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Brevibacterium linens RS16 confers salt tolerance to *Oryza sativa* genotypes by regulating antioxidant defense and H^+ ATPase activity

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Abstract:

Soil salinity is one of the major limitations that affects both plant and its soil environment, leading to reduced agricultural production. Evaluation of stress severity by plant physical and biochemical characteristics is an established way to study plant-salt stress interaction, but the halotolerant properties of plant growth promoting bacteria (PGPB) along with plant growth promotion is less studied till date. The aim of the present study was to elucidate the strategy, used by ACC deaminase-containing halotolerant *Brevibacterium linens* RS16 to confer salt stress tolerance in moderately salt-tolerant (FL478) and salt-sensitive (IR29) rice (*Oryza sativa* L.) cultivars. The plants were exposed to salt stress using 0, 50, and 100 mM of NaCl with and without bacteria. Plant physiological and biochemical characteristics were estimated after 1, 5, 10 days of stress application. H^+ ATPase activity and the presence of hydroxyectoine gene (*ectD*) that is responsible for compatible solute accumulation were also analyzed in bacteria. The height and dry mass of