



## Physiological effects of NaCl on *Apocynum venetum* seedlings

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**Abstract:** The physiological effects of NaCl on the *Apocynum venetum* seedlings were investigated, including the chlorophyll a fluorescence, leaf potential and growth rate, etc. The findings indicated that along with hardness index increasing, the leaf sample's chlorophyll content assumed the fluctuation condition which dropped firstly elevated again; the leaf water potential maintained stable basically; the energy of light absorption, the assignment and the dissipation balanced at 10 g/L and the growth rate presented the maximum value 9.8 mm/d; Along with the stress extension, the greatest quantum yield Fv/Fm dropped, metallic ion's absorption increased. In the 21st day, non-photochemical quenching coefficient NPQ presented the maximum value, absorbed energy proportion parameter Y(II) dropped firstly restored again, 3 kind of energy absorptions, the assignment dissipation parameter proportion stabilized in 10 g/L at  $Y(II):Y(NO):Y(NPQ) = 65\%:20\%:15\%$ . The results suggested that in the *A. venetum* nursery process in the southern edge of Taklimakan Desert, phased tending should be adopted according to the seedling stage: 5-10 g/L salinity water should be used in irrigation in the seedling stage to maintain a more high leaf water potential which could prevent the decomposition of chlorophyll in which higher proportion of photochemical energy conversion could be stable using 10 g/L salt water irrigation to give *A. venetum* a full play of stronger salt adaptability to the southern margin of the Taklimakan Desert Oasis-Desert Ecotone in its restoration and construction.

**Key words:** saline water irrigation; leaf water potential; energy allocation strategies; growth rate