Accepted Manuscript

Title: Bacilli community of saline-alkaline soils from the Ararat Plain (Armenia) assessed by molecular and culture-based methods

Authors: Hovik Panosyan, Anna Hakobyan, Nils-Kåre Birkeland, Armen Trchounian

PII: S0723-2020(17)30181-9
DOI: https://doi.org/10.1016/j.syapm.2017.12.002
Reference: SYAPM 25886

To appear in:

Received date: 13-8-2017
Revised date: 9-12-2017
Accepted date: 12-12-2017

Please cite this article as: Hovik Panosyan, Anna Hakobyan, Nils-Kåre Birkeland, Armen Trchounian, Bacilli community of saline-alkaline soils from the Ararat Plain (Armenia) assessed by molecular and culture-based methods, Systematic and Applied Microbiology https://doi.org/10.1016/j.syapm.2017.12.002

Bacilli community of saline-alkaline soils from the Ararat Plain (Armenia) assessed by molecular and culture-based methods

Hovik Panosyan[1], Anna Hakobyan[1,2†], Nils-Kåre Birkeland[2], Armen Trchounian[1*]

[1]Department of Biochemistry, Microbiology and Biotechnology, Yerevan State University, A. Manoogian 1, 0025, Yerevan, Armenia

[2]Department of Biology and Centre for Geobiology, University of Bergen, P.O. Box 7803, N-5020 Bergen, Norway

[†]Present address: Max Planck Institute for Terrestrial Microbiology, 35043, Marburg, Germany

***Corresponding author**

E-mail: trchounian@ysu.am

Phone: (+37460) 71 05 20

Fax: (+37410) 55 46 41

E-mail addresses: hpanosyan@ysu.am (H. Panosyan), hakobyan@staff.uni-marburg.de (A. Hakobyan), Nils.Birkeland@uib.no (N-K. Birkeland), trchounian@ysu.am (A. Trchounian)

Abstract

The bacterial community composition in the A horizon of a natural saline-alkaline soil located in Ararat Plain (Armenia) was studied using molecular and culture-based methods. The sequence analysis of a 16S rRNA gene clone library and denaturing gradient gel electrophoresis (DGGE) profiles indicated dominance of *Firmicutes* populations. The majority of the sequences of the bacterial 16S rRNA gene library were close relatives of representatives belonging to the genera *Halobacillus* (41.2%), *Piscibacillus* (23.5%), *Bacillus* (23.5%) and *Virgibacillus* (11.8%). Eight novel moderately halophilic bacilli isolates were successfully obtained from the enriched cultures of the saline-alkaline soil samples. 16S rRNA gene sequence analyses of isolates revealed their affiliation (97.7-99.7% similarity) to representatives of the genera *Bacillus*, *Piscibacillus* and *Halobacillus*. All isolates were able to tolerate high