

Phylogenetic analysis study of Cultivable moderately halophilic and halotolerant bacteria in Gomishan mud volcano

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Abstract

Gomishan mud volcano is located 7 km from Gomishan city and sampling from this mud volcano was performed in August 2013. The temperature of mud was about 38 ± 1 °C with a pH of 8 ± 1 . The measured salinity was 34 g/L. Sodium and chloride were the highest and iron was the lowest ions of the mud. The culture medium for the isolation of moderately halophilic and halotolerant bacteria was used. High viable counts ($1 - 3 \times 10^6$) were obtained in culture media. A total of 122 isolates were obtained 42 colonies were selected based on primarily morphological and physiological traits and their 16S rRNA sequences were determined. The isolated genera included *Halomonas* (20%), *Arthrobacter* (5%), *Kocuria* (5%), *Thalassobacillus* (5%), *Marinobacter* (20%), *Paracoccus* (5%), *Roseovarius* (5%), *Jeotgalicoccus* (5%), *Bacillus* (15%), and *Staphylococcus* (15%). Oxidase and catalase enzymes were studied in all isolates and 98.4% of isolates were positive catalase and 69.7% were positive oxidase.

Keywords: Mud volcano, Halotolerant bacteria, Moderately halophilic bacteria, Phylogenetic tree.