International Journal of General
Engineering and Technology (IJGET)
ISSN(P): 2278-9928; ISSN(E): 2278-9936
Vol. 7, Issue 4, Jun – Jul 2018; 1-6

International Academy of Science,
Engineering and Technology
Connecting Researchers; Nurturing Innovations

EFFECT OF BACILLUS SUBTILIS AND PSEUDOMONAS PUTIDA ON THE REMOVAL OF POLLUTANTS IN MATCH INDUSTRY WASTEWATER

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ABSTRACT

Due to industrialization and developmental activities nowadays water resources are polluted severely. Among the polluting industries, match industries are playing a major role. Sivakasi is a town situated in Tamil Nadu, India is having a number of match industries. For various processes during the manufacturing of matchsticks harmful chemicals are used. The wastewater generated from the match industries is creating problems due to contamination of groundwater and river water nearby Sivakasi. An attempt was made to treat the wastewater using bacterial species viz., Bacillus subtilis and Pseudomonas putida. Water samples were collected from wells of Sivakasi and analyzed for the parameters viz., BOD, COD, Nitrates, Phosphates, and Sulphates and it was found that all the parameters were exceeding the permissible limit. The water samples were inoculated with a pure culture of Bacillus subtilis and mixed cultures of Bacillus subtilis and Pseudomonas putida at different pH conditions (5.5, 6.5 and 7.5). The results revealed that at pH 7.5 the removal efficiency of the pollutants was higher. Also when the mixed microbial consortium was used the efficiency was more when compared with the inoculation of single bacterial culture. At pH 7.5 with mixed culture the percent removal of various pollutants viz., BOD, COD, Phosphate, Nitrate, and Sulphate was 80, 73, 68, 66 and 62 respectively,

KEYWORDS: *Match Industry Wastewater, Mixed Bacterial Culture, Degradation of Pollutants*

Article History

Received: *09 Jun 2018* | ***Revised:*** *18 Jun 2018* | ***Accepted:*** *22 Jun 2018*