

Comparison of Extremely Halophilic Archaea Isolated from Three Salt Lakes in China

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contributed equally.

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There're many kinds of extremely halophilic archaea living in salt lakes all over the world and the ecological environment of lakes can affect their archaeal species. To illustrate the relationships between archaeal species and salt lake environment, we isolated and cultured 25 extremely halophilic archaeal strains from three salt lakes in China (Gou Salt Lake, Huama Salt Lake and Yuncheng Salt Lake). According to the 16S rRNA gene sequence analysis and the construction of Neighbor-Joining phylogenetic trees, the isolates were closely related to each other.

DNA extraction, PCR and phylogenetic tree construction

DNA were extracted according to the instruction of Bacterial genomic DNA Extraction Kit by Shanghai Sangon Biological



Figure 2 Phylogenetic tree showing the position of HMC halophilic

acidic lake, but alkaline environments were more suitable for the survival of halophilic bacteria [22]. The high archaeal diversity in YC could be due to the fact that some kinds of halorubrum can tolerate the

- 23 Yin S, Wang Z, Xu JQ, Xu WM (2015) *Halorubrum rutilum* sp. Nov. isolated from a marine solar saltern. Arch Microbiol 197: 1159–1164.
- 24 Rivadeneyra MA, Delgado R, Párraga J, Ramos-Cormenzá A (2006) Precipitation of minerals by 22 species of moderately halophilic bacteria in artificial marine salts media: Influence of salt concentration. Folia Microbiol (Praha) 51: 445–453.
- 25 Van de Vossenberg JL, Driessens AJ, Grant WD (1999) Lipid membranes from halophilic and alkali-halophilic archaeal have a low H⁺ and Na⁺ permeability at high salt concentration. Extremophiles 3: 253–257.
- 26 Kushner DJ (1978) Life in high salt and solute concentrations: Halophilic bacteria microbial life in extreme environments. 1978: 317–368.