

**TRANSFORMATION OF NITROGEN AND SULPHUR
COMPOUNDS IN MUNICIPAL WASTEWATER UNDER
CHANGING ANAEROBIC/ANOXIC CONDITIONS**

By

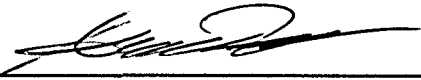
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DECLARATION BY THE CANDIDATE

I ABDULLAH ZA-IM BIN FAUZI, 2006877407 confirm that the work is my own and that appropriate credit has been given where reference has been made to the work others.

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ABSTRACT

The sewer network is an integral parts of an urban wastewater system. Sewer systems are structured networks that are developed to collect and transport wastewater from municipal areas. Wastewater from widespread networks will be conveyed into wastewater treatment plants. The sewer acts as a reactor subjected to biochemical processes that may change the chemical composition of the wastewater and composition of microbes under aerobic, anoxic or anaerobic conditions. Under anaerobic conditions sulphate in municipal sewers is reduced to hydrogen sulphide. There are three major problems in operation of sewers associated with hydrogen sulphide namely odour, health and corrosion. However there is still lack of information in the literature on pathway and kinetics of nitrogen and sulphur compounds transformation under changing anaerobic/anoxic conditions. This report presents the results of studies on transformation rates of selected nitrogen and sulphur compounds in municipal wastewater under changing anaerobic/anoxic condition. It was established that transformation rates under anaerobic conditions of $\text{NO}_3\text{-N}$, $\text{NO}_2\text{-N}$, $\text{SO}_4\text{-S}$, $\text{SO}_3\text{-S}$, and $\text{S}_2\text{O}_3\text{-S}$ are 0, 0, 0.14/0.03, 0 and 0 mg/l/hr respectively. Besides that, transformation rates under anoxic conditions of $\text{NO}_3\text{-N}$, $\text{NO}_2\text{-N}$, $\text{SO}_4\text{-S}$, $\text{SO}_3\text{-S}$, and $\text{S}_2\text{O}_3\text{-S}$ are 0.8, 0.06, 0.06, 0 and 0 mg/l/hr respectively.

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