

## **Influence of *Pseudomonas japonica* on Growth and Metal Tolerance of *Celosia cristata* L.**

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**Abstract :** Heavy metals are one of the priority pollutants as they pose serious health and environmental threats. They can be removed by various physiochemical methods but are costly and responsible for additional environmental problems. Bioremediation that exploits plants and their associated microbes have been referred as cost effective and environmental friendly technique. In this study, a pot experiment was conducted in a greenhouse to evaluate the potential of *Celosia cristata* and effects of bacteria, *Pseudomonas japonica*, and organic amendment moss/compost on tolerating/accumulating heavy metals. Two weeks old seedlings were transferred to soil in pots, and after four weeks they were inoculated with bacterial strain, while after growth of six weeks they were watered with a metal containing synthetic wastewater and were harvested after a growth period of nine weeks. After harvesting, morphological and physiological parameters and metal content of plants were measured. The results showed highest plant growth and biomass production in case of organic amendments while highest metal uptake has been found in non-amended pots. Positive controls have shown highest Pb uptake of 2900 mg/kg DW, while *P. japonica* amended pots have shown highest Cd, Cr, Ni and Cu uptake of 963.53, 1481.17, 1022.01 and 602.17 mg/kg DW, respectively. In conclusion organic amendments have strong impacts on growth enhancement while *P. japonica* enhances metal translocation and accumulation to aerial parts with little significant involvement in plant growth.

**Keywords :** ornamental plants, plant microbe interaction, amendments, bacteria

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