Table 1. Standardization of HPLC-DAD method used for analysis of leaf PheCs (mean Rt, ranges of concentration used for calibration, calibration equations, and correlation coefficients from linear regression are shown). Compounds which were barely absorbing at 314 nm (*) were quantified using chromatograms detected at 220 nm.

	Phenolic compound	Mean Rt [min]	SD Rt [min]	Range of calibration [µg]	Calibration equation x [µg]	Correlation coefficient
1	gallic acid	4.479	0.067	0.0302–2.4500	y = 814 749.090x + 82 279.169	0.98234
2	DL-catechin	9.064	0.042	0.0541–1.1672	y = 15 454 600.673x − 603 265.907*	0.99570
3	epigallocatechin	9.142	0.073	0.0487–2.0000	y = 16 848 402.187x − 841 791.531*	0.99170
4	chlorogenic acid	10.595	0.100	0.0246–2.0000	y = 8 756 878.863x + 65 449.059	0.96009
5	epigallocatechin gallate	12.341	0.126	0.0543–2.2300	y = 15 611 066.480x − 151 029.190*	0.96124
6	vanillic acid	12.718	0.075	0.0536–1.9278	y = 680 563.215x − 22 679.312	0.98768
7	3-hydroxybenzoic acid	13.464	0.089	0.0528–2.1600	y = 1 792 913.363x − 39 313.844	0.99755
8	caffeic acid	13.562	0.130	0.0275–2.2300	y = 22 996 496.188x − 526 778.658	0.99830
9	epicatechin	13.811	0.178	0.0246–2.0000	y = 18 510 818.176x − 155 770.326*	0.99473
10	syringic acid	13.913	0.186	0.0536–1.9278	y = 830 953.559x + 58 088.182	0.98644
11	saponarin	20.710	0.246	0.0246–2.0000	y = 8 410 657.689x − 310 397.787	0.98739
12	sinapic acid	22.303	0.159	0.0291–2.3600	y = 21 986 955.173x − 368 384.350	0.99824
13	ferulic acid	22.528	0.498	0.0536–1.9278	y = 1 625 141.926x + 998 320.882	0.99413
14	3-coummaric acid	23.885	0.270	0.0265–2.1500	y = 8 240 553.215x + 10 968.370	0.99878
15	homoorientin	24.602	0.286	0.0246–2.0000	y = 7 541 081.006x − 240 421.642	0.99496
16	isovitexin	33.228	0.476	0.0246–2.0000	y = 10 051 122.715x + 7 171.193	0.99747
17	resveratrol	33.989	0.509	0.0272–2.2100	y = 31 244 410.252x − 659 660.573	0.99754
18	myricetin	38.571	0.180	0.0308–2.5000	y = 4 421 830.403x − 215 909.491	0.99819
19	quercetin	46.631	0.266	0.0246–2.0000	y = 4 291 818.828x − 240 689.259	0.99624
20	luteolin	48.434	0.460	0.0246–2.0000	y = 10 098 144.712x − 458 895.616	0.99775
21	kaempferol	51.774	0.275	0.0275–2.2300	y = 6 715 044.995x − 202 702.312	0.99920
22	apigenin	52.040	0.080	0.0270–1.6890	y = 6 430 432.434x − 378 879.344	0.99190
23	chrysin	53.438	0.030	0.0270–2.1900	y = 10 313 354.219x − 249 365.992	0.99649
24	galangin	53.614	0.061	0.0308–2.5000	y = 7 192 866.742x – 425 175.414	0.99327

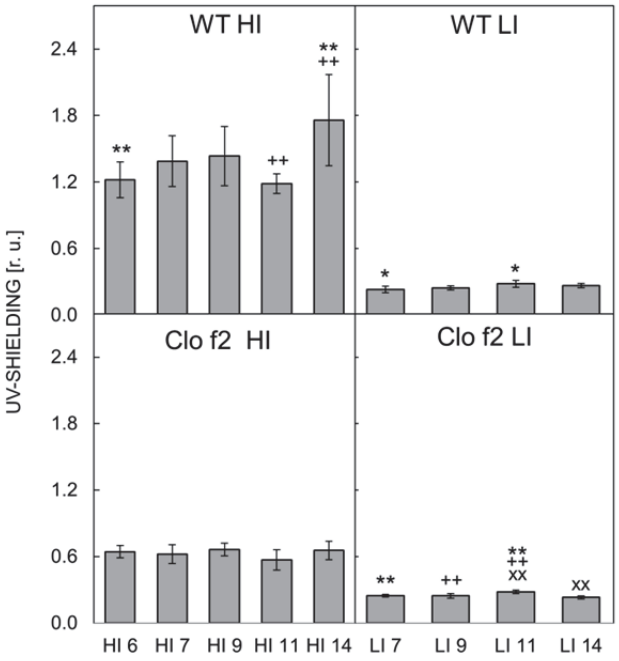

Fig. 1. Epidermal UV shielding of primary leaves of WT and *Clo f2* plants during the cultivation in low PAR (LI) or high PAR (HI) conditions. Epidermal UV shielding was measured after 6, 7, 9, 11, and 14 d of HI treatment (HI 6, HI 7, HI 9, HI 11, HI 14) and similarly for LI cultivated plants (LI 7, LI 9, LI 11, and LI 14), except the day 6 when the primary leaves were too small for determination of UV shielding. Analysis was performed using *Xe-PAM* instrument (*Heinz Walz*, Effeltrich, Germany) equipped with Schott filters. Chlorophyll fluorescence was excited in blue (filter DMZ 12-2; λmax = 435.6 nm) and UV region (filters DUG11/UG11; broadband UV-A and UV-B) and detected in red region above 645 nm (filter RG645). Means ± SD, n = 6, sample sets which were assigned as significantly different were labeled using identical symbols (*, +, x, #, a, b, c, etc.). The number of identical symbols reflects observed p-value intervals (*e.g.*, * ≤ 0.05, **≤ 0.01, *** ≤ 0.001). Absence of above mentioned symbols indicates non-significant difference among sample sets.

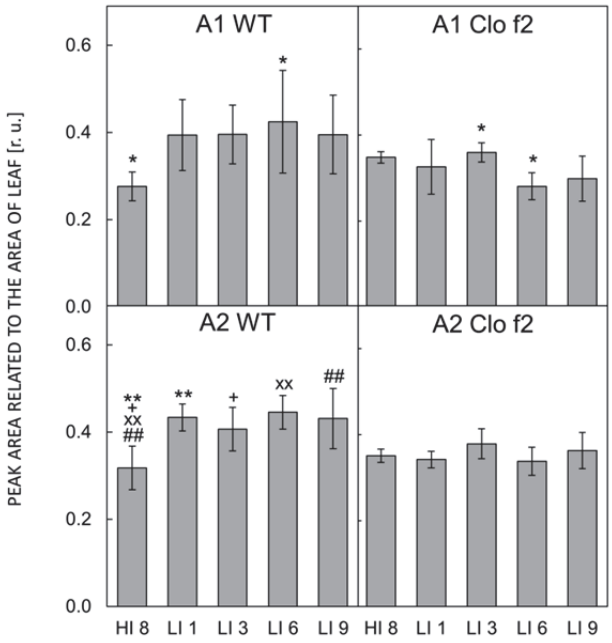

Fig. 2. Changes in the relative quantity of two tentatively identified apigenin derivatives (A1 and A2), detected in leaf extracts obtained from wild type barley (WT) and its chlorophyll *b*-less mutant (*Clo f2)* during acclimation from high to low PAR conditions. Plants were cultivated 8 d in high PAR conditions (HI 8) and then transferred to low PAR conditions. During low PAR treatment, plants were sampled after 1, 3, 6, and 9 d (LI 1, LI 3, LI 6, and LI 9). Means ± SD, n = 6, sample sets which were assigned as significantly different were labeled using identical symbols (*, +, x, #, a, b, c, etc.). The number of identical symbols reflects observed p-value intervals (*e.g.*, * ≤ 0.05, **≤ 0.01, *** ≤ 0.001). Absence of above mentioned symbols indicates non-significant difference among sample sets.

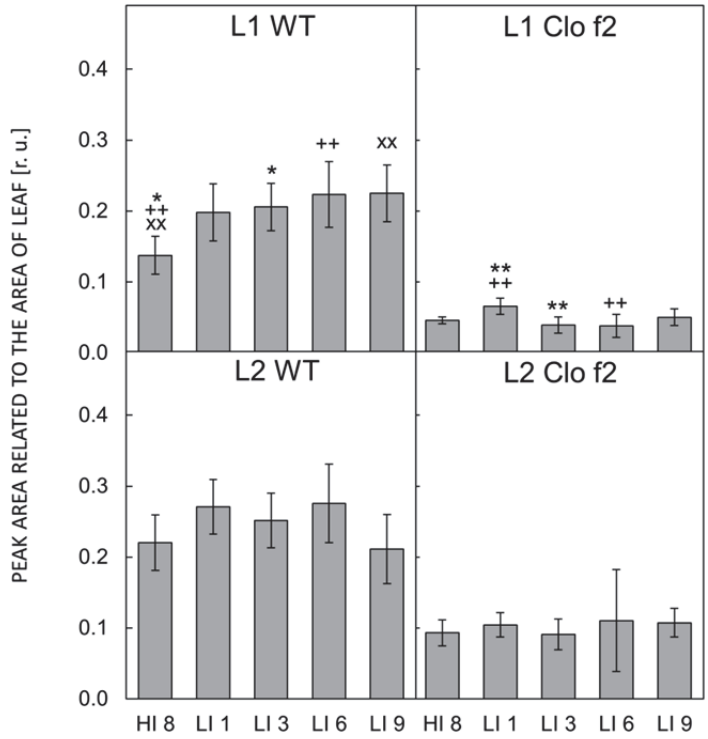

Fig. 3. Changes in the relative quantity of two tentatively identified luteolin derivatives (L1 and L2), detected in leaf extracts obtained from wild type barley (WT) and its chlorophyll *b*-less mutant (*Clo f2)* during acclimation from high to low PAR conditions. Plants were cultivated 8 d in high PAR conditions (HI 8) and then transferred to low PAR conditions. During low PAR treatment, plants were sampled after 1, 3, 6, and 9 d (LI 1, LI 3, LI 6, and LI 9). Means ± SD, n = 6, sample sets which were assigned as significantly different were labeled using identical symbols (*, +, x, #, a, b, c, etc.). The number of identical symbols reflects observed p-value intervals (*e.g.*, * ≤ 0.05, **≤ 0.01, *** ≤ 0.001). Absence of above mentioned symbols indicates non-significant difference among sample sets.

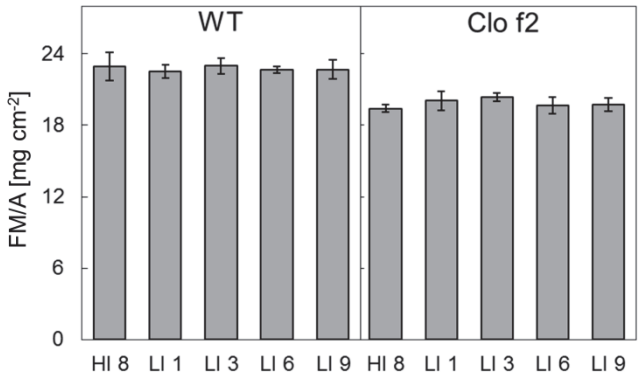

Fig. 4. Ratio of leaf fresh mass (FM) to leaf exposed area (A) during the development of WT and *Clo f2* plants in high PAR conditions for 8 d (HI 8) and 1, 3, 6, and 9 d after transferring plants to low PAR conditions (LI 1, LI 3, LI 6, and LI 9). Means ± SD, $n = 6$, sample sets which were assigned as significantly different were labeled using identical symbols (*, +, x, #, a, b, c, etc.). The number of identical symbols reflects observed p-value intervals (e.g., * ≤ 0.05, **≤ 0.01, *** ≤ 0.001). Absence of above mentioned symbols indicates non-significant difference among sample sets.

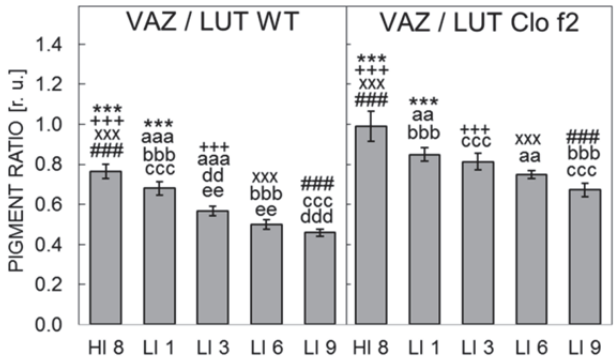

Fig. 5. Ratio of VAZ pool to lutein content (LUT) during the development of WT and *Clo f2* plants in high PAR conditions for 8 d (HI 8) and 1, 3, 6, and 9 d after transferring plants to low PAR conditions (LI 1, LI 3, LI 6, and LI 9). Means ± SD, $n = 6$, sample sets which were assigned as significantly different were labeled using identical symbols (*, +, x, #, a, b, c, etc.). The number of identical symbols reflects observed p-value intervals (e.g., * ≤ 0.05, **≤ 0.01, *** ≤ 0.001). Absence of above mentioned symbols indicates non-significant difference among sample sets.