



Growth, biomass and nutrient uptake in *Casuarina junghuhniana* Miq. as influenced by applications of inorganic and biofertilizers

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Abstract

The present investigation was conducted to record the effects of inorganic and biofertilizers on growth, biomass and nutrient uptake of *Casuarina junghuhniana* Miq. at seedling stage. The treatments comprised of all possible twenty-four combinations of four biofertilizers (control, phosphorus solubilizing bacteria (PSB), *Frankia* and *Frankia* + PSB), three doses of nitrogen (0, 30 and 60 kg N ha⁻¹) and two doses of phosphorus (0 and 50 kg P₂O₅ ha⁻¹). The experiment was established in split plot design with biofertilizers was imposed as main plot and six combinations of N and P as sub-plot treatments with three replications. Inoculation with *Frankia* and PSB, singly or dually resulted in higher growth and nutrient uptake by plants as compared to uninoculated control. Among different doses of nitrogen and phosphorus, 60 kg N and 50 kg P₂O₅ ha⁻¹ alone and in combination produced maximum growth for all the traits as compared to other inorganic fertilizers treatments. Dual inoculation (*Frankia* + PSB) supplemented with 60 kg N and 50 kg P₂O₅ ha⁻¹ resulted in maximum shoot length, root length, collar diameter, shoot fresh weight, root fresh weight, shoot dry weight and root dry weight, nitrogen uptake by shoot and root, phosphorus uptake by shoot and root as compared to other treatment combinations and control *i.e.* uninoculated and unfertilized.

Keywords: Biofertilizers, *Casuarina junghuhniana*, *Frankia*, Nutrient uptake, PSB