

ABSTRACT

The present study was aimed to determine the effects of seed priming with salicylic acid on growth, yield and nutritive value of Sorghum (*Sorghum bicolor* L.cv.SSG-77) subjected to salinity and its role in alleviating adverse effects of salt stress in Sorghum. The application of salicylic acid was done as priming agent. Two different concentrations of salicylic acid used for seed priming were 10^{-4} M and 10^{-2} M. sorghum seeds were soaked in the solutions of salicylic acid for 24 hours. The effect of salicylic acid was observed at five different concentrations of salinity (NaCl) i.e., control, 3 dSm⁻¹, 6 dSm⁻¹, 9 dSm⁻¹ and 12 dSm⁻¹. With increase in salinity level, germination of plants was delayed. It was observed that all the studied parameters were reduced by the negative effects of salinity. Parameters under observation were: plant height, number of leaves, number of senescent leaves, number of tillers, fresh and dry weight, chlorophyll contents and nutritive value. A notable reduction was also recorded in rate of photosynthesis and rate of transpiration. Priming seeds with salicylic acid was effective in amelioration of detrimental effects of salt stress on Sorghum. The improvement in the parameters of growth induced by seed priming with salicylic acid was better in plants under saline conditions as compared to the plants of non-saline conditions. Under salt stress, improvement increased with increase in salicylic acid concentration and 10^{-2} M of salicylic acid gave best results and proved to be most effective concentration in mitigating the harmful effects of salts on Sorghum. **Improvement in seed germination, height, number of leaves, root length, panicle length and total chlorophyll at 12 dSm⁻¹ was recorded as 30%, 17.91%, 21.81%, 32.96%, 6.11% and 33.33% respectively.** Hence it can be inferred that seed priming with 10^{-2} M of salicylic acid gave best results at all levels of salinity and considerably improved growth, yield and nutritive value of *Sorghum bicolor* L.cv.SSG-77 and salicylic acid can be implicated to alleviate adverse effects of salinity on Sorghum.