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## ABSTRACT

Sewer networks act as reactors where microbial changes occur. The transport time of wastewater in sewers will affect the quality of wastewater arriving at a wastewater treatment plant. The objective of this project is to study microbial transformations under anoxic conditions particularly to establish the denitrification rates in bulkwater. Tests were conducted on 7 different wastewater samples take from the wastewater treatment plant (WWTP) at Section 23, Shah Alam. Tests were performed by using batch reactors to measure denitrification rate under conditions of excess electron donor and limited electron acceptor. The denitrification rate were found to be in range between 0.62 – 4.76 g NO<sub>3</sub>-N/m<sup>3</sup>h. The average nitrate utilization rates for concentrations of 2, 4 and 6 g NO<sub>3</sub>-N /m<sup>3</sup> were found to be 1.70, 2.32 and 2.54 g NO<sub>3</sub>-N/m<sup>3</sup>h respectively.

**KEYWORDS** : In-sewer processes, anoxic condition, denitrification, nitrate utilization rate.

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