

Table S1. Occurrence of *Humidophila* taxa in the studied samples.

[illegible]

<i>H. aff. biscutella</i>	X		X			X				X
<i>Humidophila</i> sp. 1	X		X	X	X		X	X		X
<i>Humidophila</i> sp. 2							X	X		X
<i>Humidophila</i> sp. 3	X				X					
<i>Humidophila</i> sp. 4										X
<i>Humidophila</i> sp. 5										X
<i>Humidophila</i> sp. 6					X					

Table Supplement 2. Taxa of *Humidophila* reported for Argentina.

Taxa	Reported from Argentina as	Type locality	Argentinean Ecoregions	References
<i>Humidophila arcuata</i> (Heiden)	<i>Diademsis arcuata</i> (Heiden)	Kerguelen	Patagonian steppe	VOUILLOUD (2003)
Lowe et al.	Lange–Bertalot			
<i>Humidophila arcuatoides</i> (Lange–Bertalot) Lowe et al.		Bosque nuboso, Costa Rica	Paranaense rain–forest	This study
<i>Humidophila contenta</i> (Grunow)	<i>Diademsis contenta</i> (Grunow)	Belgium	Paranaense rain–forest	VOUILLOUD (2003)
Lowe et al.	D.G.Mann		Puna	This study
	<i>Navicula contenta</i> Grunow		Pampa	FLOWER (2005)
				MAIDANA & SEELIGMANN (2006).
				SEELIGMANN et al. (2008)
				LICURSI et al. (2010)
				MARTÍNEZ DE MARCO et al. (2011)
				COCHERO et al. (2015)
<i>Humidophila gallica</i> (Smith) Lowe et al.	<i>Diademsis gallica</i> W. Smith	France; fountain in the court of the Hotel Frascati at Havre	Puna	VOUILLOUD (2003)
			Patagonian steppe,	MAIDANA et al. (2005)
			Antarctica	MAIDANA & SEELIGMANN

(2006)				
<i>Humidophila iguazuensis</i> Guerrero et al. <i>spec. nov</i>		Dos Hermanas waterfall (Argentina)	Paranaense rain–forest	This study
<i>Humidophila laevissima</i> (P.T.Cleve) Lowe et al.	<i>Navicula gallica</i> var. <i>laevissima</i> (Cleve) Lange–Bertalot		South Atlantic Islands	FLOWER (2005)
<i>Humidophila lagartiensis</i> Vouilloud et al. <i>spec. nov.</i>		El Lagarto waterfall (Argentina)	Paranaense rain–forest	This study
<i>Humidophila misionera</i> Vouilloud et al. <i>Spec. Nov.</i>		Dos Hermanas waterfall (Argentina)	Paranaense rain–forest	This study
<i>Humidophila nienta</i> (Carter) Lowe, et al.		Tristan da Cunha (South Atlantic)	Paranaense rain–forest	This study
<i>Humidophila parallela</i> (Petersen) Furey et al.		Iceland	Paranaense rain–forest	This study
<i>Humidophila perpusilla</i> (Grunow) Lowe et al.	<i>Navicula perpusilla</i> Grunow	No locality cited	Patagonia	VOUILLOUD (2003)
<i>Humidophila platensis</i> (Metzeltin, Lange–Bertalot et García– Rodríguez) Lowe et al.		Río de la Plata, near Colonia del Sacramento (Uruguay)	Paranaense rain–forest	This study
<i>Humidophila sebastinaii</i> Guerrero et		Arrechea waterfall (Argentina)	Paranaense rain–forest	This study

al. nov. spec.				
<i>Humidophila subtropica</i> (Metzeltin, Lange–Bertalot et García–Rodríguez) Lowe et al.		Río de la Plata, near Colonia del Sacramento (Uruguay)	Paranaense rain–forest	This study
<i>Humidophila tabellariaeformis</i> (Krasske) Lowe et al.	<i>Diadesmis tabellariaeformis</i> (Krasske) Lange–Bertalot & Wojtal	Small waterfall, lago Riso Patron (Chile)	Patagonian steppe	VOUILLOUD (2003)
	<i>Navicula tabellariaeformis</i> Krasske			FLOWER (2005)
<i>Humidophila</i> aff. <i>paracontenta</i> (Lange–Bertalot et Werum) Lowe et al.			Patagonian forest	GARCÍA & MAIDANA (2015)
<i>Humidophila</i> aff. <i>biscutella</i> (Moser, Lange–Bertalot et Metzeltin) Lowe et al.			Paranaense rain–forest	This study

Table Supplement 3. Morphological variation within *Humidophila* taxa. ‘nd’ indicates not determined.

<i>Humidophila</i> Taxa	Raphe present				Raphe absent	Marginal structures		Striae in a longitudinal depression	Internal apical depressions	Pseudosepta	References
	Proximal ends with troughs	Distal ends with troughs	Raphe short	Raphe elevated		Ridge	Spines				
						s					
<i>H. amsterdamensis</i> Chattová et Van de Vijver	—	+	+	—		+	—	—	nd	nd	CHATTOVÁ et al. (2018)
<i>H. arcuata</i> (Lange-Bertalot) Lowe et al.	—	—	—	—		—	—	—	—	—	LE COHU & VAN DE VIJVER (2002)
<i>H. arcuatoides</i> (Lange-Bertalot) Lowe et al.	—	+	+	—		—	—	—	—	—	WERUM & LANGE-BERTALOT (2004), this study
<i>H. australis</i> (Van de Vijver et Sabbe) Lowe et al.	—	—	—	—		—	—	—	—	—	VAN DE VIJVER et al. (2010)
<i>H. australoshetlandica</i> Kopalová et al.	—	—	+	—		—	—	—	—	—	KOPALOVÁ et al. (2015)
<i>H. bigibba</i> (Hustedt) Lowe et al.	—	—	+	—		+	—	+	—	—	LOWE et al. (2017)

											(2004)
<i>H. costei</i> (Le Cohu et Van de Vijver) Lowe et al.	—	—	+	—		—	—	—	—	—	LE COHU & VAN DE VIJVER (2002)
<i>H. crozetikerguelensis</i> (Le Cohu et Van de Vijver) Lowe et al.	+	+	—	—		—	—	—	—	+	LE COHU & VAN DE VIJVER (2002)
<i>H. deceptionensis</i> Kopalová et al.	—	—	—	—		—	—	—	—	—	KOPALOVÁ et al. (2015)
<i>H. difficilis</i> (Grunow) Van de Vijver et al.	+	+	+	—		+	—	—	—	—	VAN DE VIJVER et al. (2020a)
<i>H. discordabilis</i> (Gerd et al.) Lowe et al.	—	—	—	—		—	—	—	nd	nd	MOSER et al. (1998)
<i>H. eldfjallii</i> Furey et al.	—	—	—	—		—	—	—	—	—	FUREY et al. (2020)
<i>H. faurei</i> (Van de Vijver et Beyens) Lowe et al.					+	—	—	—	nd	nd	VAN DE VIJVER et al. (2002a)
<i>H. fukushima</i> (Lange-Bertalot et al.) Buczkó et Köver	+	—	—	—		+	—	—	+	—	LANGE-BERTALOT & WERUM (2001); WERUM & LANGE-BERTALOT (2004)
<i>H. gallica</i> (W. Smith) Lowe					+	—	+	—	—	—	LANGE-BERTALOT & WERUM

et al.										(2001); WERUM & LANGE-BERTALOT (2004); Cox (2006)
<i>H. iguazuensis</i> Guerrero et al.	—	+ / —	—	—	—	—	+	nd	nd	This study
<i>H. implicata</i> (Gerd et al.) Lowe et al.	—	—	—	—	—	—	—	nd	nd	MOSER et al., (1998)
<i>H. inconspicua</i> (Kopalová et van de Vijver) Lowe et al.	—	—	—	—	—	—	—	—	—	KOPALOVÁ et al. 2009
<i>H. ingeae</i> (Van de Vijver) Lowe et al.	+	—	—	—	—	—	—	nd	nd	VAN DE VIJVER et al (2002b)
<i>H. irata</i> (Krasske) Lowe et al.	—	—	+	+	+	—	+	—	—	LANGE-BERTALOT & WERUM (2001); WERUM & LANGE-BERTALOT (2004)
<i>H. keiliorum</i> Kopalová	+	+	—	+	—	—	—	—	—	KOPALOVÁ et al. (2015)
<i>H. komarekiana</i> Kochman-Kędziora et al.	+	+	—	—	—	—	—	—	—	KOCHMAN-KĘDZIORA et al. (2016)
<i>H. lacunosa</i> (Gerd et.al.) Lowe et al.	+	+	—	—	—	—	+	nd	—	LANGE-BERTALOT & WERUM (2001); WERUM & LANGE-BERTALOT (2004); METZELTIN

											et al. (2005); this study
<i>H. lagartiensis</i> Vouilloud et al.	+	+	—	—	—	—	—	—	—	—	This study
<i>H. latestriata</i> (Van de Vijver, et al.) Lowe et al.	—	—	—	+	+	—	—	—	—	—	VAN DE VIJVER et al. (2002b)
<i>H. minuta</i> Lowe et al.	—	+	—	—	—	—	—	—	nd	nd	LOWE et al. (2017)
<i>H. misionera</i> Vouilloud et al.	—	—	—	—	—	—	—	—	—	—	This study
<i>H. nienta</i> (Carter) Lowe et al.	+	+	—	—	—	—	—	—	—	+	LOWE et al. (2014); this study
<i>H. panduriformis</i> Lowe et al.					+	—	+	—	nd	nd	LOWE et al. (2017)
<i>H. pantropica</i> (Lange-Bertalot) Lowe et al.	—	—	+	—	—	—	—	—	nd	nd	LOWE et al. (2014)
<i>H. paracontenta</i> (Lange-Bertalot et Werum) Lowe et al.	+	+	—	—	—	—	—	—	—	—	LANGE-BERTALOT & WERUM (2001); FUREY et al. (2020)
<i>H. paracontenta</i> var. <i>magisconcava</i> (Lange-Bertalot) Lowe et al.	+	+	—	—	—	—	—	—	nd	nd	WERUM & LANGE-BERTALOT (2004); METZELTIN et al. (2005)
<i>H. paralella</i> (Petersen)	+	+	—	—	—	—	—	—	nd	nd	FUREY et al. (2020); this study

Furey, et al.										
<i>H. perpusilla</i> (Grunow)	+	—	—	—	—	—	—	nd	nd	LANGE-BERTALOT & WERUM (2001)
Lowe et al.										
<i>H. platensis</i> (Metzeltin, Lange-Bertalot et García-Rodríguez) Lowe et al.	—	—	+	+	—	—	+	nd	nd	METZELTIN et al. (2005); this study
<i>H. potapovae</i> Lowe, Kociolek et You	—	—	+	—	—	—	—	nd	nd	LOWE et al. (2017)
<i>H. pyrenaica</i> (Lange-Bertalot et Werum) Lowe et al.	+/—	+/—	—	—	—	—	—	nd	nd	LANGE-BERTALOT & WERUM (2004)
<i>H. rouhaniana</i> Chattová et Van de Vijver	+	+	—	—	—	—	—	nd	nd	CHATTOVÁ et al. (2018)
<i>H. sceppacuerciae</i> Kopalová	—	—	—	—	—	—	—	—	—	KOPALOVÁ et al. (2015)
<i>H. schmassmannii</i> (Hustedt) Buczkó et Wojtal	—	—	—	—	—	—	—	—	—	BUCZKÓ et al. (2015)
<i>H. sebastianii</i> Guerrero et al.	—	—	—	—	—	—	—	+	—	This study
<i>H. subantarctica</i> (Le Cohu et Van de Vijver) Lowe et al.	—	—	—	—	—	—	—	—	—	LE COHU & VAN DE VIJVER (2002); this study

<i>H. subtropica</i> (Metzeltin, Lange-Bertalot et García- Rodríguez) Lowe et al.	—	—	+	—	—	—	+ / —	nd	nd	METZELTIN et al. (2005); LOWE et al. (2014); this study
<i>H. tahitiensis</i> (Lange- Bertalot et Werum) Lowe et al.	+	+	—	—	—	—	—	nd	nd	LANGE-BERTALOT & WERUM (2001); WERUM & LANGE- BERTALOT (2004); LOWE et al. (2014)
<i>H. templiniana</i> (Lange- Bertalot et Rumrich) Lowe et al.	—	—	—	—	—	—	—	—	—	RUMRICH et al. (2000)
<i>H. undulata</i> Lowe et al.	+	+	—	—	—	—	—	—	+	LOWE et al. (2014)
<i>H. undulocontenta</i> Lowe et al.	+	+	—	+	—	—	—	—	—	LOWE et al. (2017)
<i>H. vidalii</i> (Van de Vijver et al.) Lowe et al.	+	+	—	—	—	—	—	—	—	VAN DE VIJVER et al. (2002b); CHATTOVÁ et al. (2018)
<i>H. virginiana</i> (Lange- Bertalot) Lowe et al.	—	—	—	—	+	—	—	nd	nd	LANGE-BERTALOT & WERUM (2001); WERUM & LANGE- BERTALOT (2004)
<i>H. vojtajarosikii</i> Kopalová et	—	—	—	—	—	—	+ / —	—	—	KOPALOVÁ et al. (2015)

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