

ABSTRACT

The Salt Range ecosystem exhibits extreme saline water bodies and soil structure, with a wide range of diversity of bacterial communities. The main research focus was on isolation and characterization of halophilic microorganisms from Salt Range of Pakistan. Water samples were collected from different areas of Salt Range of Pakistan. Halophilic bacteria were cultured on artificial saline medium to obtain pure cultures. All the isolates were characterized by Gram staining, endospore staining, oxidase and catalase tests, biochemical tests, growth on selective media, and tests for antibiotic resistance. Bacterial isolates with high salinity tolerance were identified with the help of 16S rRNA sequencing.

Isolated bacteria showed variable tolerance against different levels of salinity in the medium. Only a few of isolated strains were able to grow at extreme concentrations, which were carried for further sequencing process. Majority of bacteria were stained Gram negative, positive to catalase test and rods in shape. The phylogenetic tree of four extreme halophilic bacterial isolates named I, A, B2 and B3 showed different positions in the tree and consisted of 1479, 1478, 1480 and 1480bp of genomic DNA respectively. However the results showed that according to the sequence of 16S rRNA, strains resembled to the *Halomonas elongata* strain IH9 as they showed 100% similarity and 99% query coverage with it.