



Effect on wheat cultivars (*Triticum aestivum* cv. Lyp-90, Sarc-1, Pato, Tchere, Pb-85, 7-Cerros)

The net impact of individual and combined stress on plant growth

Crop: Wheat (*Triticum aestivum* cv. Lyp-90, Sarc-1, Pato, Tchere, Pb-85, 7-Cerros)
 Stress 1: Salt (100mM)
 Stress 2 Hypoxia
 Stage of plant: 10 day old seedling

The table shows the effect of hypoxia and salt alone and in combination on lactate dehydrogenase and alcohol dehydrogenase levels of wheat plants.

	Treatment	Plant response to stress (reduction over control %)	
		Type C parameters*	
		Lactate dehydrogenase	Alcohol dehydrogenase
Lyp-90	Hypoxia	-180.0 ↑	-275.7 ↑
	Salt (100mM NaCl)	-74.3 ↑	-3.9 ↑
	Salt (100mM NaCl) + Hypoxia (2 days later) (Sequential stress)	-91.4 ↑	-619.4 ↑
Sarc-1	Hypoxia	-248.6 ↑	-553.0 ↑
	Salt (100mM NaCl)	-80.0 ↑	-28.8 ↑
	Salt (100mM NaCl) + Hypoxia (2 days later) (Sequential stress)	-260.0 ↑	-766.7 ↑
Pato	Hypoxia	-132.3 ↑	-962.8 ↑
	Salt (100mM NaCl)	-64.5 ↑	-204.7 ↑
	Salt (100mM NaCl) + Hypoxia (2 days later) (Sequential stress)	-258.1 ↑	-2418.6 ↑

Tchere	Hypoxia	-64.7↑	-945.7↑
	Salt (100mM NaCl)	-76.5↑	-185.7↑
	Salt (100mM NaCl) + Hypoxia (2 days later) (Sequential stress)	-238.2↑	-1882.9↑
Pb-85	Hypoxia	-93.5↑	-392.2↑
	Salt (100mM NaCl)	-63.0↑	-78.9↑
	Salt (100mM NaCl) + Hypoxia (2 days later) (Sequential stress)	-184.8↑	-1193.3↑
7-Cerros	Hypoxia	-54.5↑	-286.9↑
	Salt (100mM NaCl)	-65.9↑	-43.0↑
	Salt (100mM NaCl) + Hypoxia (2 days later) (Sequential stress)	-211.4↑	-1177.6↑

Reference - Akhtar J, Gorham J, Qureshi RH, Aslam M (1998) Does tolerance of wheat to salinity and hypoxia correlate with root dehydrogenase activities or aerenchyma formation? Plant and Soil 201: 275–284.

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 less/not affected by stress

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

Inference from the study: Akhtar et.al. 1998, studied the interaction of hypoxia and salinity in six wheat cultivars. Plants were subjected to single and sequential salt and hypoxia stress treatment. Lactate dehydrogenase and alcohol dehydrogenase were induced under stress in all wheat cultivars. **Thus, this stress combination alters the biochemical composition of wheat plants.**