

Supplementary Materials: Sexual Dimorphism in the Response of *Mercurialis annua* to Stress

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Table S1. GST activity in female and male *M. annua* leaves under salinity.

Specific Activity ($\mu\text{mol Product mg}\cdot\text{protein}^{-1}\cdot\text{sec}^{-1}$)		
	Control	Salinity
Female	4.12 ^a \pm 0.40	0.80 ^c \pm 0.23
Male	0.83 ^b \pm 0.11	1.14 ^c \pm 0.13

GST activity using fluorodifen as substrate. Plants at 'early senescence stage' were grown in medium containing 150 mM NaCl, for 48 h. Values are Ave \pm SD, $n = 3$. Different superscript letters in a row indicate significant difference at $p < 0.05$.

Table S2. Analysis of variance of metabolites concentration in female and male leaf and root of *M. annua* under salinity.

Interaction	Notes	Grouping order	P	DF	
RC*RS			0.27	114	
LC*LS			0.85	114	
LC*RC	Male and Female	All metabolites	0.00	114	
LC*RS			0.00	114	
LS*RC			0.02	114	
LS*RS			0.06	114	
M*F			Male and Female,	0.97	230
L*R			Salinity and Control	0.00	230
ML*FL			0.85	114	
ML*FR	Salinity and control		0.00	114	
MR*FL			0.02	114	
MR*FR			0.46	114	
AA F* AA M				0.6	44
CF * CM	Root and Leaf, Salinity and Control		0.4	14	
TCA F* TCA M			0.75	70	
SM F*SM M			0.04	22	
AA RC*AA RS			0.75	22	
C RC*C RS		Groups of metabolites	0.47	6	
TCA RC*TCA RS			0.87	34	
S RC*S RS	Male and Female		0.8	12	
AA LC*AA LS			0.9	22	
C LC*C LS			0.5	6	
TCA LC*TCA LS			0.37	34	
S LC*S LS			0.8	12	

Statistical analyses of metabolites concentrations were determined by ¹H NMR (see Figure S5). Plant organs of 'young stage' plants of *M. annua* grown for 4 days under 100 mM NaCl, were analyzed. Analysis of variance was done on all metabolites and groups of metabolites as detailed in the notes column. Abbreviations: RC—Root Control, RS—Root salinity, LC—Leaf Control, LS—Leaf salinity, M—Male, F—Female, L—Leaf, R—Root, ML—Male Leaf, FL—Female Leaf, FR—Female Root, MR—Male Root, AA F—Amino Acids in Female, AA M—Amino acids in Male, CF—Carbohydrates in Female, CM—Carbohydrates in Male, TCA F—TCA metabolites in Female, TCA M—TCA cycle metabolites in Male, SM F—Secondary Metabolites in Female, SM M—Secondary Metabolites in Male,

AA RC—Amino Acids in Root Control, AA RS—Amino Acids in Root salinity, C RC—Carbohydrates in Root Control, C RS—Carbohydrates in Root salinity, TCA RC—TCA metabolites in Root Control, TCA RS—TCA metabolites in Root salinity, S RC—Secondary Metabolites in Root Control, S RS—Secondary Metabolites in Root salinity, AA LC—Amino Acids in Leaf Control, AA LS—Amino Acids in Leaf salinity, C LC—Carbohydrates in Leaf Control, C LS—Carbohydrates in Leaf salinity, TCA LC—TCA Metabolites in Leaf Control, TCA LS—TCA Metabolites in Leaf salinity, S LC—Secondary Metabolites in Leaf Control, S LS—Secondary Metabolites in Leaf salinity, DF = degree of freedom.

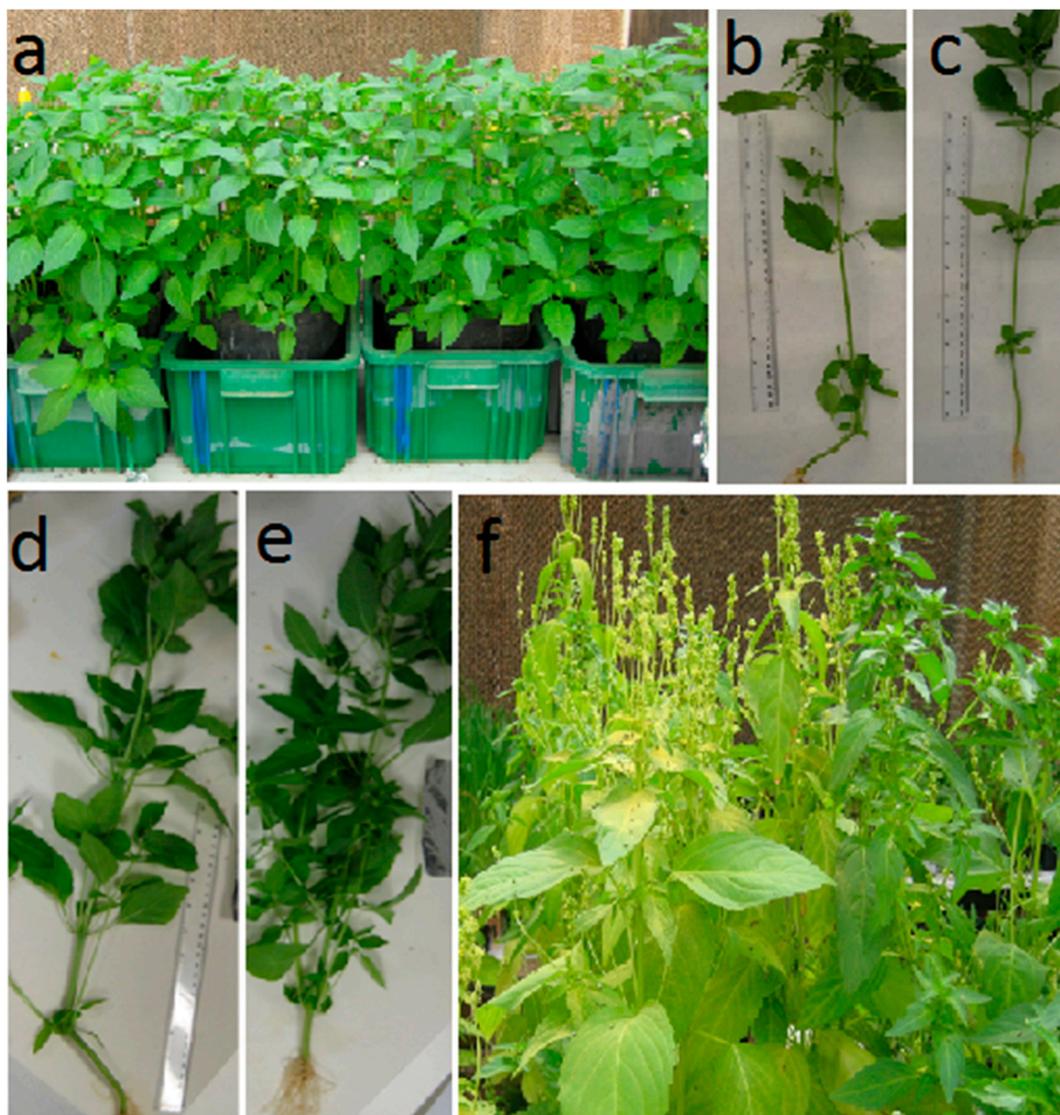


Figure S1. Developmental stages of *M. annua* (a): ‘young’ plants at day 55; (b) and (c): ‘early Maturity stage’ male and female, respectively at day 70; (d) and (e): ‘mature stage’ female and male, respectively, at day 84; (f): ‘early senescence stage’ day 98 males (on left) and females (on right). Note that female plants were greener and male plants were covered by yellow pollen grains.

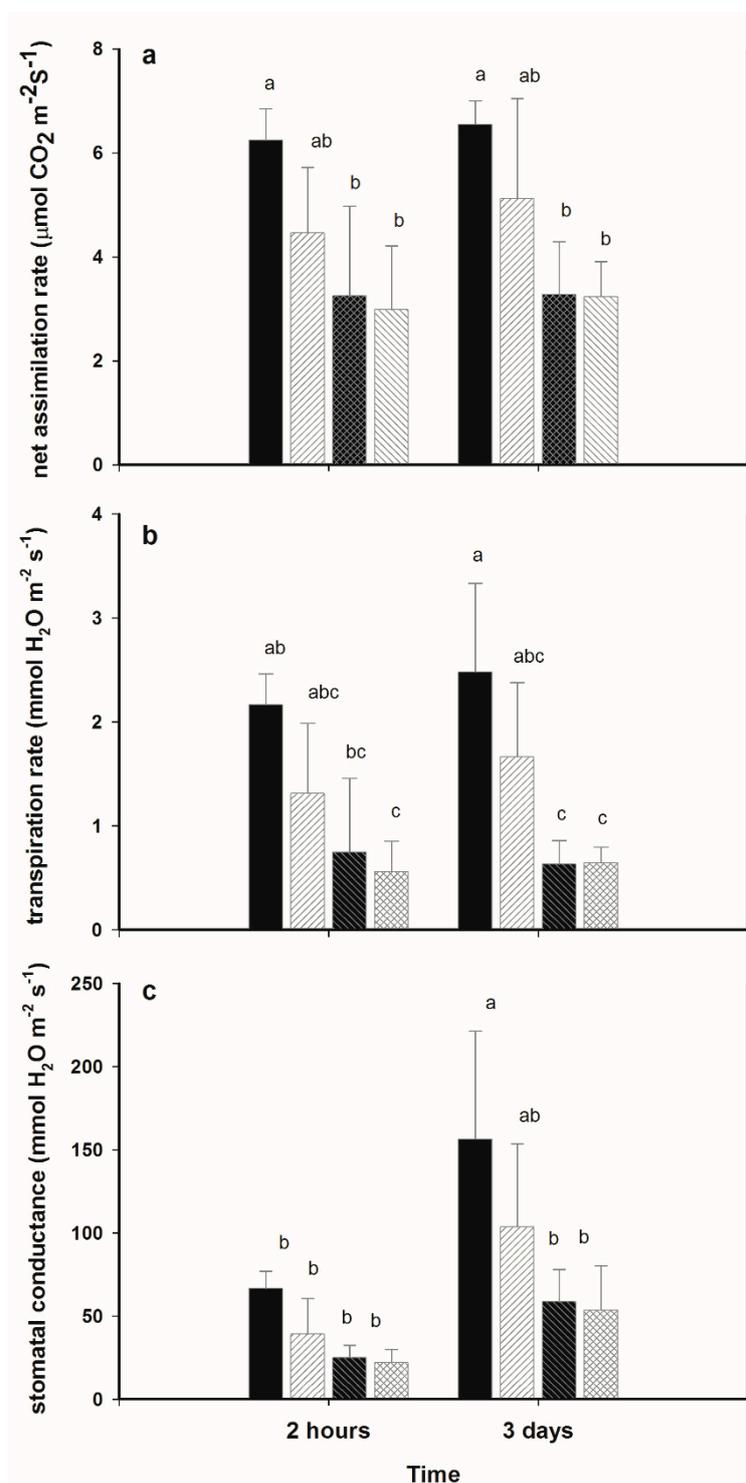


Figure S2. Short term effect of salinity on physiological parameters. (a) Net CO₂ assimilation rate; (b) Transpiration rate; (c) Stomatal conductance. Fifty six days old plants grown in soil without salt (control) were transferred to the salinity treatment (NaCl, 100 mM) and the gas exchange measurements were conducted after 2 h and 3 days. ■— female control; ▨— male control; ▩— female salinity; ▧— male salinity.

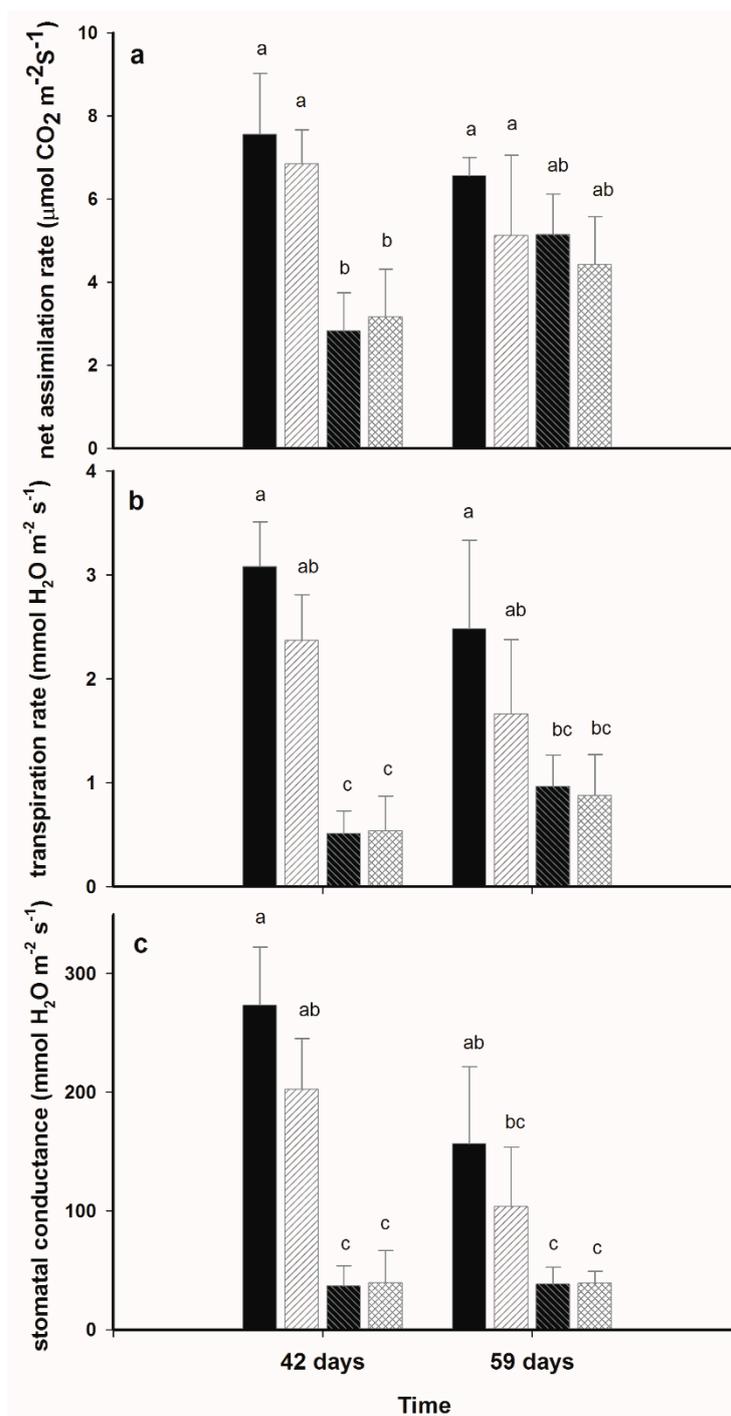


Figure S3. Long term effect of salinity on physiological parameters. (a) Net CO₂ assimilation rate; (b) Transpiration rate; (c) Stomatal conductance. Plants were grown under salinity (NaCl, 100 mM) from one week after germination until the gas exchange measurements were conducted at days 42 and 59 after sowing. ■—female control; ▨—male control; ▩—female salinity; ▩—male salinity.

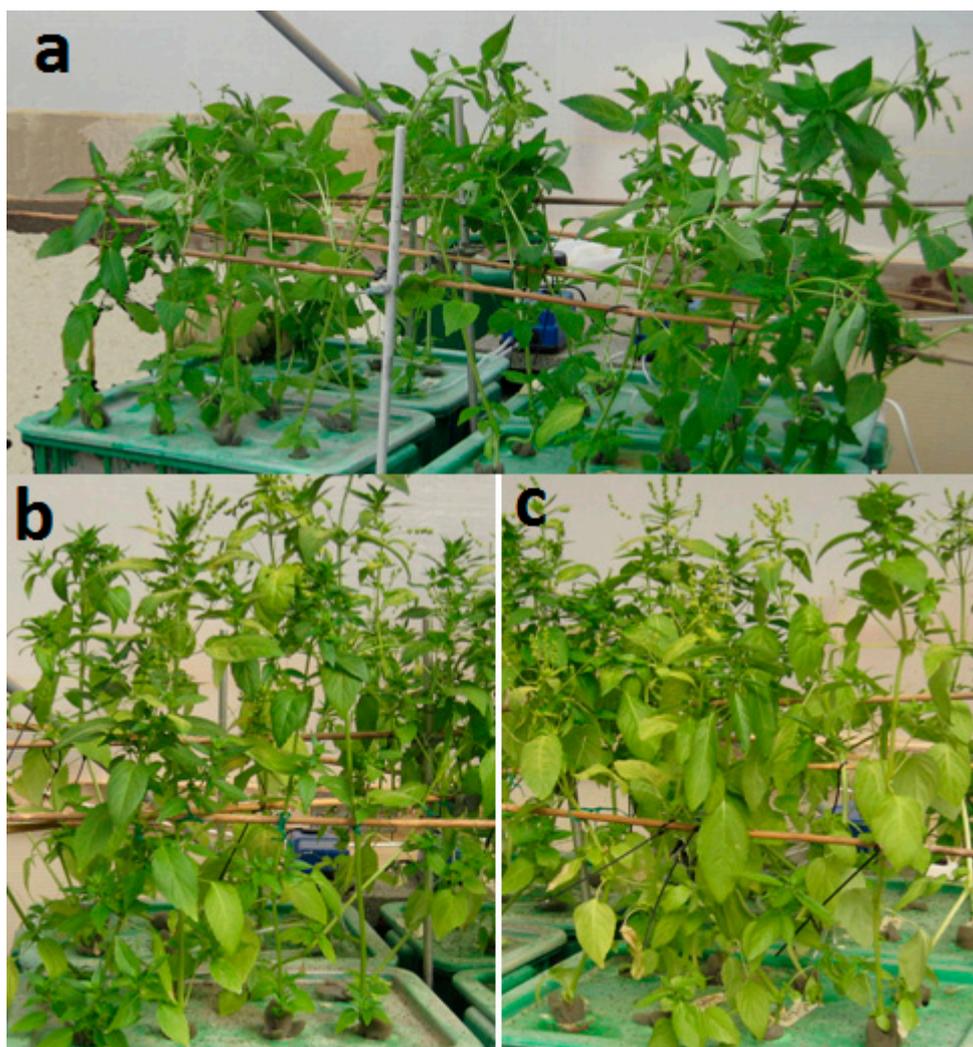


Figure S4. 'Mature stage' *M. annua* plants under salinity treatment. (a): At the beginning of the experiment; (b) and (c): Control and NaCl (100 mM) treated plants for 11 days, respectively.

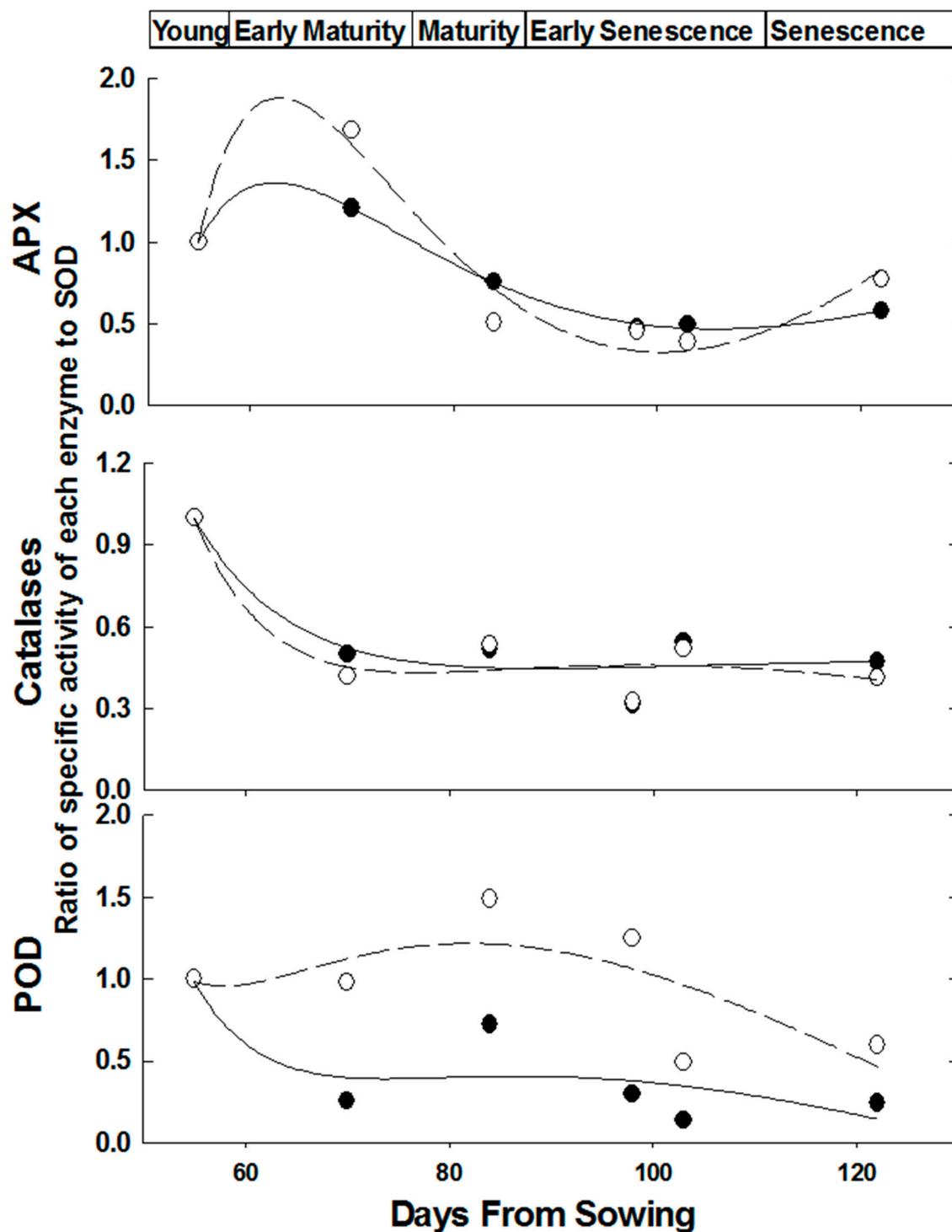
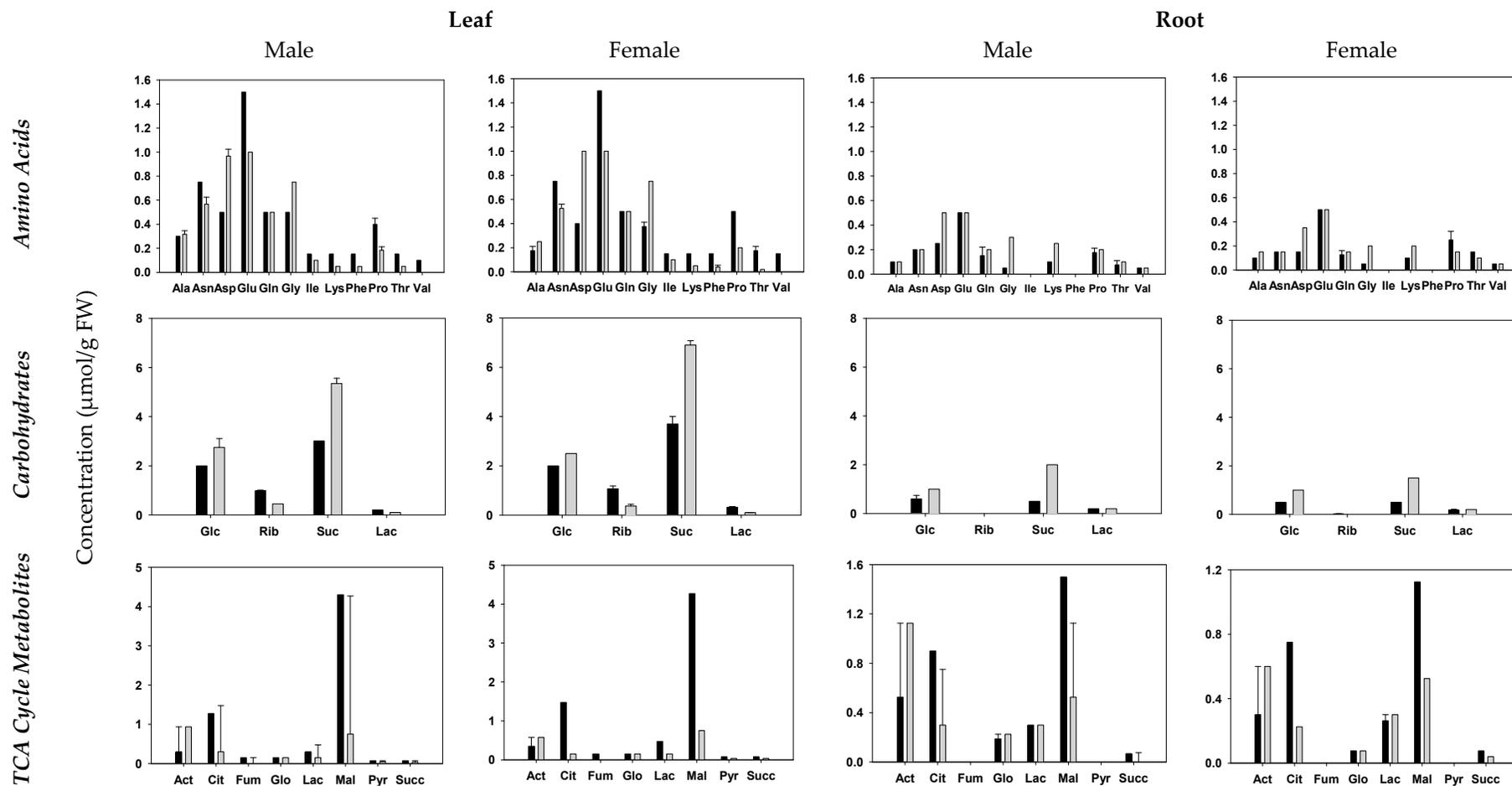


Figure S5. Ratio of APX, CAT and POD activities to SOD activity in leaves of *M. annua* during development. The ratio of each H₂O₂ quenching enzyme activity to SOD activity at day 55 was assigned 1. The data were fitted by a 3rd order polynomial curve. Ave \pm SD, $n = 3$. Open circle—female plant; Black circle—male plant.



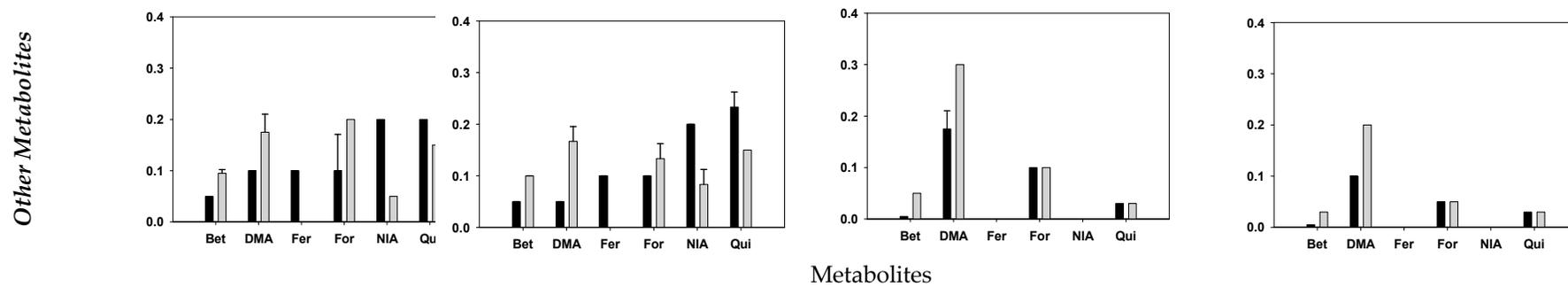


Figure S6. Effect of salinity on metabolites' concentration in *M. annua* leaf and root.