



Effect on wheat cultivars (*Triticum aestivum* cv. SARC-6, MH-97)

The net impact of individual and combined stress on plant growth

Crop: Wheat (*Triticum aestivum* cv. SARC-6)
 Stress 1: Salt (150mM NaCl)
 Stress 2: Waterlogging (21 days)
 Stage of plant: 2 leaf stage

The table shows the effect of waterlogging and salt alone and in combination on the growth and physiology of wheat cultivars.

	Treatment	Plant response to stress (reduction over control %)			
		Type A parameters*		Type B parameters*	
		Shoot fresh weight	Root fresh weight	Photosynthetic rate	Stomatal conductance
SARC-6	Salt (150mM NaCl)	55.0↓	56.3↓	32.9↓	51.0↓
	Waterlogging (21 days)	8.1↓	20.3↓	14.6↓	20.0↓
	Salt (150mM NaCl) + Waterlogging (Simultaneous stress)	67.1↓	65.6↓	47.5↓	66.2↓
MH-97	Salt (150mM NaCl)	72.6↓	72.1↓	59.2↓	63.6↓
	Waterlogging (21 days)	64.2↓	55.8↓	52.0↓	46.1↓
	Salt (150mM NaCl) + Waterlogging (Simultaneous stress)	89.5↓	79.1↓	74.3↓	81.4↓

Reference – Saqib M, Akhtar J, Qureshi RH (2005) Na⁺ exclusion and salt resistance of wheat (*Triticum aestivum*) in saline-waterlogged conditions are improved by the development of adventitious nodal roots and cortical root aerenchyma. *Plant Science* 169:125–130.

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

$$\text{Reduction over control (\%)} = \frac{(\text{Value Control} - \text{Value Stress})}{\text{Value Control}} \times 100$$

‘↓’- 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: Saqib et.al. 2005, studied the interaction of waterlogging and salinity in two wheat cultivars SARC-6 and MH-97. Plants were subjected to single and simultaneous salt and waterlogging stress treatment. Shoot fresh weight, root fresh weight, photosynthetic rate, and stomatal conductance were reduced synergistically under combined stress for both cultivars. **Thus, this stress combination is detrimental to the growth and physiology of wheat cultivars.**