

Supplementary material

Table S1. Four Agriventis mungbean genotypes were selected for the screening of waterlogging tolerance at the pod filling stage with their line ID, progeny details and country of origin.

No	Line ID	Progeny detail	Properties of parental line	Year of selection/Country of origin
1	AVTMB#1	Cross between GMB VI × PHS1009	High yielding and stress-tolerant	2011/ Australia
2	AVTMB#2	Cross between Unknown × PHS1007	High yielding and stress-tolerant	2012/Australia
3	AVTMB#3	Cross between Green Lantern × PHS1019	High yielding and stress-tolerant	2013/Australia
4	AVTMB#4	Cross between Green Lantern × unknown	High yielding and stress-tolerant	2014/ Australia

Table S2. Gas exchange (A_{sat} , g_s , C_i , $iWUE$), chlorophyll fluorescence (Φ_{PSII} , F_v/F_m , excitation pressure ($1-qP$)) and leaf chlorophyll contents (SPAD units) for five mungbean genotypes. These parameters were assessed at each measurement day in two-way analysis of variance ($p < 0.05$). The p-values are represented along with the least significant difference (LSD) values in parenthesis. The significant effects were represented as bold.

Gas exchange and chlorophyll fluorescence	Days after waterlogging stress	Genotypes (G) p-value (LSD)	Treatment (T) p-value (LSD)	G × T p-value (LSD)
A_{sat} ($\mu\text{mol m}^{-2} \text{s}^{-1}$)	1	0.018 (3.11)	<0.001 (1.96)	0.007 (4.40)
	9	0.016 (1.32)	<0.001 (0.83)	<0.001 (1.87)
	23	0.005 (1.73)	<0.001 (1.09)	0.012 (2.45)
	30	<0.001 (1.67)	<0.001 (1.05)	<0.001 (2.36)

gs (mol m ⁻² s ⁻¹)	1	<0.001 (0.04)	<0.001 (0.02)	0.620 (0.06)
	9	0.158 (0.03)	<0.001 (0.02)	<0.001 (0.05)
	23	<0.001 (0.03)	<0.001 (0.02)	<0.001 (0.04)
	30	<0.001 (0.02)	<0.001 (0.01)	0.013 (0.02)
iWUE (μmol mol ⁻¹)	1	0.276 (7.61)	0.214 (4.81)	0.078 (10.76)
	9	0.017 (10.45)	0.730 (6.61)	0.003 (14.77)
	23	<0.001 (5.31)	0.120 (3.35)	0.036 (7.51)
	30	<0.001 (7.34)	0.341 (4.64)	0.001 (10.38)
ΦPSII	1	<0.001 (0.01)	<0.001 (0.01)	0.065 (0.02)
	9	1.999 (0.02)	0.020 (0.01)	0.081 (0.03)
	23	0.302 (0.03)	0.052 (0.02)	0.652 (0.04)
	30	0.003 (0.01)	<0.001 (0.01)	<0.001 (0.02)
Fv/Fm	1	0.023 (0.008)	0.026 (0.005)	0.013 (0.01)
	9	0.282 (0.01)	0.15 (0.01)	0.996 (0.02)
	23	0.159 (0.01)	<0.001 (0.01)	0.141 (0.02)
	30	0.112 (0.03)	<0.001 (0.02)	0.414 (0.04)

1-qP	1	<0.001 (0.02)	<0.001 (0.014)	<0.001 (0.03)
	9	0.343 (0.03)	<0.001 (0.02)	<0.001 (0.05)
	23	0.251 (0.05)	0.017 (0.03)	0.854 (0.07)
	30	0.059 (0.04)	0.011 (0.02)	<0.001 (0.06)
Leaf chlorophyll contents (SPAD unit)	1	0.028 (1.29)	<0.001 (0.82)	0.001 (1.83)
	9	0.108 (1.26)	<0.001 (0.802)	0.272 (1.79)
	23	0.314 (1.16)	0.013 (0.734)	0.300 (1.64)
	30	0.050 (1.07)	<0.001 (0.68)	0.023 (1.52)
	1	0.018 (3.11)	<0.001 (1.96)	0.007 (4.40)
	9	0.016 (1.32)	<0.001 (0.83)	<0.001 (1.87)