

**Supplementary Table 1.** Voucher information (including country where specimens were collected, collector name, and collection number) for *Hypogymnia* and *Cavernularia* specimens used for this study and two outgroup species. All specimens are deposited in OSC unless otherwise indicated. GenBank accession numbers are provided for sequences generated for this study, whereas GenBank identification numbers are listed for sequences obtained from GenBank.

<b>Taxon</b>	<b>Voucher</b>	<b>ITS</b>	<b>GPDI</b>
<i>Cavernularia hultenii</i> Degel. 1	U.S.A.: Oregon, <i>Root 1056</i>	HQ725070	HQ725092
<i>C. hultenii</i> 2	GenBank, <i>T. Tønsberg 30424</i> (BG)	31074111	-
<i>C. hultenii</i> 3	GenBank, <i>Printzen 5295a</i> (hb. Printzen)	31074112	-
<i>C. hultenii</i> 4	U.S.A.: Oregon, <i>McCune 29865</i>	HQ725071	-
<i>C. lophyrea</i> (Ach.) Degel. 1	CANADA: BC, <i>McDermott 1995-08-26</i>	6760660	-
<i>C. lophyrea</i> 2	CANADA: BC, <i>TerraGen Diversity Inc. 216</i>	4973008	-
<i>C. lophyrea</i> 3	U.S.A.: Oregon, <i>McCune 29756</i>	HQ725073	HQ725094
<i>C. lophyrea</i> 4	U.S.A.: Oregon, <i>McCune 29578</i>	HQ725072	HQ725093
<i>Hypogymnia antarctica</i> (Bitter) Dodge	CHILE: <i>Wheeler &amp; Nelson 664</i>	HQ725076	-
<i>H. austerodes</i> (Nyl.) Räs.	U.S.A.: Montana, <i>McCune 29257</i>	HQ680611	-
<i>H. apinnata</i> Goward & McCune 1	CANADA: BC, <i>McCune 27849</i>	EU707811	EU707844
<i>H. apinnata</i> 2	U.S.A.: Oregon, <i>McCune 28195</i>	EU707810	EU707843
<i>H. enteromorpha</i> (Ach.) Nyl. 1	U.S.A.: Oregon, <i>McCune 28192</i>	EU707813	-
<i>H. enteromorpha</i> 2	U.S.A.: Oregon, <i>McCune 29899</i>	HQ725078	-
<i>H. enteromorpha</i> 3	U.S.A.: Oregon, <i>McCune 27792</i>	EU707812	-
<i>H. flavida</i> McCune & Obermayer	CHINA: Yunnan Prov., <i>Wang 00-19847</i>	HQ725087	-
<i>H. fujisanensis</i> (Asah.) Kurok.	JAPAN: <i>McCune 26063</i>	HQ725079	-
<i>H. imshaugii</i> Krog 1	U.S.A.: Montana, <i>Pipp 4711316-33</i>	HQ725021	HQ725055
<i>H. imshaugii</i> 2	U.S.A.: California, <i>McCune 28148</i>	EU707823	EU707849
<i>H. imshaugii</i> 3	U.S.A.: Montana, <i>Cross 4611137-9</i>	HQ680598	HQ690138
<i>H. imshaugii</i> 4	U.S.A.: Oregon, <i>Kofranek 2687</i>	HQ680602	HQ690144
<i>H. imshaugii</i> 5	U.S.A.: California, <i>Riddell 07-100</i>	HQ680600	HQ690142

<i>H. inactiva</i> (Krog) Ohlsson	U.S.A.: Oregon, <i>McCune 29900</i>	HQ725086	-
<i>H. incurvoides</i> Rassad.	CANADA: Nova Scotia, <i>F. Anderson 404</i>	HQ725089	-
<i>H. krogiae</i> Ohlsson	U.S.A.: New Hampshire, <i>Grenon 06-1</i>	HQ725090	-
<i>H. lugubris</i> (Pers.) Krog 1	CHILE: Reg. X, <i>Wheeler &amp; Nelson 3939</i>	HQ725091	-
<i>H. lugubris</i> 2	CHILE: Reg. X, <i>Wheeler &amp; Nelson 142</i>	HQ725077	HQ725096
<i>H. macrospora</i> (Zhao) Wei 1	CHINA: Yunnan Prov., <i>McCune 26710</i>	HQ725080	-
<i>H. macrospora</i> 2A	CHINA: Yunnan Prov., <i>McCune 26800</i>	HQ725081	-
<i>H. macrospora</i> 2B	CHINA: Yunnan Prov., <i>McCune 26800</i>	HQ725082	-
<i>H. macrospora</i> 2C	CHINA: Yunnan Prov., <i>McCune 26800</i>	HQ725083	-
<i>H. minilobata</i> McCune & Schoch 1	U.S.A.: California, <i>McCune 28589</i>	190888792	190888826
<i>H. minilobata</i> 2	U.S.A.: California, <i>McCune 28579</i>	190888777	-
<i>H. mollis</i> L. H. Pike & Hale	U.S.A.: California, <i>McCune 28588</i>	HQ680604	HQ690146
<i>H. occidentalis</i> L. H. Pike 1	CANADA: BC, <i>Goward 01-975</i> in part	190888782	-
<i>H. occidentalis</i> 2	U.S.A.: Oregon, <i>McCune 28208b</i>	190888788	-
<i>H. occidentalis</i> 3	U.S.A.: Oregon, <i>McCune 28210</i>	190888790	190888822
<i>H. occidentalis</i> 4	U.S.A.: Oregon, <i>McCune 28205</i>	190888789	190888820
<i>H. physodes</i> (L.) Nyl. 1	CANADA: BC, <i>Thell BC-96357</i> (LD)	6760663	-
<i>H. physodes</i> 2	SWEDEN: <i>Thell SK-9605</i> (LD)	4973009	32478559
<i>H. physodes</i> 3	SWEDEN: <i>Mattson 4005</i> (UPS)	4867984	-
<i>H. physodes</i> 4	HUNGARY: <i>Molnar 0506/OA</i> (EGR)	HQ725067	-
<i>H. physodes</i> 5	HUNGARY: <i>Molnar 0507/LL</i> (EGR)	HQ725069	-
<i>H. physodes</i> 6	U.S.A.: Oregon, <i>McCune 28190</i>	190888793	-
<i>H. physodes</i> 7	U.S.A.: Idaho, <i>Haldeman 4811621</i>	HQ725074	HQ725095
<i>H. physodes</i> 8	HUNGARY, <i>Molnar 0503/LB</i> (EGR)	HQ725068	-
<i>H. pruinosa</i> Wei & Jiang 1	CHINA: Yunnan Prov., <i>McCune 26750</i>	HQ725084	-
<i>H. pruinosa</i> 2	CHINA: Yunnan Prov., <i>McCune 26739</i>	HQ725085	-
<i>H. pulverata</i> (Nyl. in Cromb.) Elix	U.S.A.: Alaska, <i>Spirbille WP432</i>	HQ725088	HQ725097
<i>H. tubulosa</i> (Schaeer.) Hav. 1	U.S.A.: Montana, <i>Hughes 4811325-2</i>	HQ680595	HQ690135
<i>H. tubulosa</i> 2	U.S.A.: Oregon, <i>McCune 28191</i>	HQ680612	HQ690154
<i>H. tubulosa</i> 3	U.S.A.: New Hampshire, <i>Grenon 06-3</i>	-	HQ690157
<i>H. tubulosa</i> 4	U.S.A.: Idaho, <i>Haldeman 4711642-44</i>	HQ725075	-

<i>H. subphysodes</i> (Kremp.) Filson	CHILE: <i>Wheeler &amp; Nelson 408</i>	HQ680616	HQ680616
<i>H. vittata</i> (Ach.) Parr.	SWEDEN: <i>Wedin 15/7/00</i> (UPS)	119167431	-
<i>H. wilfiana</i> Goward, T.Sprib. & Ahti	U.S.A.: Oregon, <i>McCune 28206</i>	-	EU707840
<i>H. sp.</i>	CHILE: <i>Wheeler &amp; Nelson 1148</i>	HQ680607	HQ690149
<i>Brodoa intestiniformis</i> (Villars) Goward	AUSTRIA: <i>Feuerer &amp; Thell s.n.</i> DNA# 1328 (HBG, LD)	37706087	37706079
<i>Evernia prunastri</i> (L.) Ach.	SWEDEN: <i>Thell 0012</i> (LD)	25991284	32478617

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