Isolation and characterization of phenol-degrading yeasts from industrial effluent (Petrochemical Seaport Mahshahr, Iran)

Atena Alirezaei Dizicheh[1], Mohammad Ghayyomi Jazeh[2], Mansour Bayat[1] and **Mahmood Alimohmmadi[2]**
[1]Islamic Azad University, Iran
[2]Tehran University of Medical Science, Iran

Nowadays environmental pollutants are one of the problems facing the industrial world. Among these compounds, phenolic compounds are toxic pollutants to which belongs chlorophenols known as xenobiotic chemicals. 4-Chlorophenol (4-CP) is one of the chlorophenols with a high solubility in water, so it is most detected in wastewater and also can accumulate in their bodies biologically.

In present study 13 strains of bacteria and 6 strains of yeast and mold phenol degradation was purified from Shahid Tondgooyan Petrochemical wastewater treatment unit was first carried out within about 15 days. Then, capability of the isolated microorganisms in biodegradation of 100ppm 4-chlorophenol in presence of 2 g/l glucose as a growth substrate was examined. Two microorganisms, selected as superior species. The strains were designated TY1 and TY2 and Strains were identified by molecular method using amplification of ITS gene region. The phenol degradation was determined by the spectrophotometric method 4-amino antipyrine. The results showed that 100% removal of 100ppm 4-Chlorophenol by TY1 in 45 hrs, TY2 in 21 hrs and mixed culture of TY1TY2:50/50 in presence of 2 gr/l glucose within 18 hrs. Percentage of pure cultures in mixed culture had no significant effect on 4-CP removal efficiency. Furthermore, the results of the sequencing showed that the isolates with the genus *Trichosporon sp*. The significance and impact of the study is the utilization of native yeast strains isolated from the wastewater itself having potential for environmental bioremediation in petroleum refinery and petrochemical industries.

Speaker Biography

Atena Alirezaei Dizicheh is an Iranian university teacher at Rasht, in the north of Iran. She was graduated in the Foundry field at Tehran University and earned master degree in 2005. She began to work as research and development unit Manager at Gilan Steel Complex in 2006 and simultaneously taught corrosion in the building, steel project, principles of building maintenance in University of Applied Science and Technology of Rasht Academic Center for Education. In recent fourteen years, she has taught many courses in Karaj House of Worker University of Applied Science and Technology, Rasht Academic Center for Education and Mouj Nonprofit University. She has codified 5 single course and one single module in University of Applied Science and Technology that is in the stage of approval.

e: Atena.Alirezaei@gmail.com

Notes: