

ABSTRACT

The present study was conducted to assess whether exogenously applied AsA as a foliar spray could ameliorate the adverse effects of salt stress on rice plants. Rice cultivar IRRI-6 was grown under normal or saline conditions (4dSm^{-1} , 8dSm^{-1} , 12dSm^{-1} and 16dSm^{-1}). Seed germination and seedling growth was adversely affected with increase in salinity. Reduction in germination percentage, radical and plumule length, seedling fresh and dry weights were observed. There were twenty five treatments and six replicate pots per treatment and therefore, experiment included a total of 150 pots from which data were collected. Different levels of AsA (0, 100, 200, 300mg/L) were applied as a foliar spray three weeks before mid harvest. Salt stress reduced the growth of rice IRRI-6 and all growth parameters including; plant height, leaves number and chlorophyll concentration, shoot and root dry and fresh weights as well as yield and its components including; panicle number/plant, seed number/panicle, seed yield/plant were decreased with increasing salinity. On the other hand applied AsA increased growth and yield of rice plants. Application of 300mg/L of AsA caused an increase in biomass as root and shoots fresh and dry weights were increased with application of AsA particularly at 300mg/L, both under saline or non-saline conditions. Rate of Photosynthesis increased with foliar application of AsA both under control and saline conditions. Similarly, stomatal conductance was also improved due to exogenous application of AsA both in stress and nonstress conditions particularly at 200 or 300mg/L. In contrast, rate of transpiration remained unchanged due to foliar application of AsA in both stress and non stress conditions. Furthermore, increase in growth due to exogenously applied AsA may have been due to changes in photosynthesis. It could be concluded that applied AsA could counteract the harmful effect of salt soil stress on growth, yield and some physiological parameters of rice plant.

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