

## **ANAEROBIC TREATMENT OF PRIMARY DOMESTIC WASTEWATER BY MEANS OF A UASB REACTOR FOLLOWED BY COAGULATION**

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### **ABSTRACT**

This project investigated the efficiency of the anaerobic treatment of primary domestic wastewater at mesophilic conditions followed by coagulation. For this purpose a lab-scale (6.5-L) UASB anaerobic reactor operated during a 90 days trial. Three sets of experiments were carried out. During each set the flow rate to the digester was kept constant, giving hydraulic retention times of 15.3, 7.6, 4.6 h, respectively. At the beginning of the operation the reactor was inoculated with anaerobic sludge having a solids concentration of 9.75gVSS/L. Variation in the strength of the wastewater during the experiments resulted in loading rates fluctuating between 0.4Kg COD/m<sup>3</sup>day and 3Kg COD/m<sup>3</sup>day. The production of the biogas was small. The COD removal efficiency varied between 30-85%. The particulate matter of the wastewater was effectively removed by entrapment in the sludge bed and the SS removal reached 95%. When the anaerobic reactor effluent was treated by coagulation, further removal of COD was attained resulting in final COD values of less than 100mg/L and 50mg/L for the overall and soluble COD, respectively.