

**Table S1**

Aquatic plant species used for the study on autumnal innately dormant turions with important ecological traits of plants and turions shown.

Overwintered turions were analysed in species labelled by bold letter.

Species	Abbrev.	Family	Class	Rooted/ Unrooted, Carnivory		Plant origin, source of turions
				Turion sprouting		
<b><i>Ceratophyllum demersum</i></b>	Cer_dem	Ceratophyllaceae	E	U; B	No	Třeboň Bas., CR
<b><i>Aldrovanda vesiculosa</i></b>	Ald_ves_P	Droseraceae	E	U; S	Yes	E Poland, IBot Coll.
<i>Aldrovanda vesiculosa</i>	Ald_ves_A	-“”-	E	U; S	Yes	N.T., N Australia, IBot Coll.
<b><i>Utricularia australis</i></b>	Utr_aus	Lentibulariaceae	E	U; S	Yes	Třeboň Bas., CR
<i>Utricularia bremii</i>	Utr_bre	-“”-	E	U; S	Yes	S Bohemia, CR, IBot Coll.
<i>Utricularia geminiscapa</i>	Utr_gem	-“”-	E	U; S	Yes	Virginia, USA, IBot Coll.
<i>Utricularia intermedia</i>	Utr_int	-“”-	E	U; S	Yes	Třeboň Bas., CR, IBot Coll.
<i>Utricularia macrorhiza</i>	Utr_mac	-“”-	E	U; S	Yes	Canada, IBot Coll.
<i>Utricularia minor</i>	Utr_min	-“”-	E	U; S	Yes	Třeboň Bas., CR, IBot Coll.
<i>Utricularia ochroleuca</i>	Utr_och	-“”-	E	U; S	Yes	Třeboň Bas., CR, IBot Coll.
<b><i>Utricularia stygia</i></b>	Utr_sty	-“”-	E	U; S	Yes	Třeboň Bas., CR, IBot Coll.
<i>Utricularia tenuicaulis</i>	Utr_ten	-“”-	E	U; S	Yes	Centr. France, IBot Coll.
<b><i>Utricularia vulgaris</i></b>	Utr_vul	-“”-	E	U; S	Yes	S Moravia, CR, IBot Coll.
<b><i>Myriophyllum verticillatum</i></b>	Myr_ver	Haloragaceae	E	R; B	No	NW Bohemia, CR, IBot Coll.
<b><i>Potamogeton acutifolius</i></b>	Pot_acu	Potamogetonaceae	M	R; B	No	Třeboň Bas., CR, IBot Coll.
<i>Potamogeton berchtoldii</i>	Pot_ber	-“”-	M	R; B	No	Třeboň Bas., CR, IBot Coll.
<i>Potamogeton crispus</i>	Pot_cri	-“”-	M	R; B	No	Třeboň Bas., CR
<i>Potamogeton obtusifolius</i>	Pot_obt	-“”-	M	R; B	No	Třeboň Bas., CR, IBot Coll.
<i>Elodea canadensis</i>	Elo_can	Hydrocharitaceae	M	R; B	No	Jihlava region, CR
<b><i>Hydrocharis morsus-ranae</i></b>	Hyd_mor	-“”-	M	U; S	No	Třeboň Bas., CR
<i>Caldesia parnassifolia</i>	Cal_par	Alismataceae	M	R; B	No	SE Germany, IBot Coll.
<i>Spirodela polyrhiza</i>	Spi_pol	Lemnaceae	M	U; S	No	Třeboň Bas., CR, IBot Coll.

Abbreviations used: E, eudicots; M, monocots; R, rooted, bottom-rooted species; U, unrooted; place of turion sprouting: B, on the bottom; S, at the water surface. Ibot Coll., collection of aquatic plants in the Institute of Botany CAS, Třeboň; CR, Czech Republic.

**Table S2**

Mineral nutrient content and content of photosynthetic pigments in autumnal turions at the stage of innate dormancy. For species names, see Table S1. Means  $\pm$  1 SE are shown;  $n = 4$ .

Species	DMC (%)	N	P	N/P	Chl <i>a</i>	Chl <i>b</i>	Chl <i>a</i> +Chl <i>b</i>	Chl <i>a</i> / Chl <i>b</i>	Carotenoids
		(% DW)							(molar)
Cer_dem	9.13	2.19±0.33	0.496±0.088	9.77±0.75	1.98±0.13	0.55±0.14	2.53±0.26	4.39±1.14	2.81±0.13
Ald_ves_P	23.4	2.48±0.27	0.415±0.050	13.2±0.62	1.84±0.09	0.55±0.13	2.39±0.22	4.32±1.45	5.03±0.07
Ald_ves_A	24.6	2.07±0.06	0.391±0.023	11.7±0.15	1.99±0.07	0.98±0.03	2.97±0.09	2.03±0.05	2.86±0.00
Utr_aus	33.6	2.28±0.07	0.265±0.012	19.0±0.16	0.19±0.04	0.55±0.11	0.74±0.15	0.35±0.02	0.82±0.11
Utr_bre	26.2	2.41±0.17	0.357±0.018	15.0±0.39	1.56±0.09	0.83±0.03	2.39±0.12	1.88±0.07	0.98±0.04
Utr_gem	27.2	1.69±0.12	0.309±0.029	12.1±0.27	2.32±0.18	1.02±0.06	3.33±0.24	2.27±0.05	1.14±0.09
Utr_int	25.3	2.95±0.33	0.414±0.080	15.7±0.75	1.20±0.05	0.31±0.08	1.52±0.12	4.60±1.01	3.23±0.15
Utr_mac	26.3	2.21±0.07	0.371±0.031	13.2±0.17	0.90±0.16	0.57±0.06	1.47±0.21	1.53±0.16	0.73±0.05
Utr_min	27.1	2.74±0.15	0.315±0.043	19.2±0.36	1.47±0.20	0.63±0.05	2.10±0.24	2.30±0.18	0.85±0.10
Utr_och	31.1	2.78±0.02	0.408±0.030	15.1±0.09	0.84±0.10	1.85±0.20	2.70±0.29	0.46±0.02	1.23±0.07
Utr_sty	27.0	3.02±0.19	0.417±0.061	16.0±0.44	0.44±0.16	0.88±0.28	1.32±0.44	0.49±0.02	0.84±0.16
Utr_ten	37.4	2.24±0.06	0.328±0.050	15.1±0.17	0.26±0.03	0.21±0.01	0.47±0.03	1.26±0.12	0.22±0.02
Utr_vul	23.4	2.26±0.10	0.314±0.024	15.9±0.22	0.15±0.01	0.38±0.01	0.53±0.02	0.40±0.01	0.68±0.03
Myr_ver	26.8	1.11±0.10	0.634±0.009	3.86±0.22	1.51±0.03	0.49±0.02	2.00±0.04	3.12±0.07	0.60±0.02
Pot_acu	31.3	3.56±0.22	0.438±0.028	18.0±0.49	3.68±0.13	1.32±0.05	5.00±0.18	2.79±0.04	1.51±0.05
Pot_ber	37.9	1.34±0.10	0.235±0.029	12.6±0.24	2.03±0.11	0.80±0.06	2.83±0.16	2.56±0.05	0.97±0.07
Pot_cri	37.0	1.44±0.14	0.204±0.025	15.6±0.31	0.74±0.03	0.43±0.03	1.17±0.06	1.71±0.04	0.52±0.04
Pot_obt	34.5	1.62±0.05	0.176±0.029	20.3±0.14	1.73±0.22	0.67±0.08	2.41±0.30	2.57±0.05	0.94±0.06
Elo_can	13.6	3.66±0.23	0.725±0.012	11.2±0.51	1.00±0.23	0.23±0.06	1.23±0.29	4.60±0.38	3.74±0.57
Hyd_mor	25.2	4.03±0.34	0.726±0.047	12.3±0.76	0.57±0.04	0.22±0.01	0.79±0.05	2.55±0.14	0.18±0.02
Cal_par	35.8	2.36±0.17	0.458±0.039	11.4±0.38	1.20±0.07	0.54±0.05	1.75±0.11	2.24±0.13	0.66±0.04
Spi_pol	32.4	0.37±0.01	0.610±0.009	1.36±0.03	0.93±0.09	0.52±0.07	1.45±0.16	1.84±0.12	0.63±0.07
<b>Mean</b>	<b>28.0</b>	<b>2.31</b>	<b>0.409</b>	<b>13.1</b>	<b>1.30</b>	<b>0.66</b>	<b>1.96</b>	<b>2.28</b>	<b>1.42</b>

**Table S3**

Differences in DMC and biochemical parameters in autumnal turions of 21 species between functional groups with or without phylogenetic correction.

	Rooted/Unrooted				Bottom/Surface sprouting				Carnivory/Non-carnivory				Eudicot/Monocot	
	No correct.		Phylogen. corr.		No correct.		Phylogen. corr.		No correct.		Phylogen. corr.		No correct.	
	F	p	F	p	F	p	F	p	F	p	F	p	F	p
DMC	1.57	0.226	0.41	0.532	0.00	0.981	0.43	0.522	0.01	0.925	0.69	0.417	1.94	0.180
N	0.32	0.579	0.24	0.634	0.37	0.550	1.24	0.282	0.49	0.491	1.21	0.287	0.00	0.957
P	0.00	0.995	0.00	0.995	0.06	0.805	1.32	0.273	3.19	0.090	0.34	0.569	0.71	0.410
N/P	0.04	0.836	0.29	0.599	0.32	0.576	0.03	0.859	3.88	0.064	1.86	0.198	0.32	0.575
Chl <i>a</i>	3.04	0.098	No correction*		4.70	<b>0.043</b>	No correction*		2.06	0.168	No correction*		0.86	0.367
Chl <i>b</i>	0.01	0.904	No correction*		0.06	0.816	No correction*		0.76	0.394	No correction*		0.33	0.571
Carot.	0.00	0.955	1.31	0.273	0.29	0.595	0.64	0.436	0.02	0.878	0.02	0.878	0.23	0.634
Free sug.	1.26	0.276	0.70	0.417	1.68	0.211	0.87	0.369	6.40	<b>0.022</b>	0.39	0.541	21.2	< <b>0.001</b>
Starch	8.74	<b>0.009</b>	0.10	0.753	6.70	<b>0.019</b>	0.11	0.742	33.5	< <b>0.001</b>	3.18	0.095	36.9	< <b>0.001</b>
TNC	8.85	<b>0.009</b>	7.53	<b>0.015</b>	6.10	<b>0.024</b>	0.81	0.383	24.1	< <b>0.001</b>	3.09	0.099	17.0	< <b>0.001</b>

Rooted/Unrooted, bottom-rooted *vs.* unrooted species incl. surface-floating species with roots; Bottom/Surface sprouting, species with turions sprouting on the bottom *vs.* species with turions sprouting at the water surface; Carnivory/Non-carnivory; carnivorous *vs.* non-carnivorous species; Eudicot/Monocot, eudicots *vs.* monocots.

\*No eigenvector is correlated with chl *a* or chl *b*. Bold values denote statistically significant difference.

**Table S4**

Differences in carbohydrate contents between autumnal and spring turions (factor Period) in eight species evaluated by a mixed-effect model without or with phylogenetic correction.

Parameter	<i>d.f.</i>	Free sugars		Starch		TNC	
		<i>F</i>	<i>P</i>	<i>F</i>	<i>P</i>	<i>F</i>	<i>P</i>
<b>Model without phylogenetic correction</b>							
Species	7	27.4	<b>&lt;0.001</b>	4.77	<b>0.028</b>	4.60	<b>0.031</b>
Period	1	4.44	0.068	6.46	<b>0.038</b>	5.28	0.054
Period × Species	7	6.66	<b>&lt;0.001</b>	31.9	<b>&lt;0.001</b>	16.1	<b>&lt;0.001</b>
<b>Model with phylogenetic correction</b>							
Species	7	0.64	0.612	1.08	0.42	0.59	0.469
Period	1	4.83	0.065	6.35	<b>0.040</b>	5.32	0.055
Period × Species	7	6.66	<b>&lt;0.001</b>	31.9	<b>&lt;0.001</b>	16.1	<b>&lt;0.001</b>

Bold values denote statistically significant difference; *d.f.*, degrees of freedom.