



## Effect on Pigeon pea cultivars (*Cajanus cajan* L. millsp. cv. ICPH 2431, UPAS 120, HO9 33, PARAS)

### The net impact of individual and combined stress on plant growth

Crop: Pigeon pea (*Cajanus cajan* L. millsp. cv. ICPH 2431, UPAS 120, HO9 33, PARAS)  
 Stress 1: Salt (30 mM NaCl)  
 Stress 2: Waterlogging (8 days)  
 Stage of plant : 20 days after sowing

The table shows the effect of waterlogging and salt alone and in combination on growth and yield of pigeon pea cultivars.

	Treatment	Plant response to stress (reduction over control %)			
		Type A parameters*			
		Survival (%)**	Biomass	Seed test weight	Yield
ICPH2431	Waterlogging (8 days)	58	22.3↓	11.0↓	27.8↓
	Salt (30 mM NaCl)	100	1.7↓	6.1↓	18.7↓
	Waterlogging (8 days) + Salt (30 mM NaCl) (Simultaneous stress)	35	5.0↓	8.5↓	23.9↓
UPAS120	Waterlogging (8 days)	46	28.1↓	22.7↓	62.4↓
	Salt (60 mM NaCl)	100	8.3↓	12.0↓	33.5↓
	Waterlogging (8 days) + Salt (30 mM NaCl) (Simultaneous stress)	19	15.6↓	33.3↓	53.4↓
HO9 33	Waterlogging (8 days)	47	25.5↓	20.5↓	59.5↓

	Salt (60 mM NaCl)	100	5.9↓	10.3↓	30.4↓
	Waterlogging (8 days) + Salt (30 mM NaCl) (Simultaneous stress)	26	10.8↓	16.7↓	52.9↓
PARAS	Waterlogging (8 days)	47	25.5↓	22.2↓	38.1↓
	Salt (60 mM NaCl)	100	3.6↓	8.6↓	14.4↓
	Waterlogging (8 days) + Salt (30 mM NaCl) (Simultaneous stress)	33	9.1↓	13.6↓	26.9↓

**Reference** – Duhan S, Sheokand S, Kumari A, Sumanbala, Sharma N, Kumari P (2017) Influence of waterlogging, salinity and their interaction on biomass and yield and its attributes of pigeon pea (*Cajanus cajan* L. Millsp.) genotypes. *Journal of Plant Development Sciences* 9(2):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.

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

**Inference from the study:** Duhan et.al. 2017, studied the interaction of waterlogging and salinity in four pigeon pea cultivars, ICPH2431, UPAS120, HO933, PARAS. Plants were subjected to single and simultaneous salt and waterlogging stress treatments. Biomass, seed test weight, and yield were not reduced synergistically under combined stress conditions. However, the survival percentage was least under combined stress for all four cultivars. **Thus, this stress combination is detrimental to the survival of pigeon pea cultivars and does not affect yield synergistically.**