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## SCREENING AND BIOLOGICAL CHARACTERISTICS OF A MANGANESE TOLERANT MICROORGANISM

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### Abstract

Ecological adaptation of heavy metal polluted environments is significantly enhanced through plants inoculated with plant growth-promoting bacteria (PGPB), and the cost of phytostabilization in metal tailings can be reduced. On the basis of the systematic investigation of manganese tolerant plants which grew on Xiangtan manganese tailings, rhizosphere soils of the *Chenopodium album* Linn. were collected. One yellow manganese-resistant strain named XZL01 was isolated from the rhizosphere of fresh plants through concentration gradient screening technique, and the cellular form, physiological and biochemical tests were conducted, demonstrated as the growth curve and effects of temperature, pH, NaCl concentration on growth of the strain. All the results showed that 1) the strain reached logarithmic phase in 10-12h; 2) the optimal temperature range for growth of the strain was 25 °C-30 °C; 3) the optimal pH range for growth of the strain was 7.0-7.3; 4) the optimal NaCl concentration range for growth of the strain was 10g/L. In this study, the strain XZL01 was identified, and status of the strain in the taxonomy and phylogeny has been conformed according to 16S rDNA sequences, with the strain identified as *Microbacterium.sp* XZL01.

*Key words:* biological characteristics, manganese, *Microbacterium*, screening, tolerant microorganism

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