"BIOLOGICAL DENITRIFICATION OF GROUND WATER USING SAW DUST AS CARBON SOURCE"

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Abstract

Introduction :

Studies of groundwater in and around Bangalore have shown nitrate levels beyond the permissible levels as set by the WHO. Increase in the nitrate levels beyond this level has severe impact on human and animal health. Nitrate levels are limited due to health concerns in potable water. Nitrate is a stable and highly soluble ion with low potential for precipitation or adsorption. These properties make it difficult to remove using conventional water treatment methods. Biological denitrification has been found to be an effective method for denitrification. In this process, molecular nitrogen is formed through a series of gaseous nitrogen oxide products. Of the many living organisms that have the capacity to denitrify, *Pseudomonas* sp. and *Bacillus* sp. show the maximum potential. *Pseudomonas* sp. is a soil microbe abundantly found in Bangalore soil.

In the current study, the organism *Pseudomonas fluorescens (NCIM 5059)* was used to denitrify 100ppm and 200ppm of nitrate rich water. The carbon source used was Saw Dust in the form of Fine, Coarse and wood Pellets of Particle size 0.147mm, 2.362mm and 1cm x 1cm respectively. Nitrate concentrations were measured over a period of time, and a marked decrease was observed. The experiments were conducted at a temperature of 27±2 °C. A maximum of 49-58% removal was observed