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Study of the Purification Performance of Sand Filter Drained in a Complementary Treatment of Urban Wastewater under Soil and Climatic Conditions of the Southern Tunisia

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ABSTRACT

Infiltration percolation is a rustic and extensive purifying technique which is capable of completely oxidizing and decontaminating wastewater. The object of the present study is to validate on a real scale the findings gotten in pilot laboratory. It is notably to confirming the purification performances and decontamination of secondary effluent by sand filter drained under an intense wild plant. For this, a basin of 100 m² of infiltration surface equipped with two wells of sampling in the center and in the periphery, has been constructed in irrigated perimeter of Dissa in Gabes (south east of Tunisia). Our results show that essential of the COD is eliminated in first 50 centimeters in sand filter and the presence of wild plant on the surface of infiltration damaged quality of filtered water. The follow-up of the organic nitrogen and ammonium show the good performances of process in elimination of nitrogenous pollution. The rate of exhaustion is about 100% and this since first 50 centimeters of filtration. The sand filter retains the different shapes of the phosphor by adsorption and precipitation in the superficial horizon. The elimination of the bacterial pollution is high, it varying from 0.1 to 2.5 Ulog. The bacterial purification remained low after 50 cm filtration. Indeed, with 50 cm depth, the quality of the filtrate is slightly better than the influent with still tendency to higher removal in the center than in periphery of the basin.

KEYWORDS

Infiltration Percolation, Purification, Depth of the Sand Filter, Covered Plant

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