Supplementary data

Table S1. Form I Rubisco carboxylation kinetics at 25ºC taken from other datasets and used in Figure 3; n.d., not determined.

	K_c (μM)	k_{cat}^c (s^{-1})	k_{cat}^c/K_c (s^{-1} mM^{-1})	References
Rhodophyta				
Cyanidiophyceae				
Cyanidium caldarium	7	1.3	186	Badger *et al*., 1998
Cyanidium partita	7	1.6	229	Badger *et al*., 1998
Galdieria sulfuraria	3	1.2	364	Whitney *et al*., 2001
Florideophyceae				
Griffithsia monilis	9	2.6	280	Whitney *et al*., 2001
Ochrophyta				
Phaeophyceae				
Laminaria hyperborea	12	n.d.	n.d.	Kuppers and Weidner, 1980
Bacillariophyceae (diatoms)				
Bellerochea cf. horologicalis	50	2.1	41	Young *et al*., 2016
Chaetoceros calcitrans	25	2.6	103	Young *et al*., 2016
Chaetoceros muelleri	23	2.4	104	Young *et al*., 2016
Cylindrotheca fusiformis	n.d.	3.7	n.d.	Young *et al*., 2016
Fragilariopsis cylindrus	64	3.5	55	Young *et al*., 2016
Phaeodactylum tricornutum	41	3.3	81	Young *et al*., 2016
Skeletonema marinoi	68	3.2	47	Young *et al*., 2016
Thalassiosira oceanica	65	2.4	36	Young *et al*., 2016
Thalassiosira weissflogii	65	3.2	49	Young *et al*., 2016
Haptophyta				
Pavlova lutheri	14	2.5	172	Heureux *et al*., 2017
Pleurochrysis carterae	18	3.3	186	Heureux *et al*., 2017
Tisochrysis lutea	24	2.2	91	Heureux *et al*., 2017
Chlorophyta				
Chlamydomonas reinhardtii	31	2.1	68	Genkov *et al*., 2010
Codium fragile	43	n.d.	n.d.	Yeoh *et al*., 1981
Scenedesmus obliquus	38	n.d.	n.d.	Jordan and Ogren, 1981
Ulva sp.	70	n.d.	n.d.	Yeoh *et al*., 1981

C_3 higher plants				
Arabidopsis thaliana	14	3.2	222	Whitney *et al*., 2011
Avena sativa	11	2.3	213	Hermida-Carrera *et al*., 2016
Beta vulgaris	11	2.0	185	Hermida-Carrera *et al*., 2016
Brassica oleracea	12	2.1	178	Hermida-Carrera *et al*., 2016
Capsicum annuum	10	1.9	198	Hermida-Carrera *et al*., 2016
Chenopodium alba	11	2.9	259	Kubien *et al*., 2008
Coffea Arabica	11	2.1	191	Hermida-Carrera *et al*., 2016
Crithmum maritimum	9	3.4	378	Galmés *et al*., 2014
Cucurbita maxima	9	2.2	244	Hermida-Carrera *et al*., 2016
Eucalyptus neglecta	8	2.5	312	Galmés *et al*., 2014
Flaveria cronquistii	11	3.1	287	Kubien *et al*., 2008
Glycine max	9	1.5	174	Hermida-Carrera *et al*., 2016
Hordeum vulgare	9	2.4	267	Hermida-Carrera *et al*., 2016
Ipomoea batatas	12	2.5	208	Hermida-Carrera *et al*., 2016
Lactuca sativa	11	2.2	198	Hermida-Carrera *et al*., 2016
Limonium gibertii	8	4.6	561	Parry *et al*., 2007
Manihot esculenta	6	1.4	229	Hermida-Carrera *et al*., 2016
Medicago sativa	10	1.7	175	Hermida-Carrera *et al*., 2016
Nicotiana tabacum	11	3.4	309	Whitney *et al*., 1999
Oryza sativa	8	2.1	262	Hermida-Carrera *et al*., 2016
Phaseolus vulgaris	8	1.7	218	Hermida-Carrera *et al*., 2016
Solanum lycopersicum	10	2.3	237	Hermida-Carrera *et al*., 2016
Spinacia oleracea	12	3.2	265	Kubien *et al*., 2008
Triticum aestivum	11	2.7	248	Carmo-Silva *et al*., 2010
Teucrium heterophyllum	7	2.7	386	Galmés *et al*., 2014
C_4 higher plants				
Amaranthus edulis	18	4.1	225	Kubien *et al*., 2008
Amaranthus hybridus	16	3.8	237	Jordan and Ogren, 1981
Cynodon dactylon	21	3.7	176	Carmo-Silva *et al*., 2010
Flaveria australasica	22	3.8	173	Kubien *et al*., 2008
Flaveria bidentis	20	4.2	208	Kubien *et al*., 2008
Flaveria kochiana	23	3.7	163	Kubien *et al*., 2008
Flaveria trinervia	18	4.4	246	Kubien *et al*., 2008
Paspalum dilatatum	20	3.4	171	Carmo-Silva *et al*., 2010
Saccharum officinarum	26	3.9	148	Hermida-Carrera *et al*., 2016
Sorghum bicolor	30	5.4	180	Sage and Seemann, 1993
Zea mays	32	4.1	130	Hermida-Carrera *et al*., 2016
Zoysia japonica	18	4.1	222	Carmo-Silva *et al*., 2010

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