Effect on rice cultivar (*Oryza sativa cv.* IC459733, IC115617, Rashpanjor, SR26B, IC461253, Swarna, Gayatri, AC1764)

The net impact of individual and combined stress on plant growth

Crop: Rice (*Oryza sativa cv.* IC459733, IC115617, Rashpanjor, SR26B, IC461253, Swarna, Gayatri, AC1764)
Stress 1: Salinity (12 dSm–1)
Stress 2: Submergence (45 cm)
Stage of plant : 45 day old seedling

The table shows the effect of submergence and salt in combination on physiology of rice plants.

	Treatment	Plant response to stress** (reduction over control %) Type B parameters*
		Chlorophyll content
IC459733	Salinity (12 dSm–1) + Submergence (45 cm) (Simultaneous stress)	21.9↓
IC115617	Salinity (12 dSm–1) + Submergence (45 cm) (Simultaneous stress)	21.9↓
Rashpanjor	Salinity (12 dSm–1) + Submergence (45 cm) (Simultaneous stress)	16.1↓
SR26B	Salinity (12 dSm–1) + Submergence (45 cm) (Simultaneous stress)	16.1↓
IC461253	Salinity (12 dSm–1) + Submergence (45 cm) (Simultaneous stress)	55.6↓

Swarna	Salinity (12 dSm–1) + Submergence (45 cm) (Simultaneous stress)	61.8⬇
Gayatri	Salinity (12 dSm–1) + Submergence (45 cm) (Simultaneous stress)	51.7⬇
AC1764	Salinity (12 dSm–1) + Submergence (45 cm) (Simultaneous stress)	74.2⬇

Reference – Pradhan B, Chakraborty K, Prusty N, Deepa, Mukherjee AK, Chattopadhyay K, Sarkar RK (2019) Distinction and characterisation of rice genotypes tolerant to combined stresses of salinity and partial submergence, proved by a high-resolution chlorophyll fluorescence imaging system. Funct Plant Biol. 46(3):248-261.

Note: *Values presented in the table were calculated using the formula described below.*

$$\textit{Reduction over control (\%)} = \frac{(Value_{Control} - Value_{Stress})}{Value_{Control}} \; x100$$

'⬇'- indicates plant parameters affected by stress that lead to high susceptibility (higher the value more the damage).

'' - For more information on parameter classification, please refer to the 'methodology' tab.*

Inference from the study: Pradhan et.al. 2019, studied the interaction of submergence and salinity in eight rice cultivars. Plants were subjected to simultaneous salt and submergence stress treatment. Chlorophyll content was reduced under combined stress compared to control treatment in all the cultivars. This reduction was maximum in cultivar AC1764. **Thus, this stress combination is detrimental to the growth and physiology of rice cultivars.**