

# Effects of drought, salinity on the physiology of *Avicennia marina* under different non-structural carbohydrate levels

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Plants are exposed to combinations of stress factors imposed by climate change. Drought is the most important factor affecting plants. Drought often occurs along with stress factors such as salinity, high temperature, irradiance, low nutrient availability and the like. Despite a large number of studies examining the effects of such stress factors, the mechanistic explanations of drought induced tree mortality have been inconclusive and are continuously revised. Nonstructural carbohydrates (NSC) are thought to be the key determinants of how plants cope with stress, especially drought. Here, we aim to understand the role of NSC in coping with low soil water potential stress, caused by both drought and salinity. In order to shed light on this, we experimentally manipulated the NSC in seedlings of *Avicennia marina*. Then we subject them to conditions of imposed drought x salinity combinations. This allowed us to explore whether the imposed drought and salinity factors are additive in nature and also detect the presence of any interactions between these factors. Preliminary results suggest that for measured response variables like stem water potential and maximum hydraulic conductivity in the different treatment combinations, the presence of significant interaction effects can be detected. On the other hand, for variables like stomatal conductance and photosynthesis the effects are rather additive. These results will be related to the measured NSC concentrations to better understand the cause of seedling mortality under abiotic stresses.