like organics (high BOD, COD), pathogens and suspended solids into the aquatic ecosystem. This paper presents a critical review on the treatment of domestic sewage by anaerobic process and specifi cally in the up-flow anaerobic sludge blanket (UASB) reactor and its post treatment concept as the core. The increased removal efficiency of the UASB reactor when post treatments for UASB are used is summarized. Percent removal efficiencies of parameters, land requirement, mode of operation and operation and maintenance cost are considered for different combinations of post treatment units with UASB. Overall 16 combinations (UASB + post treatment) are taken into consideration for this review. In all combinations, ranges of 23–99%, 15–97%, and 27–97% removals were found for BOD, COD and TSS having 4–24 h and 0.3 h–24 d hydraulic residence time for UASB reactors and post treatment units respectively. Coliform removals were found from 0.3–5 log units having fi nal concentrations from 2.1×10^{2}–1.0×10^{6} MPN/100 ml. From the present paper it may be recommend that UASB combination with activated sludge process and constructed wetlands are good in their performance and can be used in developing countries.

Keywords: Anaerobic treatment; Up-flow anaerobic sludge blanket reactor; Post treatment; Aerobic treatment; Municipal wastewater

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