Effect on mungbean cultivars (*Vigna radiate* L. cv. Kawmay-1 and VC-2010)

The net impact of individual and combined stress on plant growth

Crop: Mungbean (*Vigna radiate L.* cv. Kawmay-1 and VC-2010)
Stress 1: Drought (80%, 40%, 20% water of Field capacity)
Stress 2: *Meloidogyne javanica* (15000 J2 per/pot)
Stage of plant: 3 weeks after sowing

The table shows the effect of drought and nematode alone and in combination on the growth, physiology and enzyme activity of mungbean cultivars.

	Treatment	Plant response to stress**			
		Type A parameters*	Type B parameters*		
		Shoot water contents (g)	Stomatal conductance (µmol/m2/sec)	Chlorophyll a (µg/g)	Chlorophyll b (µg/g)
Kawmay-1	Drought (80% of Field capacity)	0.69	82.4	2500.00	550.3
	Drought (40% of Field capacity)	0.52	77.1	1750.00	395.6
	Drought (20% of Field capacity)	0.31	52.6	886.30	246.1
	Drought (80% of Field capacity) + *Meloidogyne javanica* (15000 J2) 1 week later (Sequential stress)	0.45	72.8	1477.20	410.0
	Drought (40% of Field capacity) + *Meloidogyne javanica* (15000 J2) 1 week later (Sequential stress)	0.34	59.6	1340.90	291.3
	Drought (20% of Field capacity) + *Meloidogyne javanica* (15000 J2) 1 week later (Sequential stress)	0.21	44.7	681.80	162.4
VC2010	Drought (80% of Field capacity)	0.86	88.5	2454.55	573.5

	Drought (40% of Field capacity)	0.57	82.4	1863.60	413.6
	Drought (20% of Field capacity)	0.40	67.5	840.90	217.8
	Drought (80% of Field capacity) + *Meloidogyne javanica* (15000 J2) 1 week later (Sequential stress)	0.66	75.4	1409.00	443.5
	Drought (40% of Field capacity) + *Meloidogyne javanica* (15000 J2) 1 week later (Sequential stress)	0.43	72.8	1136.30	340.3
	Drought (20% of Field capacity) + *Meloidogyne javanica* (15000 J2) 1 week later (Sequential stress)	0.30	61.4	568.18	113.5

	Treatment	**Plant response to stress**** **Type C parameters***	
		Catalase activity (µmol mg min-1)	**Superoxide dismutase activity (µmol mg min-1)**
Kawmay-1	Drought (80% of Field capacity)	26.40	125.00
	Drought (40% of Field capacity)	58.60	270.00
	Drought (20% of Field capacity)	37.50	234.00
	Drought (80% of Field capacity) + *Meloidogyne javanica* (15000 J2) 1 week later (Sequential stress)	18.40	119.30
	Drought (40% of Field capacity) + *Meloidogyne javanica* (15000 J2) 1 week later (Sequential stress)	42.80	226.00
	Drought (20% of Field capacity) + *Meloidogyne javanica* (15000 J2) 1 week later (Sequential stress)	29.20	200.00
VC2010	Drought (80% of Field capacity)	31.50	138.30
	Drought (40% of Field capacity)	70.90	300.00

	Drought (20% of Field capacity)	56.40	261.30
	Drought (80% of Field capacity) + *Meloidogyne javanica* (15000 J2) 1 week later (Sequential stress)	29.00	122.00
	Drought (40% of Field capacity) + *Meloidogyne javanica* (15000 J2) 1 week later (Sequential stress)	60.20	238.00
	Drought (20% of Field capacity) + *Meloidogyne javanica* (15000 J2) 1 week later (Sequential stress)	39.10	204.00

Reference - Alderfasi AA, Alzarqaa AA, AL-Yahya FA, Roushdy SS, Dawabah AA, Alhammad BA (2017) Effect of combined biotic and abiotic stress on some physiological aspects and antioxidant enzymatic activity in mungbean (*Vigna radiate* L.). African Journal of Agricultural Research 12(9):700-705.

Note:

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

'**' - *Values are presented as it is from the source article without subjecting to the calculation.*

Inference from the study: Alderfasi et.al. 2015 studied the interaction of nematode and drought in two mungbean cultivars. Plants were subjected to single and sequential drought and nematode stress treatment. Three drought levels were tested along with *Meloidogyne javanica*. Shoot water contents, stomatal conductance and chlorophyll a and b levels were reduced more under sequential stress treatment. This reduction was more under low field capacity drought. Catalase and superoxide dismutase activity were more under low field capacity stress. Both cultivars showed similar response pattern under stress conditions. **Thus, this stress combination is detrimental to mungbean cultivars.**