عنوان مقاله:

First isolation and molecular characterization of Mycobacterium porcinum and Mycobacterium celeriflavum for potential use in cases of polycyclic aromatic hydrocarbons bioremediation' From markazi province of Iran

محل انتشار:

بیستمین کنگره بین المللی میکروب شناسی ایران (سال: 1398)

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خلاصه مقاله:

Introduction and Objectives: Polycyclic aromatic hydrocarbons are one of the prevalent oil pollutant. Nowadays these carbohydrates due to their Toxicity, mutagenesis, carcinogenicity, and also environmental stability caused by hydrophobia character and low solubility are considered as one of the preferences of environmental protection agancy. Therefore, clearance of the regions polluted with these compounds are of significance. Biodegradation of these compounds is a safe and affordable method of environmental clearance. In this research, we described the molcular isolation and identification of the mycobacteruim's strains and analyzed their polycyclic aromatic hydrocarbons degration activity. Materials and Methods: Mycobacteria were isolated from a collection of 30 environmental samples from the contaminated sites of Markazi province and identified to the species level using conventional microbiological and molecular methods including the PCR amplification of hsp65 and sequence analysis of, 16S rRNA genetic markers. The growth rate of the isolates in presence of pollutants, chromatography and turbidity were used to assess their biodegradation activity.Results: A total of 6 mycobacterial isolates (20%) were recovered from 30 samples that belonged to two species of mycobacteruim consisting of M. porcinum (4 isolates) and M. celeriflavom (2 isolates). The strains of of M. porcinum and M. celeriflavom could degrade 70% and 90% of 1 mg/l PAH soloution in 7daye.Conclusion: Our results showed that the of M. porcinum and M. celeriflavom have a high ability to biodegradation the polycyclic aromatic hydrocarbins. Hence, additional investigations are recomended for isolation and applicationally use of the bacteria's strains for biological deletion of polycyclis aromatic hydrocarbons from contaminated environments.

کلمات کلیدی:

nontubercolous Mycobacterium, Biodegradation, 16SrRNA.

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