# REMOVAL OF NITRATE FROM DRINKING WATER BY OIL COATED SAND FILTER

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Nitrate contamination of drinking water is a common water quality problem in agricultural areas. In Sri Lanka especially in Kalpitiya area ground water exceeds the maximum contaminant level specified in SLS 614 (Sri Lanka Standard) – Drinking Water Quality Standard of Sri Lanka. This study focuses on removing nitrate from the drinking water using bio denitrification method because it is cost effective than other methods.

The removal filter used in this study is a water tight rectangular basin divided in to four compartments and it is designed in a manner which can control the water flow rate. Sand having grain size of 1 mm was selected using the sieves. Sand is used as supporting media of the filter and 250 ml of the coconut oil from the local market was used to coat the sand. Water having different nitrogen concentrations was fed to the filter and the study was carried out for retention times of 24 hours and 48 hours. Treated water was analyzed for the nitrate nitrogen and nitrate. Results show oil coated sand filter process was successful in removing nitrate from drinking water. In this system removal efficiency of nitrate with 24 and 48 hours was 82% and 90% respectively. Coconut oil is a good carbon source for the denitrification and 24 to 48 hours retention time is required for the proper function.