



Effect on bird's-foot trefoil cultivars (*Lotus corniculatus* cv. Diploid accession, San Gabriel)

The net impact of individual and combined stress on plant growth

Crop: Bird's-foot trefoil (*Lotus corniculatus* cv.
Diploid accession, San Gabriel)
Stress 1: Salt (150 mM NaCl)
Stress 2: Waterlogging (33 days)
Stage of plant: 5 leaf stage

The table shows the effect of waterlogging and salt alone and in combination on growth and physiology of bird's foot trefoil cultivars.

	Treatment	Plant response to stress (reduction over control %)			
		Type A parameters*			Type B parameters*
		Shoot Dry Mass (% of control)**	Root Dry Mass (% of control)**	Shoot:Root Ratio	Quantum yield of PSII
Diploid accession	Waterlogging (33 days)	129.00	82.80	-42.5 ↑	0.7 ↓
	Salt (150mM NaCl)	53.80	110.10	44.6 ↓	0.6 ↓
	Waterlogging (33 days) + Salt (150mM NaCl) (Simultaneous stress)	92.30	95.50	6.2 ↓	0.4 ↓
San Gabriel	Waterlogging (33 days)	79.60	59.50	-27.5 ↑	0.1 ↓
	Salt (150mM NaCl)	33.40	66.10	51.7 ↓	1.9 ↓
	Waterlogging (33 days) + Salt (150mM NaCl) (Simultaneous stress)	21.90	30.40	33.7 ↓	7.0 ↓

Reference – Antonelli CJ, Calzadilla PI, Campestre MP, Escaray FJ, Ruiz OA (2021), Contrasting response of two *Lotus corniculatus* L. accessions to combined waterlogging–saline stress. *Plant Biol J.* 23: 363-374.

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).
- 2) '↑' - indicates plant parameters less/not affected by stress leading to improved resistance (higher the value lesser 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.*

Inference from the study: Antonelli et.al. 2021 studied the interaction of waterlogging and salt in bird's foot trefoil cultivars San Gabriel and diploid accession. Plants were subjected to single and simultaneous salt and waterlogging stress treatments. Shoot dry mass, root dry mass, and quantum yield of photosystem II were reduced synergistically under combined stress treatment for cultivar San Gabriel only. Diploid accession was not affected negatively under combined stress. However, shoot: root ratio was not affected additively under combined stress treatment for cultivar San Gabriel. **Thus, this stress combination affects the growth and physiology of bird's foot trefoil cultivar San Gabriel.**