

Physiological tolerance and sustainability of invasive plants over native plants under salt-stress-conditions followed by dilution of saline irrigation

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Plant invasion is a major factor of environmental changes, affected by other components involved in global change like biotic and abiotic stresses. Salt stress in abiotic stresses is the major component affecting the plants eco-physiology. Therefore, we analyzed the physiological characteristics of both invasive and native plants under mono and mixed planting in salt stressed environment followed by dilution of saline irrigation. As net photosynthetic rate (N_p), stomatal conductance (CS), transpiration (R_T) and leaf water potential (Ψ_{L_w}). The N_p for invasive plant is observed high from low to high stress of salts in both mono and mixed planting than native plant. During dilution of saline irrigation, the increments in N_p from low to high salt stress are noted more but for mono-native plant, increments in N_p are found less comparatively. N_p was not recovered well even after dilution of saline irrigation in case of mix-native plant and showed less recovery comparatively to mix-invasive plant. In addition, the reduction in photosynthetic activity in native plant under mixed planting during salt stress markedly affected the plant growth and biomass. After dilution of saline irrigation, the comparative increments in the plant height of native plant are noted as lower. Our results thus suggest the low competitive ability of native plant over invasive plant, did not cope well with high salt stressed conditions with no recovery after dilution of saline irrigation. Invasive plant maintains and recovered its physiological traits well that may contribute to its adaptability to stress and successful competitive dominance.