

Table S1. Comprehensive dataset of the results obtained from *Medicago truncatula* seeds subjected to hydropriming, quercetin-priming or rutin-priming followed by accelerated aging. UP, unprimed control conditions; HP, hydropriming; QP, quercetin-priming; RP, rutin-priming; UA, unaged control conditions; AA, artificial aging. ROS, reactive oxygen species as assessed by DCF-DA assay. Antiox., antioxidant potential as assessed by DPPH assay. Phenol., content in total phenolic compounds as assessed by Folin-Ciocalteu assay. SSA, specific antioxidant activity. TTC, seed viability percentage as assessed by TTC assay. G, germinability. PV, peak value. T₅₀, time required to reach 50% of final germination. MGT, mean germination time. Norm., percentage of normal seedlings. Aber., percentage of aberrant seedlings. NG, percentage of non-germinant seeds. Data are expressed as mean \pm standard error of the mean. Means without a common letter are significantly (p -value < 0.05) different as analyzed by two-way ANOVA and Duncan test.

Variable (unit)	UP		HP		QP		RP		p-value		
	UA	AA	UA	AA	UA	AA	UA	AA	Prim.	Aging	Inter.
ROS (RFU)	4.88 \pm 0.107 bc	7.42 \pm 1.72 ab	8.87 \pm 1.1 a	4.76 \pm 0.737 bcd	3.95 \pm 1.24 cd	1.84 \pm 0.514 de	3.23 \pm 0.917 ce	0.946 \pm 0.154 e	<0.001	0.036	0.011
Antiox. (μ g AAE mg ⁻¹ FW)	1.72 \pm 0.0294 a	1.12 \pm 0.0574 d	1.22 \pm 0.0258 c	0.274 \pm 0.0154 f	1.58 \pm 0.0307 b	0.467 \pm 0.0173 e	1.54 \pm 0.0337 b	0.457 \pm 0.0155 e	<0.001	<0.001	<0.001
Phenol. (μ g GAE mg ⁻¹ FW)	2.2 \pm 0.153 a	1.42 \pm 0.0522 cd	1.67 \pm 0.0761 bc	1.19 \pm 0.145 de	1.82 \pm 0.069 b	1.05 \pm 0.0412 e	1.97 \pm 0.136 ab	1.13 \pm 0.0749 de	0.002	<0.001	0.316
SSA (μ g AAE μ g GAE ⁻¹)	0.795 \pm 0.0537 ab	0.79 \pm 0.0208 ab	0.737 \pm 0.0352 b	0.246 \pm 0.0365 d	0.874 \pm 0.0273 a	0.448 \pm 0.022 c	0.796 \pm 0.0455 ab	0.412 \pm 0.0329 c	<0.001	<0.001	<0.001
TTC (%)	74 \pm 5.1 a	46 \pm 6.78 bc	78 \pm 3.74 a	40 \pm 4.47 c	78 \pm 4.9 a	56 \pm 5.1 b	82 \pm 3.74 a	42 \pm 4.9 bc	0.386	<0.001	0.237
G (%)	92 \pm 1.22 a	52 \pm 4.36 bc	92 \pm 8 a	30 \pm 3.16 d	95 \pm 2.24 a	54 \pm 4.85 b	96 \pm 1.87 a	40 \pm 5.24 cd	0.024	<0.001	0.039
T ₅₀ (h)	19 \pm 0.338 c	44.8 \pm 2.71 b	14.7 \pm 0.901 d	60.9 \pm 0.933 a	12.9 \pm 0.25 d	41.7 \pm 1.11 b	12.8 \pm 0.212 d	43.5 \pm 2.41 b	<0.001	<0.001	<0.001
MGT (h)	18.4 \pm 0.219 c	45.1 \pm 2.8 b	18 \pm 1.22 c	60.6 \pm 0.967 a	14.6 \pm 0.495 c	42.3 \pm 1.07 b	15.4 \pm 0.785 c	44.2 \pm 2.25 b	<0.001	<0.001	<0.001
PV (N/h)	0.902 \pm 0.0159 bc	0.168 \pm 0.0221 d	0.834 \pm 0.0678 c	0.0813 \pm 0.00729 d	1.03 \pm 0.0691 a	0.182 \pm 0.0152 d	0.991 \pm 0.0572 ab	0.137 \pm 0.0182 d	0.009	<0.001	0.347
Norm. (%)	86 \pm 2.45 a	37 \pm 4.36 b	79 \pm 5.1 a	0 \pm 0 d	87 \pm 2.55 a	22 \pm 5.15 c	83 \pm 5.15 a	19 \pm 1.87 c	<0.001	<0.001	0.005
Aber. (%)	7 \pm 2.55 c	15 \pm 5.24 bc	15 \pm 2.24 bc	30 \pm 3.16 a	8 \pm 1.22 c	32 \pm 4.06 a	13 \pm 5.39 bc	22 \pm 3.39 ab	0.023	<0.001	0.132
N.G. (%)	7 \pm 1.22 d	52 \pm 4.36 bc	6 \pm 6 d	70 \pm 3.16 a	5 \pm 2.24 d	46 \pm 4.85 c	4 \pm 1.87 d	59 \pm 4.3 ab	0.021	<0.001	0.023