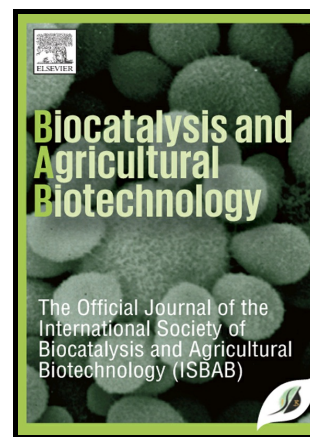


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Stress tolerance and plant growth promotion potential of *Enterobacter ludwigii* PS1 isolated from Seabuckthorn rhizosphere

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ABSTRACT

Plant growth promotion by microbial inoculants is affected by environmental factors. The study was therefore aimed at developing microbial inoculants for promoting tomato growth in regions experiencing temperature, pH and salt stressed conditions. *Enterobacter ludwigii* PS1 capable of solubilizing insoluble inorganic phosphate was isolated from Seabuckthorn rhizosphere growing in the Indian trans-Himalaya. PS1 showed ability to solubilize insoluble phosphate under different stress conditions viz. 4–44°C temperature, 1–5% salt concentration and 4–12 pH range. The isolate exhibited multiple plant growth promoting traits viz. auxin (24.3 mg L⁻¹), siderophore (79%) and hydrogen cyanide (0.21 O.D at 625nm) production. Tomato seed bacterization resulted in 25% and 37% increase in shoot and root length. Inoculation of tomato seedling with PS1 promoted plant growth in pot trial experiments in trans-Himalayan (34°08' 0.2" N, 77°34' 0.3" E, 3340m asl) condition. Increase in fruit yield was 15% in open and 27% in shade net condition. *E. ludwigii* PS1 with phosphate-solubilizing ability under stress conditions appears to be attractive for exploring its plant growth-promoting activities towards development of microbial inoculants in stressed regions.

Keywords Biofertilizer, *Enterobacter*, PGPR, Seabuckthorn, Stress, Tomato

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