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Seed size and seedling ontogenetic stage as modulators of damage tolerance after simulated herbivory in a woody exotic species

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Supplementary Materials

APPENDIX 1

Table 1. Mean values of log-transformed height ± SE of *G. triacanthos* seedlings for significant factors (a, b) and interactions (c,d). A posteriori test (LSD Fisher) for each significant factor and interaction is indicated with letters (means with the same letter are not significantly different at P ≤ 0.05).

a. Damage

Control	2.15±0.02 a
Herbivory	1.80±0.02 b

b. Seed size

Small	1.91±0.02 b
Medium	2.00±0.02 a
Large	2.02±0.03 a

c. Damage * Ontogenetic stage

Control I	2.11±0.03 b
Control II	2.20±0.03 a
Herbivory I	1.82±0.03 c
Herbivory II	1.77±0.03 c

d. Seed size * Ontogenetic stage

Small I	1.86±0.03 b
Small II	1.97±0.04 a
Medium I	1.98±0.03 a
Medium II	2.01±0.03 a
Large I	2.06±0.04 a
Large II	1.98±0.04 a

Table 2. Means values of log-transformed total biomass ± SE of *G. triacanthos* seedlings for significant factors (a, b, c) and interactions (d). A posteriori test (LSD Fisher) for each significant factor and interaction is indicated with letters (means with the same letter are not significantly different at P ≤ 0.05).

a. Damage

Control	-0.83±0.05 a
Herbivory	-1.30±0.02 b

b. Ontogenetic stage

Stage I	-1.11±0.03 b
Stage II	-1.02±0.03 a

c. Seed size

Small	-1.20±0.04 c
Medium	-1.04±0.03 b
Large	-0.96±0.04 a

d. Seed size * Ontogenetic stage

Small I	-1.29±0.05 d
Small II	-1.11±0.07 b c
Medium I	-1.11±0.04 c
Medium II	-0.98±0.05 a b
Large I	-0.94±0.04 a
Large II	-0.97±0.05 a b

Table 3. Means values of log-transformed aerial biomass ± SE of *G. triacanthos* seedlings for significant factors (a, b) and interactions (c). A posteriori test (LSD Fisher) for each significant factor and interaction is indicated with letters (means with the same letter are not significantly different at P ≤ 0.05).

a. Damage

Control	-0.96±0.04 a
Herbivory	-1.59±0.02 b

b. Seed size

Small	-1.42±0.04 b
Medium	-1.24±0.03 a
Large	-1.17±0.04 a

c. Damage * Ontogenetic stage

Control I	-1.07±0.06 b
Control II	-0.85±0.07 a
Herbivory I	-1.58±0.03 c
Herbivory II	-1.60±0.03 c

Table 4. Means values of log-transformed root biomass ± SE of *G. triacanthos* seedlings for significant factors (a, b, c). A posteriori test (LSD Fisher) for each significant factor is indicated with letters (means with the same letter are not significantly different at P ≤ 0.05).

a. Damage

Control	-1.43±0.06 a
Herbivory	-1.63±0.03 b

b. Ontogenetic stage

Stage I	-1.63±0.04 b
Stage II	-1.43±0.04 a

c. Seed size

Small	-1.69±0.05 c
Medium	-1.53±0.04 b
Large	-1.36±0.04 a

Table 5. Means values of number of leaves ± SE of *G. triacanthos* seedlings for significant factors (a) and interactions (b). A posteriori test (LSD Fisher) for each significant factor and interaction is indicated with letters (means with the same letter are not significant different at P ≤ 0.05).

a. Damage

Control	6.94±0.32 a
Herbivory	3.60±0.23 b

b. Damage * Ontogenetic stage

Control I	6.33±0.40 b
Control II	7.60±0.50 a
Herbivory I	3.90±0.32 c
Herbivory II	3.33±0.33 c

APPENDIX 2

Table 1. **Model coefficients and standard errors for the effects of damage (control and damage), seed size (large, medium and small), ontogenetic stage (stages I and II) and their interactions on different growth variables of *G. triacanthos* seedlings.**

a. Log_{10}- Height

	Estimator	S.E
(Intercept)	2.2	0.04
Damage	-0.29	0.04
Stage II	-0.01	0.06
Medium	-0.08	0.04
Small	-0.20	0.05
Damage* Stage II	-0.13	0.05
Stage II* Medium	0.10	0.07
Stage II* Small	0.19	0.07

b. Log_{10}-Total Biomass

	Estimator	S.E
(Intercept)	-0.71	0.06
Damage	-0.46	0.05
Stage II	-0.04	0.06
Medium	-0.17	0.05
Small	-0.35	0.06
Stage II* Medium	0.17	0.08
Stage II* Small	0.21	0.1

c. Log_{10}-Aerial biomass

	Estimator	S.E
(Intercept)	-0.96	0.06
Damage	-0.51	0.06
Stage II	0.21	0.09
Medium	-0.07	0.04
Small	-0.25	0.05
Damage* Stage II	-0.23	0.09

d. Log_{10}-Root biomass

	Estimator	S.E
(Intercept)	-1.36	0.07
Damage	-0.20	0.06
Stage II	0.19	0.05
Medium	-0.17	0.05
Small	-0.33	0.06

e. Number of leaves

	Estimator	S.E
(Intercept)	1.85	0.06
Damage	-0.49	0.10
Stage II	0.18	0.09
Damage* Stage II	-0.34	0.16

APPENDIX 3

Table 1. **Statistics (F values) obtained in GLM for the effects of seed size, ontogeny and their interaction on the percentage of compensation of growth variables in *G. triacanthos* seedlings.**

Significance is indicated with: *** $P \leq 0.0001$; ** $P \leq 0.001$; *$P \leq 0.05$.

Growth variables	Seed size (F)	Ontogeny (F)	S x O (F)
Degrees of freedom	2	1	2
Height (mm)	1.98	22.38***	7.46*
Total biomass (g)	7.21*	15.73**	19.94***
Root biomass (g)	5.69*	0.0012	18.18***
Aerial biomass (g)	6.21*	31.88***	15.81***
Leaves number (ln)	0.44	12.5**	7.91**

Table 2. Means values of compensation percentages* ± SE on seedlings of *G. triacanthos* from different seed sizes and clipped at different ontogenetic stage.

A posteriori test (LSD Fisher) for the interaction of seed size and ontogeny is indicated with letters (means with the same letter are not significantly different ($P \leq 0.05$)).

Growth variables	Small seeds		Medium seeds		Large seeds	
	Stage I	Stage II	Stage I	Stage II	Stage I	Stage II
Height	46.76±18.44 b	34.03±3.63 b	45.18±12.59 b	44.01±10.28 b	64.70±12.69 a	33.09±15.14 b
Total biomass	23.86±7.32 b c	18.99± 8.31 c	24.11±7.8 b c	30.59±10.51 b	47.10±14.08 a	18.16± 5.92 c
Root biomass	31.44±13.44 c	37.90±21.04 c	34.57±14.69 c	57.59±24.70 b	74.57±24.53 a	29.61±11.14 c
Aerial biomass	20.30±9.14 b	11.73±3.58 c	20.15±6.71 b	19.24±5.48 b	36.39±11.41 a	12.55±3.91 c
Leaves number	41.67±28.87 b	35.72±13.88 b	44.33±31.05 b	43.42±17.97 b	71.15±24.07 a	18.33±17.37 c

**The percentage of compensation was calculated for each pair of control and clipped seedlings within each treatment as: % of Compensation= (Response variable in seedling subjected to herbivory x 100) / Response variable in control group).*