

Andersson, S. 2019. Ecotypic divergence in *Crepis tectorum* (Asteraceae): inferring trait lability and correlational constraints from hormonally manipulated phenotypes. – Nordic Journal of Botany 2019: e02236

Appendix 1. Results from two-way ANOVAs testing the effects of population, gibberellin treatment and their interaction in the 2005 greenhouse experiment with the dwarf ecotype of *Crepis tectorum* (subsp. *pumila*).

Trait	F ratio ^a			Least-square mean			
	Population (P)	Treatment (T)	P × T	Byerum		Vickleby	
				GA ₀	GA ₁	GA ₀	GA ₁
Leaf length (mm)	0.1	48.0***	3.4	102.9	92.0	107.4	88.6
Leaf shape ^b	2.2	230.3***	0.1	-2.9	-1.2	-3.2	-1.3
Flowering time	42.7***	12.1***	14.9***	27.1	27.4	35.0	29.5
Stem height (mm)	58.3***	342.2***	4.9*	303.7	523.8	170.7	450.5
Node number	0.7	8.2**	0.2	10.6	12.3	10.9	13.2
Branch distance (mm)	9.8**	21.7***	0.4	61.9	90.0	35.6	72.6
Branch length (mm)	7.4**	10.3**	0.7	88.9	106.1	63.0	92.3
Branch angle	12.6***	3.0	0.8	0.65	0.63	0.77	0.70

Head number ^b	0.7	2.4	0.7	3.6	3.7	3.6	3.7
Flowers per head	0.2	6.1*	2.5	79.8	69.2	74.4	72.2
Flower size (mm)	10.9***	1.2	4.6*	11.4	10.7	10.3	10.5
Fruit size (mm)	18.9***	2.4	2.4	3.2	3.2	2.7	2.9

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

^a Numerator df = 1, denominator df = 111-129.

^b Analyses and means based on ln-transformed data.

Appendix 2. Results from two-way ANOVAs testing the effects of gibberellin treatment and block (transect) in the 2006 field experiment with the dwarf ecotype of *Crepis tectorum* (subsp. *pumila*).

Trait	F ratio ^a		Least-square means	
	Treatment	Block	GA ₀	GA ₁
Stem height (mm)	995.5****	0.2	26.7	103.4
Node number	89.5****	0.1	2.8	3.8
Head number ^b	0.2	1.8	0.2	0.2
Flower size (mm)	122.5****	0.0	8.6	6.7

* $p \leq 0.05$, ** $p \leq 0.01$, **** $p \leq 0.001$.

^a Numerator df = 1, denominator df = 148-168.

^b Analyses and means based on ln-transformed data.

Appendix 3. Results from one-way ANOVAs testing the effects of different gibberellin levels in the 2008 greenhouse experiment with the dwarf ecotype of *Crepis tectorum* (subsp. *pumila*).

Trait	F ratio ^b	Least-square mean ^a			
		GA ₀	GA _{0.01}	GA _{0.1}	GA ₁
Leaf length (mm)	10.3***	100.7	96.9	101.1	113.0
Leaf shape ^c	11.0***	-2.7	-2.5	-2.1	-2.3
Flowering time	15.6***	38.0	26.3	25.3	26.3
Stem height (mm)	68.6***	90.6	86.4	110.7	265.7
Node number	53.5***	6.2	7.3	11.2	18.5
Branch distance (mm)	6.7***	44.6	38.4	34.0	51.6
Branch length (mm)	1.3	72.9	67.9	61.1	64.3
Branch angle	1.6	0.83	0.79	0.80	0.85
Head number ^c	8.6***	2.4	2.9	3.0	3.1

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

^a Values in bold denote the lowest GA level that resulted in a significant response according to Helmert contrasts.

^b Numerator df = 3, denominator df = 216-283.

^c Analyses and means based on ln-transformed data.

Appendix 4. Results from one-way ANOVAs testing the effects of early versus late gibberellin application in the 2009 greenhouse experiment with the dwarf ecotype of *Crepis tectorum* (subsp. *pumila*).

Trait	F ratio ^a	Least-square mean		
		GA ₀	GA ₁	GA _{late}
Stem height (mm)	122.3***	131.4	291.9	178.6
Node number	26.1***	13.8	22.3	15.8
Branch distance (mm)	3.4*	34.5	46.3	46.7
Branch length (mm)	11.3***	55.6	71.8	80.7
Branch angle	38.1***	0.86	0.65	0.55
Head number ^b	2.0	2.5	2.7	2.6
Involucre size (mm)	21.9***	8.7	7.5	8.8
Flower size (mm)	7.9***	10.5	9.7	10.5
Fruit size (mm)	3.8*	2.1	2.0	2.2

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

^a Numerator df = 2, denominator df = 96-126.

^b Analyses and means based on ln-transformed data.

Appendix 5. Results from one-way ANOVAs testing the effects of gibberellin treatment in the 2015 greenhouse experiment with the dwarf ecotype of *Crepis tectorum* (subsp. *pumila*).

Trait	F ratio ^a	Least-square mean	
		GA ₀	GA ₁
Leaf length (mm)	60.2***	150.7	188.5
Leaf shape ^b	21.2***	-3.4	-3.0
Flowering time	6.3*	23.7	25.7
Stem height (mm)	324.1***	206.1	435.5
Node number	27.3***	11.8	16.1
Branch distance (mm)	43.5***	52.7	96.9
Branch length (mm)	16.1***	97.2	123.3
Branch angle	156.2***	0.79	0.48
Head number ^b	30.6***	4.2	4.5
Flowers per head	5.5*	78.0	71.6
Involucre size (mm)	40.6***	9.8	8.6
Flower size (mm)	8.7**	10.7	10.2
Fruit size (mm)	1.3	2.4	2.5

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

^a Numerator df = 1, denominator df = 103-108.

^b Analyses and means based on ln-transformed data.