

Supp. Table S1. Major characteristics of studied *Gemmataceae* strains.

Properties	<i>G.obscuriglobus</i> DSM 5831 ^T	' <i>G.massilina</i> ' IIL30 ^T	<i>F.tundricola</i> PL17 ^T	G_18	<i>T. sphagniphila</i> SP2 ^T	<i>F. ruber</i> SP5 ^T	<i>L. roseus</i> PX52 ^T	<i>Z. formosa</i> A10 ^T	<i>T. immobilis</i> MBLW1 ^T
Isolation source	freshwater	hospital water network	shallow-littoral tundra wetland	fen	Sphagnum peat bog	Sphagnum peat bog	Mesotrophic lake	Sphagnum peat bog	Lake
Country	Australia	France	Russia	Russia	Russia	Russia	Russia	Russia	Australia
Year of isolation	1984	2015	2019	2020	2010	2010	2016	2004	2017
Morphology	Spherical	Spherical	Spherical	Spherical	Spherical	Spherical	Spherical	Ellipsoidal	Spherical
Rosette formation	–	–	–	–	+	–	+	+	–
pH, range (opt)	7.8–8.8 (nd)	6–8 (8)	4.2–6.8(5.0–5.5)	6–8 (7)	4–7(5.0–5.5)	4.0–6.8(5.5–6.0)	5.0–7.5(6.5)	3.8–7.2(5.5–6.0)	4.2–6.8(5.0–5.5)
T, °C, range (opt)	16–35 (nd)	25–37 (30)	4–28(15–22)	4–28(15–20)	6–30(20–26)	10–30(20–25)	10–30(20–25)	10–30 (20–25)	20–40(32–36)
Genome size, Mb	9.06	9.25	9.83	9.23	nd	12.36	9.38	10.09	6.69

Nd-not determined