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Municipal sewage sludge characteristics and waste water treatment plant effectiveness under warm climate conditions

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ABSTRACT

The present paper deals with the characterization of the municipal sewage sludge (MSS) and the effectiveness of the waste water treatment plant (WWTP) under warm climate condition. The WWTP effectiveness is more than 98.5% for the BOD_5, 90% for COD, 95% for SS, 70% for TN, 99% for NH_4, while the TP efficiency rang from 15.17% to 99.12%. The total $kWh/kgBOD_5$/month is from 1.97 to 3.13, while the total kWh/m^3 of wastewater influent range from 0.62 to 1.36. The yearly chemical consumption (chlorine, polymer, lime) depends at the end from the season. The sludge does not present significant concentration of metals and the evaluation with sequential extraction showed that the metals are associated with inert forms while the application of the, Generalized acid neutralization capacity (GANC) test indicated that by increasing the leach ate pH, the heavy metal concentration decreases.

Keywords: Wastewater treatment plant; Sludge characteristics; Metals extraction; Metals partitioning; BOD and COD removal; MLVSS; SVI

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