

**Supplementary Table S1.** ITS sequences extracted from GenBank, NCBI, and used in this study.

Species	Accession number	Length	Reference
<i>Asterarcys quadricellulare</i>	JQ043184	1530	
<i>Chlorella vulgaris</i>	VJNP01000984.1	8919	
<i>Comasiella arcuata</i>	AJ400491	257	(Hegewald et al. 2013)
<i>Desmodesmus costato-granulatus</i>	DQ417574	639	(Fawley et al. 2011)
<i>Desmodesmus cuneatus</i>	DQ417566	631	(Johnson et al. 2007)
<i>Desmodesmus elegans</i>	AM228906	363	(Keller et al. 2008)
<i>Desmodesmus hystrix</i>	DQ417551	662	(Johnson et al. 2007)
<i>Desmodesmus itascaensis</i>	DQ417540	650	(Fawley et al. 2011)
<i>Desmodesmus perdix</i>	DQ417573	627	(Fawley et al. 2011)
<i>Desmodesmus santosii</i>	DQ417524	607	(Fawley et al. 2011)
<i>Desmodesmus serratus</i>	GU192380	556	(Fawley et al. 2011)
<i>Desmodesmus spinosus</i>	KT778092	1179	(Zou et al. 2016)
<i>Enallax acutiformis</i>	HG514427	689	(Hegewald et al. 2013)
<i>Flechtneria rotunda</i>	HQ246446	669	(Sciuto et al. 2015)
<i>Scenedesmus bijugus</i>	KT778082	1195	(Zou et al. 2016)
<i>Scenedesmus ecornis</i>	HG514419	323	(Sciuto et al. 2015)
<i>Scenedesmus ellipticus</i>	HG514420	606	(Sciuto et al. 2015)
<i>Scenedesmus hindakii</i>	AY170856	248	(Hegewald et al. 2013)
<i>Scenedesmus obtusus</i>	HG514425	599	(Terlova & Lewis 2019)
<i>Scenedesmus quadricauda</i>	KT778086	1192	(Zou et al. 2016)
<i>Scenedesmus vacuolatus</i>	KJ676126	1361	
<i>Tetradesmus adustus</i>	MK291430	285	(Terlova & Lewi

			s 2019 )
<i>Tetrademus bajacalifornicus</i>	HQ246450	701	(Sciuto et al. 2015)
<i>Tetrademus deserticola</i>	AY510474	673	(Hegewald et al. 2013)
<i>Tetrademus dimorphus</i>	KT778101	1241	(Zou et al. 2016)
<i>Tetrademus obliquus</i>	JQ082324	877	(Hegewald et al. 2013)
<i>Tetrademus wisconsinensis</i>	HG514430	602	(Sciuto et al. 2015)

**Supplementary Table S2.** *rbcl* sequences extracted from GenBank, NCBI, and used in this study.

Species	Accession number	Length	Reference
<i>Asterarcys quadricellulare</i>	MK995333	111776	
<i>Chlorella vulgaris</i>	VJNP01000153.1	69788	
<i>Comasiella arcuata</i>	HG514379	720	(Sciuto et al. 2015)
<i>Desmodesmus costato-granulatus</i>	GU192427	999	(Fawley et al. 2011)
<i>Desmodesmus cuneatus</i>	GU192435	1081	
<i>Desmodesmus elegans</i>	GU192426	999	(Fawley et al. 2011)
<i>Desmodesmus hystrix</i>	GU192433	1068	
<i>Desmodesmus itascaensis</i>	GU192424	906	(Fawley et al. 2011)
<i>Desmodesmus perdix</i>	GU192415	872	(Fawley et al. 2011)
<i>Desmodesmus santosii</i>	GU192418	1083	(Fawley et al. 2011)
<i>Desmodesmus serratus</i>	GU192409	910	(Fawley et al. 2011)

<i>Desmodesmus spinosus</i>	KT777977	1161	(Terlova & Lewis 2019)
<i>Enallax acutiformis</i>	HG514382	760	
<i>Flechtenia rotunda</i>	HQ246351	2261	(Sciuto et al. 2015)
<i>Scenedesmus bijugus</i>	KT777978	1161	(Terlova & Lewis 2019)
<i>Scenedesmus ecornis</i>	KT003373	576	(Vieira et al. 2016)
<i>Scenedesmus ellipticus</i>	HG514370	658	(Sciuto et al. 2015)
<i>Scenedesmus hindakii</i>	HG514369	737	(Terlova & Lewis 2019)
<i>Scenedesmus obtusus</i>	HG514376	721	(Sciuto et al. 2015)
<i>Scenedesmus quadricauda</i>	KT777979	1161	
<i>Scenedesmus vacuolatus</i>	RHEI01007419	1348	
<i>Tetradismus adustus</i>	MK291431	550	(Terlova & Lewis 2019)
<i>Tetradismus bajacalifornicus</i>	HQ246354	1305	(Sciuto et al. 2015)
<i>Tetradismus deserticola</i>	KT777950	1161	(Terlova & Lewis 2019)
<i>Tetradismus dimorphus</i>	KT777984	1161	(Terlova & Lewis 2019)
<i>Tetradismus obliquus</i>	NEDT01000001.1	161452	
<i>Tetradismus wisconsinensis</i>	HG514384	740	(Sciuto et al. 2015)

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