



Isolation and Identification of Extremely Halophilic Bacteria Producing Extracellular Hydrolyses from Khur

Elaheh Fallahnezhad Naeini, Manoochehr Sattari Naeini* and Marziyeh Noroozi

Department of Microbiology, Naein Branch, Islamic of Azad University, Isfahan, Iran

*Email: sattari@naeiniau.ac.ir

Abstract: The present study aims to isolate and identify extremely halophilic bacteria producing extracellular hydrolyses from Khur salt lake, Iran. Soil samples taken from different parts of the lake were cultivated in 20% (W/V) NaCl culture medium. In order to purify the strains, after colony growth and appearance, pure cultures were collected from single colonies. Bacterial screening led to the identification of 12 extremely halophilic bacteria. Four strains have the potential to produce a variety of extracellular hydrolytic enzymes. Most produced enzymes were related to gram-positive Amylase, Cellulase and DNase enzymes and the least amount of enzymes produced by Lipase and Protease, were grown at temperatures ranging from 34-37°C and pH 7. Four selected strains were identified and sequenced in terms of phylogeny and molecular characteristics. The studied strains were among the gram-positive bacteria belonging to the *Firmicutes* phylum, *Bacilli* order, *Halobacillus* and *Thalassobacillus* genus and showed the highest enzyme diversity in this study. Consequently, these strains, with their various hydrolytic activities, have a high potential to be used for biotechnological purposes.

Keywords: Biodiversity, Extremely halophilic bacteria, Hydrolytic enzymes
