Table 3
Specific fluxes and phenomenological fluxes of *C. vulgaris* cultivated in semi-continuous mode with different N concentrations. Values represent the average (± SD/average, %).

Parameter	N concentration N (mg-N/L)					
	7.5	15	22.5	30	37.5	150
M_0	0.618[a] ± 0.07	0.449[a] ± 0.02	0.399[a] ± 0.04	0.332[a] ± 0.03	0.271[a] ± 0.02	0.213[a] ± 0.03
Ψ_o	0.497[a] ± 0.07	0.596[a] ± 0.02	0.629[a] ± 0.023	0.654[a] ± 0.02	0.692[a] ± 0.01	0.738[a] ± 0.03
Φ_{Eo}	0.322[a] ± 0.04	0.404[a] ± 0.02	0.441[a] ± 0.02	0.468[a] ± 0.02	0.505[a] ± 0.01	0.542[a] ± 0.02
Φ_{Do}	0.352 ± 0.004	0.324[a] ± 0.02	0.299 ± 0.006	0.285 ± 0.01	0.270 ± 0.01	0.266 ± 0.01
Φ_{PAV}	921 ± 9	913 ± 9	912 ± 9	917 ± 8	917 ± 9	915 ± 9
ABS/RC	1.898 ± 0.08	1.644[a] ± 0.05	1.529[a] ± 0.09	1.341[a] ± 0.05	1.205[a] ± 0.02	1.101[a] ± 0.07
TR_o/RC	1.230 ± 0.05	1.112[a] ± 0.01	1.072[a] ± 0.05	0.959[a] ± 0.04	0.880[a] ± 0.02	0.808[a] ± 0.05
ET_o/RC	0.612 ± 0.09	0.663 ± 0.03	0.673 ± 0.01	0.627 ± 0.03	0.608 ± 0.01	0.596 ± 0.04
DI_o/RC	0.668 ± 0.03	0.533[a] ± 0.04	0.457[a] ± 0.04	0.382[a] ± 0.05	0.326[a] ± 0.01	0.292 ± 0.02
PI_{Abs}	0.976 ± 0.22	1.903[a] ± 0.3	2.642[a] ± 0.5	3.568[a] ± 0.5	5.059[a] ± 0.6	7.179[a] ± 1.3
DF_{Abs}	0.010 ± 0.002	0.279[a] ± 0.05	0.422[a] ± 0.08	0.552[a] ± 0.01	0.704[a] ± 0.08	0.856[a] ± 0.15
Φ_{Po} (or F_v/F_m)	0.648 ± 0.006	0.676[a] ± 0.02	0.702[a] ± 0.007	0.715[a] ± 0.01	0.730[a] ± 0.01	0.735 ± 0.01

[a] Denotes statistical significant differences between two sequential pairs of treatment.

Table 1
Parameters, formulate and terms used in the OJIP test.
(Adapted from [20]).

Parameters	Formulae	Terms
V_J	$(F_{2\,ms} - F_0) / (F_m - F_0)$	Variable fluorescence at the J step
V_I	$(F_{60\,ms} - F_0) / (F_m - F_0)$	Variable fluorescence at the I step
M_0	$4 * (F_{300\,\mu s} - F_0) / (F_m - F_0)$	Approximated initial slope of the fluorescence transients
φ_{Po}	$TR_o/ABS = 1 - (F_0 / F_m) = F_v / F_m$	Maximum quantum yield for primary photochemistry (at $t = 0$)
Ψ_o	$ET_o/TR_o = 1 - V_J$	Probability that a trapped exciton moves an electron into the electron chain beyond Q_A (at $t = 0$)
φ_{Eo}	$ET_o/ABS = [1 - (F_0 / F_m)] * \Psi_o =$	Quantum yield for electron transport (at $t = 0$)
φ_{Do}	$= 1 - \Phi_{Po}.(F_0 / F_m)$	Quantum yield of energy dissipation (at $t = 0$)
φ_{PAV}	$\varphi_{Po} * (1 - V_{av}) = \varphi_{Po} * (S_m / t_{Fm})$	Average quantum yield of primary photochemistry (from $t = 0$ to t_{Fm}), Sm is the normalized complementary area over the OJIP curve, and t_{Fm} is the time in which F_m is recorded
ABS/RC	$M_o * (1/V_J) * (1/\varphi_{Po})$	Absorption flux per RC
TR_o/RC	$M_o * (1/V_J)$	Trapped energy flux per RC (at $t = 0$)
ET_o/RC	$M_o * (1/V_J) * \Psi_o$	Electron transport flux per RC (at $t = 0$)
DI_o/RC	$(ABS/RC) - (TR_o/RC)$	Dissipated energy flux per RC (at $t = 0$)
PI_{Abs}	$(1 / (ABS/RC)) * (\varphi_{Po} / (1 - \varphi_{Po})) * (\Psi_o / (1 - \Psi_o))$	Performance index (absorption basis)
DF_{Abs}	$\log(PI_{Abs})$	Driving force

[20] R.J. Strasser, M. Tsimilli-Michael, A. Srivastava, Analysis of the Chlorophyll a Fluorescence Transient, Springer, 2004.