

**Table S1.** Focal strains whose sequences were used in this study. All sequences except for those of *T. adustus* (shown in boldface font) were downloaded from the NCBI database. “—” indicates sequences are not available.

Taxon	Strain identifier	ITS2	rbcl	tufA
<i>Chodatodesmus australis</i> Sciuto, Verleyen, Moro & La Rocca	KS 2003	HG514414	HG514360	HG514386
<i>Flechtneria rotunda</i> Sciuto & L.A.Lewis	BCP SEV3-VF4	HQ246446	HQ246351	HQ246372
<i>Flechtneria rotunda</i> Sciuto & L.A.Lewis	BCP SEV3-VF49	AY510465	HQ246350	HQ246371
<i>Scenedesmus hindakii</i> Hegewald & Hanagata	SAG 47.86	AY170856	HG514369	HG514397
<i>Scenedesmus obtusus</i> Meyen	SAG 52.80	HG514421	HG514371	HG514400
<i>Scenedesmus rubescens</i> (Dangeard) Kessler et al. nom. inval.	SAG 5.95	HG514422	HG514373	HG514402
<i>Tetradasmus arenicola</i> Mikhailyuk & P. Tsarenko	SAG 2564	MH703775	—	—
<i>Tetradasmus arenicola</i> Mikhailyuk & P. Tsarenko	Hg-6-1	MH703772	—	—
<i>Tetradasmus arenicola</i> Mikhailyuk & P. Tsarenko	Ru-6-2	MH703744	—	—
<i>Tetradasmus arenicola</i> Mikhailyuk & P. Tsarenko	WD-1-6	MH703774	—	—
<i>Tetradasmus arenicola</i> Mikhailyuk & P. Tsarenko	WD-7-1	MH703773	—	—
<i>Tetradasmus bajacalifornicus</i> L.A. Lewis & Flechtner	ZA 1-2	HQ246448	HQ246354	HQ246374
<i>Tetradasmus bajacalifornicus</i> L.A. Lewis & Flechtner	ZA 1-5	HQ246449	HQ246356	HQ246375
<i>Tetradasmus bajacalifornicus</i> L.A. Lewis & Flechtner	ZA 1-7	HQ246450	HQ246357	HQ246376
<i>Tetradasmus bajacalifornicus</i> L.A. Lewis & Flechtner	BCP LG2-VF16	AY510468	HQ246352	HQ246373
<i>Tetradasmus deserticola</i> L.A. Lewis & Flechtner	BCP YPG Char	AY510472	HQ246361	HQ246380
<i>Tetradasmus deserticola</i> L.A. Lewis & Flechtner	BCP EM2-VF3	AY510474	HQ246359	HQ246378
<i>Tetradasmus deserticola</i> L.A. Lewis & Flechtner	BCP SNI-2	AY510471	HQ246360	HQ246379
<i>Tetradasmus deserticola</i> L.A. Lewis & Flechtner	BCP EM2-VF30	AY510470	HQ246358	HQ246377
<i>Tetradasmus distendus</i> (T.Holtmann) M.J.Wynne	SAG 2003	HG514429	HG514383	HG514411
<i>Tetradasmus obliquus</i> (Turpin) M.J.Wynne	SAG 276-10	HG514418	HG514368	HG514395
<i>Tetradasmus obliquus</i> (Turpin) M.J.Wynne	UTEX 393	AJ249505	DQ396875	DQ396875
<i>Tetradasmus adustus</i>	JT2-VF29	MK291427	MK291428	MK291429
<i>Tetradasmus adustus</i>	LG2-VF28	MK291430	MK291431	MK291432
<i>Tetradasmus raciborskii</i> (Woloszynska) Tsarenko & D.M. John	CCAP 276/35	HG514426	HG514380	HG514408
<i>Tetradasmus wisconsinensis</i> (G.M. Smith)	SAG 22.81	HG514430	HG514384	HG514412