

## **ANALYSIS OF PROLINE AND MDA AND PROTEIN PROFILE IN SEEDLINGS OF COWPEA EXPOSED TO NaCl SALINITY – INFLUENCE OF RHIZOBACTERIUM ON SALT TOLERANCE**

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### **ABSTRACT**

This research was carried out in order to test the influence of the Rhizobacterial culture on NaCl salinity tolerance in Cowpea plants at seedling stage. Rhizobacterial strains BR2 and BR3 were used to inoculate seeds of Cowpea (*Vigna-unguiculata*) variety (Pusa Sukomal). Seed germination percentage, quantitative analysis of proline, MDA and protein and protein profile was carried out in 7 and 15 days old seedlings exposed to 0, 25, 50 and 75mM NaCl salinity in both Rhizobacterium inoculated and uninoculated (control) seedlings. Seed germination percentage is reduced to the level of NaCl. This effect was reduced in the presence of Rhizobacterium. At 25mM NaCl, the germination percentage was 100% in seeds inoculated with BR2 and BR3 and the germination was up to 94 percent. Similarly, the proline content increased in all groups of seedlings to increase in NaCl concentration, irrespective of Rhizobacterium presence. However, the seedlings with Rhizobacterium inoculation had significantly high levels of proline as compared to control, in absence of Rhizobacterium. While MDA levels were decreased in seedlings inoculated with BR2 and BR3 strains of Rhizobacterium, compared to seeds without Rhizobacterium, indicating the reduction in lipid peroxidation and the increase in tolerance on increased NaCl salinity. The protein content, in general, increased up to 50mM NaCl concentration and reduced at 75mM level. Our studies in SDS –PAGE analysis suggests that some proteins (approximate 50, 48, 32 and 27 kDa) were found to be expressed due to salt stress, whereas a few proteins (~65kDa and ~40kDa) found suppressed due to high salt concentrations. Rhizobacterium strains BR2 and The present study suggest that the inoculation of Rhizobacterium could reduce the stress induced due to saline condition.

**KEYWORDS:** Cowpea, MDA, Proline, Rhizobacteria, Salt Stress