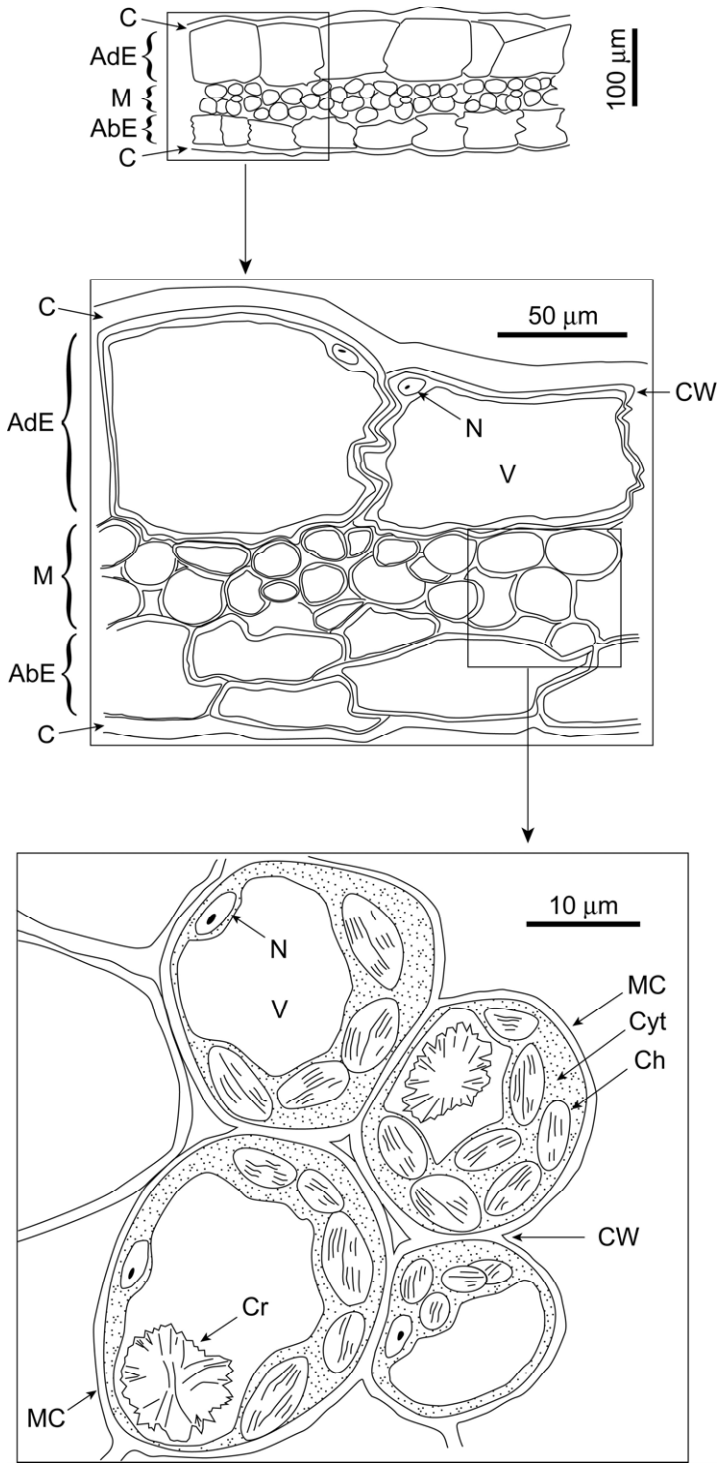
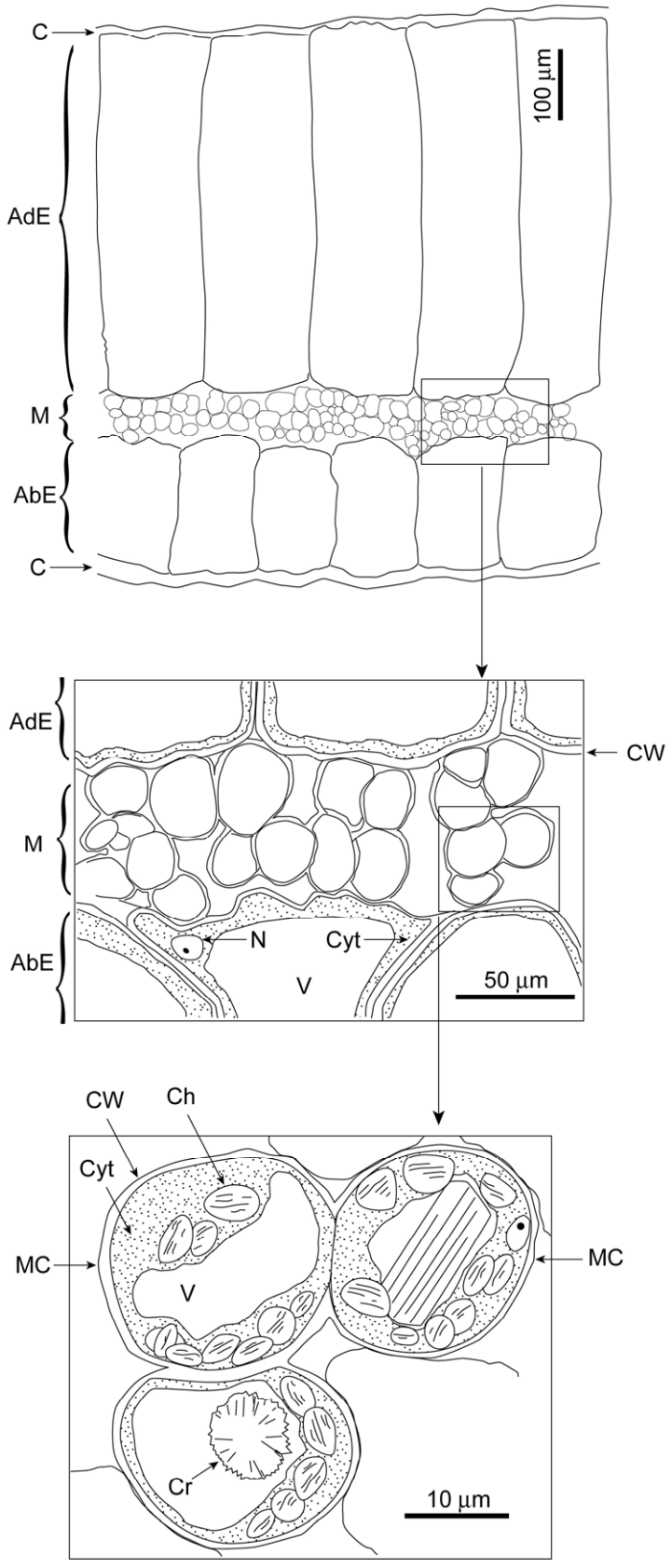
Table 1 Suppl. Growth irradiance response of leaf architecture in different species (* cell height values; cell width is almost independent on growth irradiance; ** cell height)

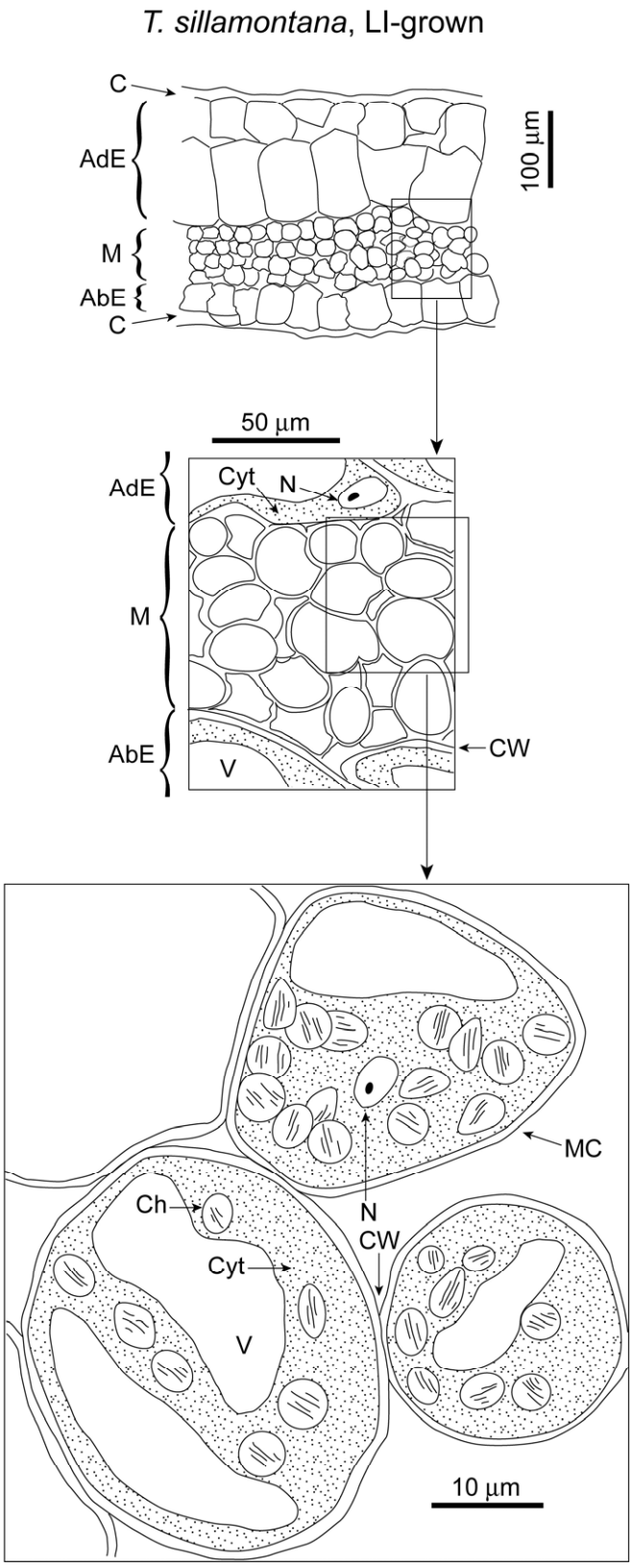
Species	Leaf thickness				Mesophyll thickness				Mesophyll cell diameter				Background information	Ref.
	LL, μm	HL, μm	HL/ LL	HL-LL	LL, μm	HL, μm	HL/ LL	HL-LL	LL, μm	HL, μm	HL/ LL	HL-LL		
Tradescantia fluminensis Vell.	185	735	4.00	550	43	78	1.81	35	21.0	25.5	1.21	4.5	herbaceous plant	present work
T.sillamontana Matuda	364	730	2.00	366	86	100	1.16	22	17.5	21.8	1.25	4.3	"	"
Nicotiana benthamiana Domin	179	306	1.71	127					52.4	103.6	1.98	51.2	"	(Davis *et al.* 2011)
Ajuga reptans L.	213	272	1.28	59					29.8*	53.0*	1.78	23.2	"	"
Begonia x semperflorens Link et Otto	376	425	1.13	49					54.2*	54.9*	1.01	0.7	"	"
Chenopodium album L.	176	250	1.42	74	135	216	1.60	81					"	(Oguchi *et al.* 2003)
Betula ermanii Cham.	125	182	1.46	57									deciduous arboreous plant of cool temperate region	(Oguchi *et al.* 2005)
Acer rufinerve Sieb. et Zucc.	128	184	1.44	56									"	"
Fagus crenata Blume	84	127	1.51	43									"	"
Shorea megistophylla (Thw.) Ashton	152	177	1.16	25	33	45	1.36	12	13.1**	13.7	1.05	0.6	arboreous evergreen of rain forests	(Ashton and Berlyn 1992)
Shorea trapezifolia (Thw.) Ashton	92	97	1.05	5	31	36	1.16	5	18.9**	18.1	0.96	-0.8	"	"
Shorea disticha (Thw.) Ashton	141	153	1.09	12	41	77	1.88	36	15.3**	21.9	1.43	6.6	"	"
Shorea worthingtonii (Thw.) Ashton	131	146	1.11	15	39	43	1.10	4	15.6**	20.3	1.30	4.7	"	"
Quercus coccinea Muenchh.	84	133	1.58	49					19.7**	43.8	2.22	24.1	arboreous plant of moist temperate deciduous forests	(Ashton and Berlyn 1994)
Quercus rubra L.	90	125	1.39	35					20.4*	40.2	1.97	19.8	"	"
Quercus velutina Lam.	94	135	1.44	41					24.4*	29.2	1.20	4.8	"	"
Tradescantia fluminensis Vell.	185	735	4.0	550	43	78	1.81	35	21.0	25.5	1.21	4.5		present work
T.sillamontana Matuda	364	730	2.0	366	86	100	1.16	22	17.5	21.8	1.25	4.3		"

T. fluminensis, LI-grown



T. fluminensis, HI-grown




T. sillamontana, LI-grown
C
AdE
M
AbE
C
100 µm
50 µm
AdE
Cyt
N
M
AbE
V
CW
MC
Ch
N
CW
Cyt
V
10 µm

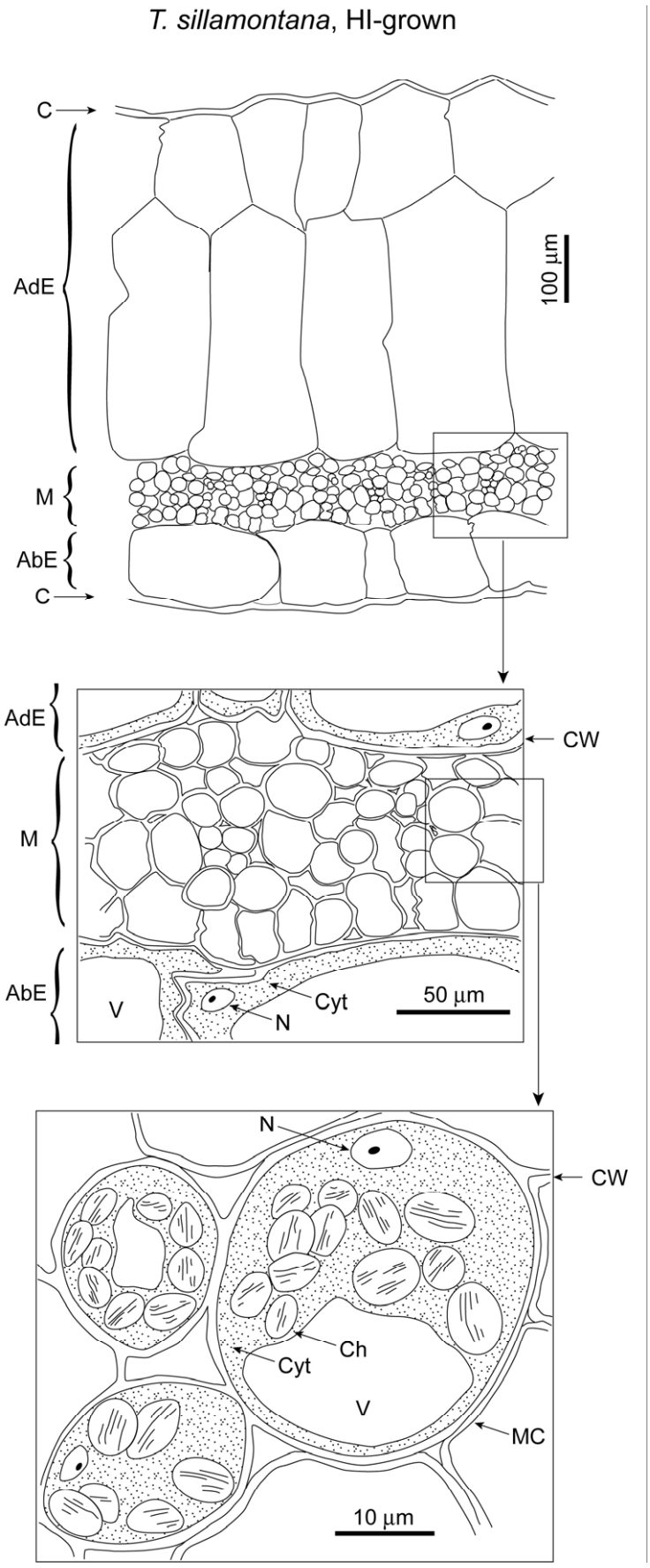


Fig. 1 Suppl. A schematic view of leaf cross sections for *T. fluminensis* (*A*, *B*) and *T. sillamontana* (*C*, *D*) plants grown under the low (*A*, *C*) or high (*B*, *D*) irradiance. AbE - abaxial epidermis, AdE - adaxial epidermis, C - cuticle, Ch - chloroplast, Cr - calcium oxalate crystals, CW - cell wal,; Cyt - cytoplasm, M - mesophyll, MC - mesophyll cell, N - nucleus, V - vacuole.

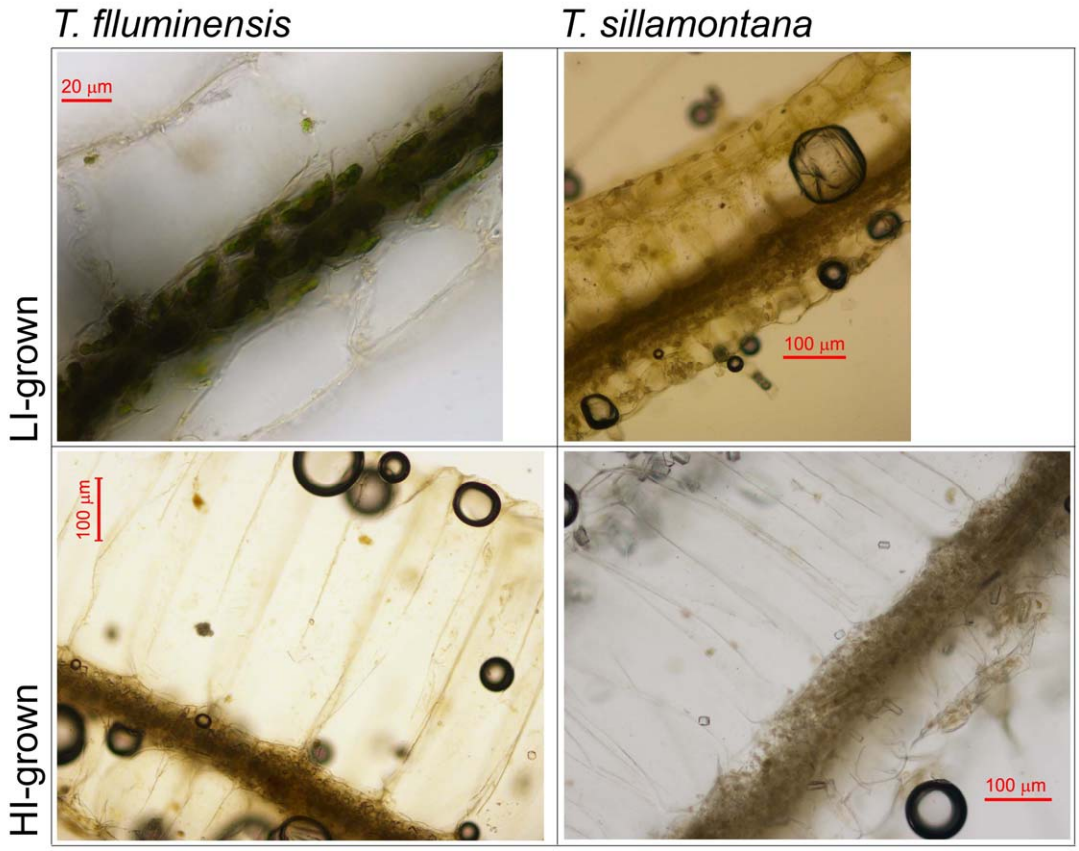


Fig. 2 suppl. Cross sections of *Tradescantia* leaves.

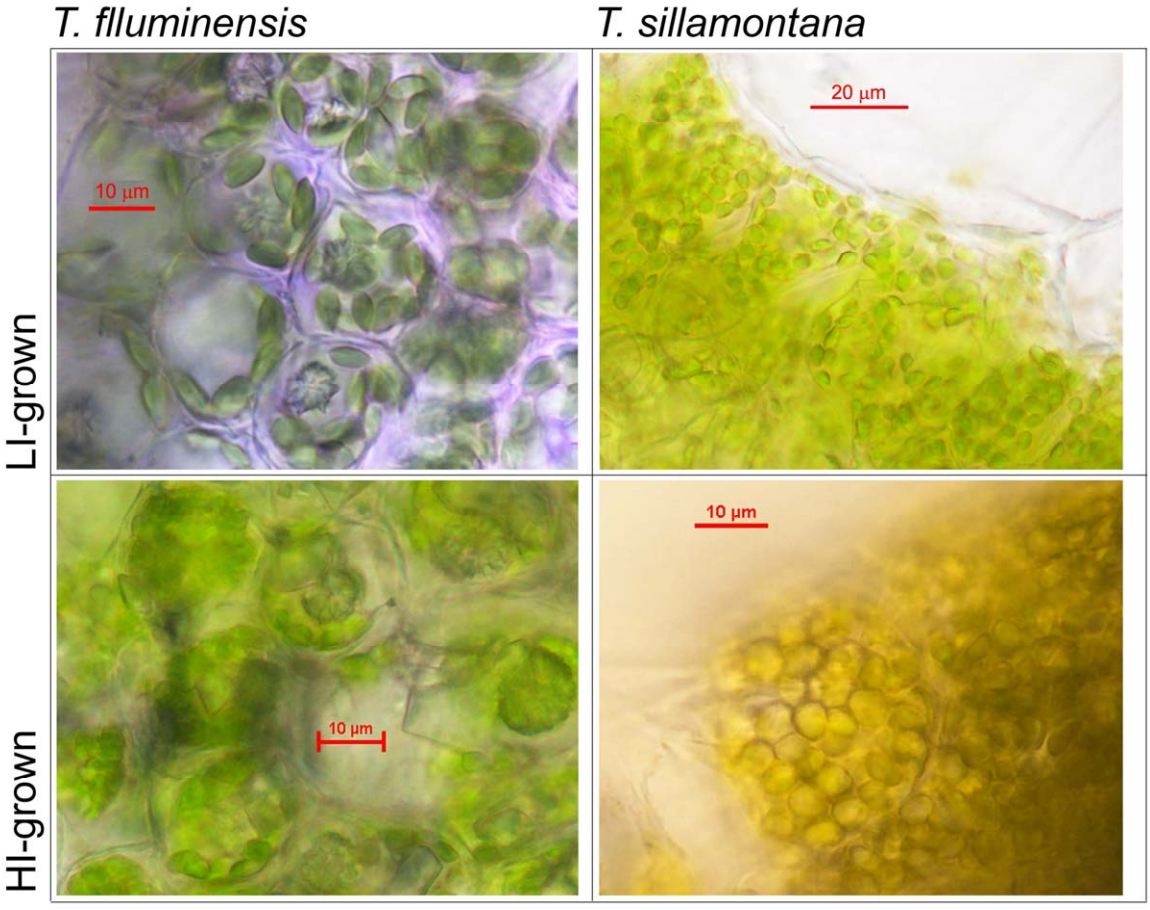


Fig. 3 Suppl. Microphotographs of chloroplasts of *Tradescantia* leaves.

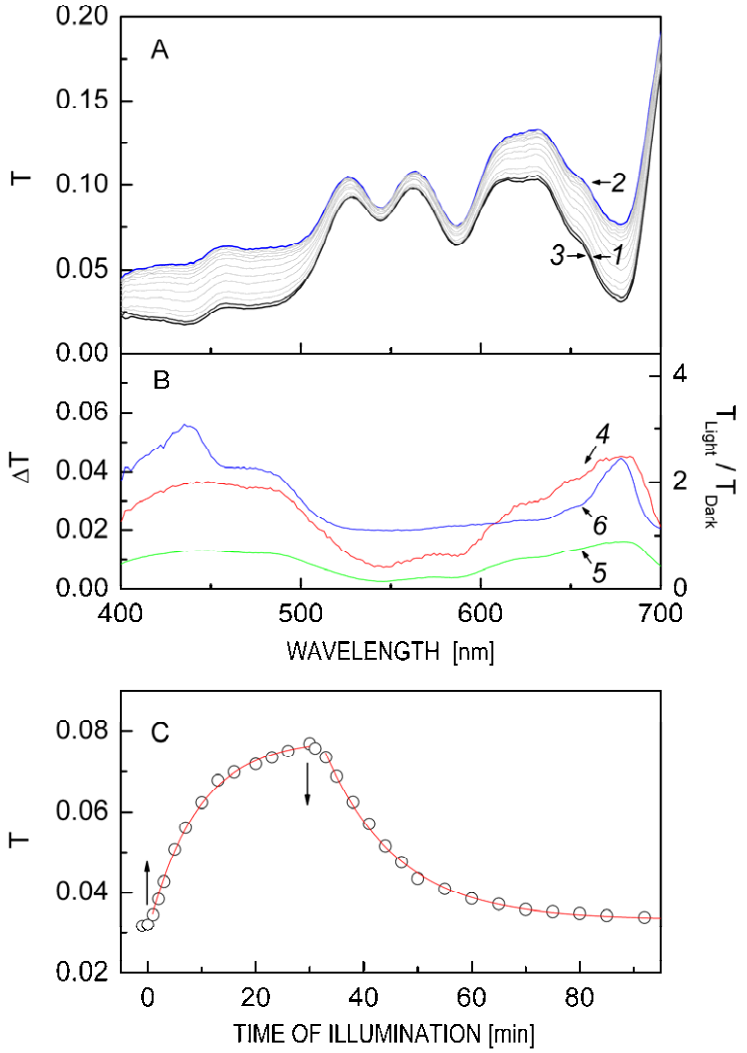


Fig. 4 Suppl. *A* - Typical leaf light transmittance (T) spectra: before illumination (*1*), after 30 min illumination (*2*) and after subsequent 60 min dark adaptation (*3*). *B* - Light minus dark difference spectra (*4*), standard deviation of a set of consecutive spectra in the course of illumination (*5*), and T_{Light}/T_{Dark} (*6*) as functions of wavelength. *C* - The time course of T_{680} during illumination and subsequent dark adaptation. *Vertical arrows* correspond to the start and the end of illumination.

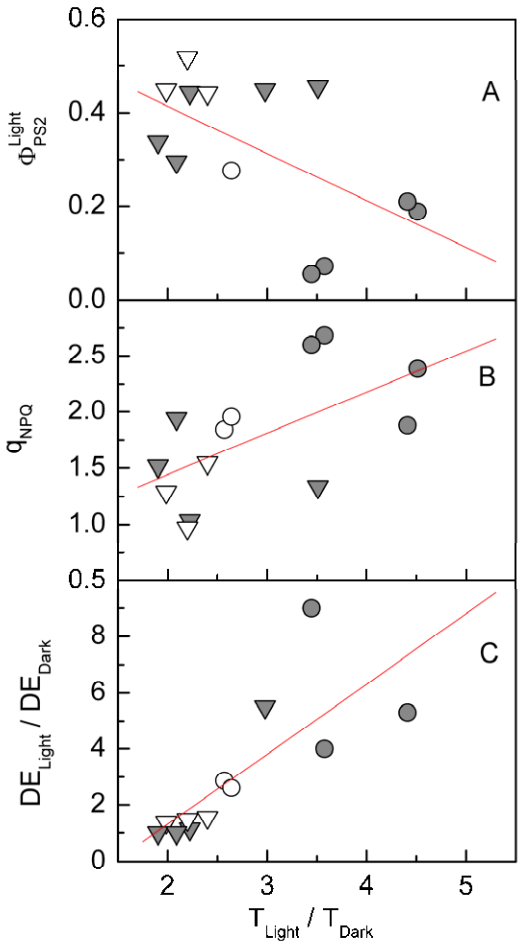


Fig. 5 Suppl. Relationships between light dependent steady-state values of leaf light transmittance changes, T_{Light}/T_{Dark}, and PS II activity, Φ_{PSII}^{Light} (*A*), nonphotochemical quenching coefficient, q_{NPQ} (*B*), and xanthophyll deepoxidation changes, DE_{Light}/DE_{Dark} (*C*) in *T. fluminensis* (*circles*) and *T. sillamontana* (*triangles*) leavea grown at LI (*grey symbols*) or HI (*white symbols*). Actinic radiation was 150 μmol m^{-2} s^{-1}.

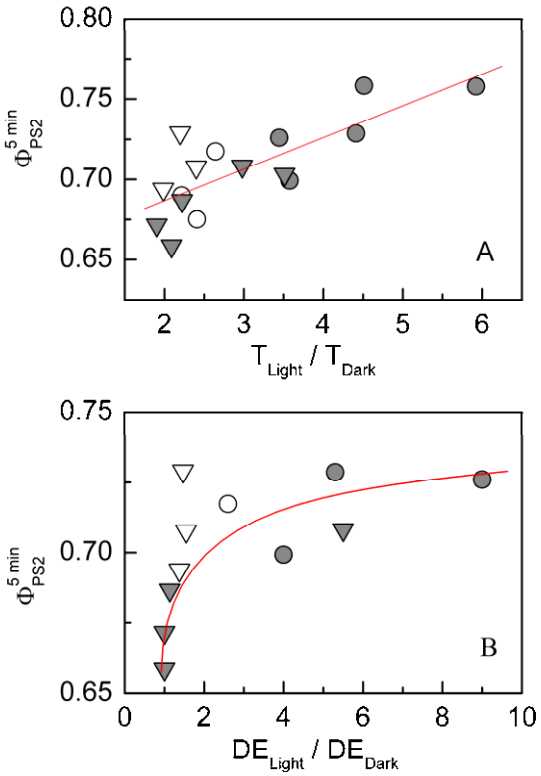


Fig. 6 Suppl. Relationships between PS II activity restored in 5 min after irradiation, $\Phi_{PSII}^{5\ min}$, and light dependent steady-state values of leaf light transmittance changes, T_{Light}/T_{Dark} (*A*), and xanthophyll deepoxidation changes, DE_{Light}/DE_{Dark} (*B*) in *T. fluminensis* (*circles*) and *T. sillamontana* (*triangles*) leaves grown at LI (*grey symbols*) or HI (*white symbols*). Actinic radiation was 150 μmol m^{-2} s^{-1}.