



## Plant growth promoting ability of halophilic *Bacillus marisflavi* K7SpZMAO002 isolated from coastal sand dune of Goa-India

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### ABSTRACT

*Bacillus marisflavi* has the ability to grow at extreme conditions such as high salt, temperature and pH. In the present study, we isolated *Bacillus marisflavi* K7SpZMAO002 from the rhizosphere of *Spinifex littoreus*, a Coastal Sand Dune (CSD) pioneer grass present at the fore dune of Keri beach Goa-India. The fore dune of CSD is constantly affected by salt spray and is also under constant tidal effect, due to which it is a potential source of halophilic bacteria. During this study it was discovered that *Bacillus marisflavi* K7SpZMAO002 exhibits potential plant growth promoting attributes such as solubilization of inorganic phosphate at alkaline pH, production of indole-3-acetic acid, siderophore, exopolysaccharide (EPS), 1-aminocyclopropane-1-carboxylate (ACC) deaminase and antifungal activity against phytopathogens. Seed germination and seedling development of cowpeas bacterized with *Bacillus marisflavi* K7SpZMAO002 showed 30% higher vigor index than the uninoculated control seeds. In further studies of the effect of the bio-inoculum on cowpea seeds in salt-affected coastal sand under in-vitro conditions, a 45% higher vigor index was observed compared to the uninoculated control, whereas it exhibited a 22% higher vigor index than the positive control (commercial bio fertilizer). *Bacillus marisflavi* K7SpZMAO002 has the potential of increasing the growth of plants under saline conditions and could be successfully used as bio fertilizer.

### Biography

Sulochana A. She is currently pursuing Ph.D. from Goa University. She has presented at several international conferences including

Extremophiles 2018 (Italy) and Halophiles 2019 (Romania). She has also volunteered at the Nobel laureates' exhibition held at Kala Academy, Goa-India. She has University Grant Commission, National Fellowship for Ph.D. Students.