

## Growth Enhancement of Rice (*Oryza sativa* L.) by Zinc-Solubilizing Bacteria Isolated from Vesicular-Arbuscular Mycorrhizal Root Inoculant (VAMRI)

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Zinc deficiency is the most common soil micronutrient deficiency all over the world. An effort to isolate, zinc solubilizing microorganisms (ZSMs) in VAMRI, a commercial mycorrhizal inoculant, was undertaken to realize the possibility of solving soil zinc deficiency through microbial inoculation. Five bacterial isolates (*Sphingobacterium multivorum*, *Burkholderia cenocepacia*, *Bacillus xiamenensis*, *Burkholderia ambifaria*, and *Bacillus aerius*) grown in LGI medium supplemented with insoluble zinc compound (0.1%) tested positive for zinc solubilization with solubilization index ranging  $3.09 \pm 0.07$  to  $5.21 \pm 0.07$ . Subsequent quantification of zinc solubilization of select bacterial isolates through atomic absorption spectroscopy revealed a significant increase in available zinc ranging 679.64-1017.23 ppm over the uninoculated control. Sand culture experiment also showed the isolates significantly increased rice height, with isolate *B. cenocepacia* (V3) having similar performance as the positive control with available zinc. Hence, the inoculation of ZSMs shows great prospect in alleviating soil zinc deficiency in rice.

**Keywords:** zinc solubilizing bacteria, soil zinc deficiency, biofertilizer