Effect on barley genotypes (*Hordium vulgare L. ssp.spontaneum*) CM72, XZ5, XZ16

The net impact of individual and combined stress on plant growth

The table shows the effect of drought and salt stress alone and in combination on the yield of three Tibetan cultivated barley genotypes

Genotypes	Stress treatments	Plant response to stress (reduction over control %)						
		Type A parameters *				Type C parameters *		
		Spike length	Filled grains per spike	1000 grain weight	Grain yield per plant	Na+/K+ ratio **		
						Root	Leaf	Stem
CM72	Drought (4% soil moisture content)	38.77	53.68	28.93	63.46	0.59	1.14	0.77
	Salt (200mM NaCl)	8.58	11.53	12.75	28.85	0.69	2.67	1.97
	Salt + drought	22.64	36.82	35.34	49.04	1.74	2.31	3.76
XZ16	Drought (4% soil moisture content)	26.00	26.95	19.39	58.25	0.78	1.29	0.88
	Salt (200mM NaCl)	14.04	-5.22	10.67	14.95	0.79	1.98	2.33
	Salt + drought	27.73	19.98	28.99	48.97	1.45	1.71	2.83
XZ5	Drought (4% soil moisture content)	13.47	23.12	20.69	43.07	0.74	1.18	0.9
	Salt (200mM NaCl)	9.54	8.00	11.83	20.79	0.98	2.27	3.07
	Salt + drought	16.97	19.56	27.43	42.57	1.3	1.78	3.16

Control- CM72 (leaf Na+/K+ ratio- 1.12, root Na+/K+ ratio- 0.44, stem Na+/K+ ratio- 0.92); XZ16 (leaf Na+/K+ ratio- 1.5, root Na+/K+ ratio- 0.31, stem Na+/K+ ratio- 1.26); XZ5 (leaf Na+/K+ ratio- 1.9, root Na+/K+ ratio- 0.45, stem Na+/K+ ratio- 1.2)

For raw data – Click here (.xlsx file)

Reference- Ahmed IM, Cao F, Zhang M, Chen X, Zhang G, Wu F. (2013) Difference in yield and physiological features in response to drought and salinity combined stress during anthesis in Tibetan wild and cultivated barleys. *PLoS One*. 8(10):e77869.

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

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

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

'' - For more information on parameters classification, please refer to 'methodology' tab.*
****- '***Values are presented as it is from the source article without subjecting to the calculation'.*

The inference from the study: The present study by Ahmed *et al.*, 2013 conducted to assess the comparative effect of salt and drought stress alone and in combination on grain yield of two Tibetan cultivated barley genotype XZ5 (drought-tolerant), XZ16 (salt-tolerant) and cv. CM72 (salt-tolerant). Results indicate that drought alone caused higher reduction in grain yield in CM72 and XZ16 compared to XZ5 which is drought-tolerant genotype. Similar trend was also observed under combined stress for these genotypes. **Altogether study indicates the negative impact of combined salt and drought on barley genotype XZ16, XZ5 and cv. CM72.**