

Isolation and Identification of Bacterial Strains of Petrochemical Wastewater

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Background & Objectives: Given the growing industry in the country and regional countries, environmental protection and reduction of environmental pollution caused by them, the fact that should focused on factories all around the country and related Industries. According to the word bank in 2005, 2.82% of GDP spending is due to the effects of water pollution in Iran. Three major sources of pollution from petrochemical industries are thermal pollution, pollution caused by chemical substances and heavy metals, organic matter pollution. Problems have been solved to some extent for the first and second cases, organic matter pollution caused by wastewater refineries and petrochemical industry is still a major environmental problems. Bacteria is also one of the problems related with wastewater.

Methods: Wastewater samples provided from different parts of the wastewater treatment unit in a petrochemical plant in Iran, and were transported to the laboratory, pH of samples is neutralized after the addition of tween 80, 5 minutes were left on a rotator with 150rpm. Five dilutions of each sample was prepared 10⁰, 10⁻¹, 10⁻², 10⁻³ and 10⁻⁴, each dilution was cultured in Muller Hinton agar and peptone Yeast extract agar mediums, and then were incubated. After periods of 24, 48, 72 hours colonies were isolated were transferred on Tryptic Soy agar medium. After reaching the pure colonies, all bacteria isolated were identified with biochemical tests.

Results: 23 pure colonies were isolated, After identification of pure culture, 6 strains were isolated, 4 cases were gram-positive and 2 cases were gram-negative. Isolated were: *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Bacillus lichenofurmis*, *Bacillus polymixa*, *Enterobacter spp*, *Serratia marcesence*. Factory effluent output in the current situation doesn't have any concordance with environmental standards. Analysis of surface water in Iran in 1383, confirm these contaminants.

Conclusion: Identification of these bacteria is considered as a warning to the health community. The isolated bacteria is resistant to the conditions of wastewater And we can use their bioremediation power to reduction of harmful organic materials in this environments. Sampling of Wastewater in the country and isolation of native bacteria seems valuable.

Keywords: Wastewater; Organic Pollutin; Bacteria