

Supplementary Table S1. List of sequences used for the phylogenetic relationships within the genus *Cristaria* with respective haplotypes, localities, voucher numbers or specimen codes, and GenBank references. Acronyms for the voucher deposit institutions as follows: IEBR – Institute of Ecology and Biological Resources, Hanoi, Vietnam; CIIMAR – Interdisciplinary Centre of Marine and Environmental Research, Porto, Portugal; MHS – Matsuyama High School, Japan; NCSM – North Carolina Museum of Natural Sciences, U.S.A.; NCU – Nanchang University, China; NNIBR – Nakdonggang National Institute of Biological Resources, South Korea; RMBH – Russian Museum of Biodiversity Hotspots, Arkhangelsk, Russia.

Reference	Species	Haplotype	Latitude	Longitude	River/Lake	Region	Country	Voucher	Study
INGROUP									
ON704642	<i>Cristaria bellua</i>	85	----	----	Nam Ngum river	----	Laos	RMBH biv813/1	Konopleva et al 2023 [86]
ON704643	<i>Cristaria bellua</i>	86	----	----	Nam Ngum river	----	Laos	RMBH biv813/2	Konopleva et al 2023 [86]
ON704644	<i>Cristaria bellua</i>	87	----	----	Nam Ngum river	----	Laos	RMBH biv813/3	Konopleva et al 2023 [86]
ON704645	<i>Cristaria bellua</i>	87	----	----	Nam Don River	----	Laos	RMBH biv853/1	Konopleva et al 2023 [86]
ON704646	<i>Cristaria bellua</i>	88	----	----	Nam Don River	----	Laos	RMBH biv853/2	Konopleva et al 2023 [86]
ON704647	<i>Cristaria bellua</i>	89	----	----	Trib. of Nam Ngiap		Laos	RMBH biv891/1	Konopleva et al 2023 [86]
ON704648	<i>Cristaria bellua</i>	89	----	----	Trib. of Nam Ngiap		Laos	RMBH biv891/2	Konopleva et al 2023 [86]
ON704649	<i>Cristaria bellua</i>	89	----	----	Trib. of Nam Ngiap		Laos	RMBH biv891/5	Konopleva et al 2023 [86]
MT020592	<i>Cristaria clessini</i>	73	35.1419	136.0124	Lake Biwa	Shiga	Japan	MHS MCp-sigB	Lopes-Lima et al 2020 [18]
MT020592	<i>Cristaria clessini</i>	73	36.0399	138.1002	Yamanaka Lake	Yamanashi	Japan	MHS CPNG-01	Lopes-Lima et al 2020 [18]
MT020592	<i>Cristaria clessini</i>	73	36.2722	139.7518	Omoi River	Tochigi	Japan	MHS CPTG-03	Lopes-Lima et al 2020 [18]
MT020592	<i>Cristaria clessini</i>	73	36.2722	139.7518	Omoi River	Tochigi	Japan	MHS CPTG-04	Lopes-Lima et al 2020 [18]
MT025813	<i>Cristaria clessini</i>	78	38.7127	141.1051	Izunuma Lake	Miyagi	Japan	MHS FU003	Lee 2017 [91]
MT025814	<i>Cristaria clessini</i>	79	38.7127	141.1051	Izunuma Lake	Miyagi	Japan	MHS FU004	Lee 2017 [91]
KY561634	<i>Cristaria plicata</i>	8	----	----	Red River	----	Vietnam	RMBH biv_90_1	Bolotov et al 2017 [15]
MK574239	<i>Cristaria plicata</i>	8	----	----	Red River	----	Vietnam	RMBH biv_90_2	Konopleva et al 2023 [86]
MK574240	<i>Cristaria plicata</i>	8	----	----	Red River	----	Vietnam	RMBH biv_90_3	Konopleva et al 2023 [86]
MT020594	<i>Cristaria plicata</i>	75	35.5749	128.3584	Nakdong River	Hapcheon-gun	South Korea	NNIBR IV29255	Lopes-Lima et al 2020 [18]
MT020591	<i>Cristaria plicata</i>	66	36.1899	127.171	Geum River	Nonsan-si	South Korea	NNIBR IV29256	Lopes-Lima et al 2020 [18]
GQ451860	<i>Cristaria plicata</i>	65	----	----	----	----	South Korea	----	Park et al unp.

GU944476	<i>Cristaria plicata</i>	71	----	----	----	----	South Korea	----	Lee et al 2012 [92]
MT020591	<i>Cristaria plicata</i>	66	35.9143	126.7076	Mangyeong River	Gunsan-si	South Korea	NNIBR B04	Lopes-Lima et al 2020 [18]
KT348507	<i>Cristaria plicata</i>	68	46.4901	134.3584	Ussury River	Primorye	Russia	CIIMAR Biv1530	Klishko et al 2016 [64]
KT348508	<i>Cristaria plicata</i>	61	46.4901	134.3584	Ussury River	Primorye	Russia	CIIMAR Biv1531	Klishko et al 2016 [64]
KT362704	<i>Cristaria plicata</i>	69	50.5192	115.1342	Onon River	Transbaikalya	Russia	CIIMAR Biv246	Klishko et al 2014 [63]
KT362705	<i>Cristaria plicata</i>	69	50.5192	115.1342	Onon River	Transbaikalya	Russia	CIIMAR Biv247	Klishko et al 2014[63]
KU297678	<i>Cristaria plicata</i>	61	44.7075	132.0739	Khanka Lake	Primorye	Russia	CIIMAR BIV1537	Klishko et al 2016 [64]
KX822637	<i>Cristaria plicata</i>	9	50.5192	115.1342	Onon River	Transbaikalia	Russia	----	Lopes-Lima et al 2017 [18]
MK574241	<i>Cristaria plicata</i>	67	----	----	Amur River	Primorye	Russia	RMBH biv133/2	Konopleva et al 2023 [86]
MK574242	<i>Cristaria plicata</i>	61	----	----	Khanka Lake	Primorye	Russia	RMBH biv276/2	Konopleva et al 2023 [86]
MK574243	<i>Cristaria plicata</i>	72	----	----	Khanka Lake	Primorye	Russia	RMBH biv495/23	Konopleva et al 2023 [86]
MK574244	<i>Cristaria plicata</i>	76	----	----	Khanka Lake	Primorye	Russia	RMBH biv495/27	Konopleva et al 2023 [86]
MK574245	<i>Cristaria plicata</i>	60	----	----	Khanka Lake	Primorye	Russia	RMBH biv495/28	Konopleva et al 2023 [86]
MT020595	<i>Cristaria plicata</i>	74	40.757	141.328	Ogawara Lake	Aomori	Japan	MHS Cp21_12_CFFFRH	Lopes-Lima et al 2020 [18]
MT020596	<i>Cristaria plicata</i>	77	40.711	141.331	Anemuma Lake	Aomori	Japan	MHS CP_2-Ane-KON	Lopes-Lima et al 2020 [18]
MT020593	<i>Cristaria plicata</i>	74	36.0361	139.8702	Tone River	Ibaraki	Japan	MHS CPIX-01	Lopes-Lima et al 2020 [18]
MT020593	<i>Cristaria plicata</i>	74	36.0361	139.8702	Tone River	Ibaraki	Japan	MHS CPIX-02	Lopes-Lima et al 2020 [18]
MT020593	<i>Cristaria plicata</i>	74	36.0361	139.8702	Tone River	Ibaraki	Japan	MHS CPIX-03	Lopes-Lima et al 2020 [18]
MT020595	<i>Cristaria plicata</i>	74	36.928	136.825	Ochigata Lake	Ishikawa	Japan	MHS Cp33_01_CFFFRH	Lopes-Lima et al 2020 [18]
MT020595	<i>Cristaria plicata</i>	74	37.228	138.344	Uno Pond	Niigata	Japan	MHS Cp31_01_CFFFRH	Lopes-Lima et al 2020 [18]
MT020595	<i>Cristaria plicata</i>	74	35.4788	133.0161	Nishikatauchi Lake	Shimane	Japan	MHS CP_5-Mat-OSHI	Lopes-Lima et al 2020 [18]
MT020593	<i>Cristaria plicata</i>	74	36.2722	139.7518	Omoi River	Tochigi	Japan	MHS CPTG-01	Lopes-Lima et al 2020 [18]
MT020593	<i>Cristaria plicata</i>	74	36.2722	139.7518	Omoi River	Tochigi	Japan	MHS CPTG-02	Lopes-Lima et al 2020 [18]
MT025815	<i>Cristaria plicata</i>	74	37.2280	138.3440	Uno Pond	Niigata	Japan	MHS CPNG-02	Lee 2017 [91]
MT025815	<i>Cristaria plicata</i>	74	39.9201	139.7518	Hachirogata Lake	Akita	Japan	MHS CPAK-01	Lee 2017 [91]
MT025815	<i>Cristaria plicata</i>	74	39.9201	139.7518	Hachirogata Lake	Akita	Japan	MHS CPAK-02	Lee 2017 [91]

MT025815	<i>Cristaria plicata</i>	74	35.4984	134.1606	Koyamaike Lake	Tottori	Japan	MHS CPTT-01	Lee 2017 [91]
MT025815	<i>Cristaria plicata</i>	74	35.4984	134.1606	Koyamaike Lake	Tottori	Japan	MHS CPTT-02	Lee 2017 [91]
MT025815	<i>Cristaria plicata</i>	74	35.4788	133.0154	Sada River	Shimane	Japan	MHS CPSN-02	Lee 2017 [91]
MT025815	<i>Cristaria plicata</i>	74	35.4788	133.0154	Sada River	Shimane	Japan	MHS CPSN-03	Lee 2017 [91]
MT025815	<i>Cristaria plicata</i>	74	37.2280	138.3440	Uno Pond	Niigata	Japan	MHS CPNG-03	Lee 2017 [91]
MT025816	<i>Cristaria plicata</i>	81	36.9280	136.8250	Ochigata Lake	Ishikawa	Japan	MHS CPIK-02	Lee 2017 [91]
MT025815	<i>Cristaria plicata</i>	74	35.4984	133.0154	Sada River	Shimane	Japan	MHS CPSN-04	Lee 2017 [91]
MT025817	<i>Cristaria plicata</i>	82	36.9280	136.8250	Ochigata Lake	Ishikawa	Japan	MHS CPIK-03	Lee 2017 [91]
MT025811	<i>Cristaria plicata</i>	1	35.4984	134.1606	Koyamaike Lake	Tottori	Japan	MHS CPTT-03	Lee 2017 [91]
MT025811	<i>Cristaria plicata</i>	1	35.4984	134.1606	Koyamaike Lake	Tottori	Japan	MHS CPTT-04	Lee 2017 [91]
MT025811	<i>Cristaria plicata</i>	1	35.4984	134.1606	Koyamaike Lake	Tottori	Japan	MHS CPTT-05	Lee 2017 [91]
MT025811	<i>Cristaria plicata</i>	1	40.7414	141.2772	Ogawara Lake	Aomori	Japan	MHS CPAM-03	Lee 2017 [91]
MT025812	<i>Cristaria plicata</i>	2	40.7414	141.2772	Ogawara Lake	Aomori	Japan	MHS CPAM-04	Lee 2017 [91]
EU698893	<i>Cristaria plicata</i>	63	----	----	Yangtze basin	----	China	H1	Jia-Le et al 2009 [95]
EU698894	<i>Cristaria plicata</i>	62	----	----	Yangtze basin	----	China	H2	Jia-Le et al 2009 [95]
EU698895	<i>Cristaria plicata</i>	61	----	----	Yangtze basin	----	China	H3	Jia-Le et al 2009 [95]
EU698896	<i>Cristaria plicata</i>	60	----	----	Yangtze basin	----	China	H4	Jia-Le et al 2009 [95]
EU698897	<i>Cristaria plicata</i>	5	----	----	Yangtze basin	----	China	H5	Jia-Le et al 2009 [95]
EU698898	<i>Cristaria plicata</i>	59	----	----	Yangtze basin	----	China	H6	Jia-Le et al 2009 [95]
EU698899	<i>Cristaria plicata</i>	58	----	----	Yangtze basin	----	China	H7	Jia-Le et al 2009 [95]
EU698900	<i>Cristaria plicata</i>	57	----	----	Yangtze basin	----	China	H8	Jia-Le et al 2009 [95]
EU698901	<i>Cristaria plicata</i>	56	----	----	Yangtze basin	----	China	H9	Jia-Le et al 2009 [95]
EU698902	<i>Cristaria plicata</i>	55	----	----	Yangtze basin	----	China	H10	Jia-Le et al 2009 [95]
EU698903	<i>Cristaria plicata</i>	4	----	----	Yangtze basin	----	China	H11	Jia-Le et al 2009 [95]
EU698904	<i>Cristaria plicata</i>	54	----	----	Yangtze basin	----	China	H12	Jia-Le et al 2009 [95]
EU698905	<i>Cristaria plicata</i>	53	----	----	Yangtze basin	----	China	H13	Jia-Le et al 2009 [95]
EU698906	<i>Cristaria plicata</i>	52	----	----	Yangtze basin	----	China	H14	Jia-Le et al 2009 [95]
EU698907	<i>Cristaria plicata</i>	51	----	----	Yangtze basin	----	China	H15	Jia-Le et al 2009 [95]
EU698908	<i>Cristaria plicata</i>	50	----	----	Yangtze basin	----	China	H16	Jia-Le et al 2009 [95]
EU698911	<i>Cristaria plicata</i>	47	----	----	Yangtze basin	----	China	H19	Jia-Le et al 2009 [95]
EU698912	<i>Cristaria plicata</i>	46	----	----	Yangtze basin	----	China	H20	Jia-Le et al 2009 [95]
EU698913	<i>Cristaria plicata</i>	45	----	----	Yangtze basin	----	China	H21	Jia-Le et al 2009 [95]
EU698914	<i>Cristaria plicata</i>	44	----	----	Yangtze basin	----	China	H22	Jia-Le et al 2009 [95]
EU698915	<i>Cristaria plicata</i>	43	----	----	Yangtze basin	----	China	H23	Jia-Le et al 2009 [95]
EU698916	<i>Cristaria plicata</i>	42	----	----	Yangtze basin	----	China	H24	Jia-Le et al 2009 [95]
EU698917	<i>Cristaria plicata</i>	41	----	----	Yangtze basin	----	China	H25	Jia-Le et al 2009 [95]

EU698918	<i>Cristaria plicata</i>	40	----	----	Yangtze basin	----	China	H26	Jia-Le et al 2009 [95]
EU698919	<i>Cristaria plicata</i>	39	----	----	Yangtze basin	----	China	H27	Jia-Le et al 2009 [95]
EU698920	<i>Cristaria plicata</i>	38	----	----	Yangtze basin	----	China	H28	Jia-Le et al 2009 [95]
EU698921	<i>Cristaria plicata</i>	37	----	----	Yangtze basin	----	China	H29	Jia-Le et al 2009 [95]
EU698922	<i>Cristaria plicata</i>	36	----	----	Yangtze basin	----	China	H30	Jia-Le et al 2009 [95]
EU698923	<i>Cristaria plicata</i>	35	----	----	Yangtze basin	----	China	H31	Jia-Le et al 2009 [95]
EU698924	<i>Cristaria plicata</i>	34	----	----	Yangtze basin	----	China	H32	Jia-Le et al 2009 [95]
EU698925	<i>Cristaria plicata</i>	6	----	----	Yangtze basin	----	China	H33	Jia-Le et al 2009 [95]
EU698926	<i>Cristaria plicata</i>	33	----	----	Yangtze basin	----	China	H34	Jia-Le et al 2009 [95]
EU698927	<i>Cristaria plicata</i>	32	----	----	Yangtze basin	----	China	H35	Jia-Le et al 2009 [95]
EU698928	<i>Cristaria plicata</i>	31	----	----	Yangtze basin	----	China	H36	Jia-Le et al 2009 [95]
EU698929	<i>Cristaria plicata</i>	30	----	----	Yangtze basin	----	China	H37	Jia-Le et al 2009 [95]
EU698930	<i>Cristaria plicata</i>	29	----	----	Yangtze basin	----	China	H38	Jia-Le et al 2009 [95]
EU698931	<i>Cristaria plicata</i>	28	----	----	Yangtze basin	----	China	H39	Jia-Le et al 2009 [95]
EU698932	<i>Cristaria plicata</i>	27	----	----	Yangtze basin	----	China	H40	Jia-Le et al 2009 [95]
EU698933	<i>Cristaria plicata</i>	26	----	----	Yangtze basin	----	China	H41	Jia-Le et al 2009 [95]
EU698934	<i>Cristaria plicata</i>	25	----	----	Yangtze basin	----	China	H42	Jia-Le et al 2009 [95]
EU698935	<i>Cristaria plicata</i>	24	----	----	Yangtze basin	----	China	H43	Jia-Le et al 2009 [95]
EU698936	<i>Cristaria plicata</i>	23	----	----	Yangtze basin	----	China	H44	Jia-Le et al 2009 [95]
EU698938	<i>Cristaria plicata</i>	22	----	----	Yangtze basin	----	China	H46	Jia-Le et al 2009 [95]
EU698939	<i>Cristaria plicata</i>	21	----	----	Yangtze basin	----	China	H47	Jia-Le et al 2009 [95]
EU698941	<i>Cristaria plicata</i>	16	----	----	Yangtze basin	----	China	H49	Jia-Le et al 2009 [95]
EU698944	<i>Cristaria plicata</i>	15	----	----	Yangtze basin	----	China	H52	Jia-Le et al 2009 [95]
EU698945	<i>Cristaria plicata</i>	14	----	----	Yangtze basin	----	China	H53	Jia-Le et al 2009 [95]
EU698946	<i>Cristaria plicata</i>	13	----	----	Yangtze basin	----	China	H54	Jia-Le et al 2009 [95]
EU698947	<i>Cristaria plicata</i>	12	----	----	Yangtze basin	----	China	H55	Jia-Le et al 2009 [95]
EU698948	<i>Cristaria plicata</i>	11	----	----	Yangtze basin	----	China	H56	Jia-Le et al 2009 [95]
EU698949	<i>Cristaria plicata</i>	10	----	----	Yangtze basin	----	China	H57	Jia-Le et al 2009 [95]
EU698950	<i>Cristaria plicata</i>	7	----	----	Yangtze basin	----	China	H58	Jia-Le et al 2009 [95]
JF700152	<i>Cristaria plicata</i>	64	----	----	----	----	China	AS13MT01	Zhang et al Unp
JF700153	<i>Cristaria plicata</i>	63	----	----	----	----	China	AS13MT02	Zhang et al Unp
KM233451	<i>Cristaria plicata</i>	5	----	----	----	----	China	----	Wang et al 2016 [94]
MG462956	<i>Cristaria plicata</i>	6	----	----	Gan River	Jiangxi	China	NCU 16_XPWU_SU047	Huang et al 2019 [17]
MG462957	<i>Cristaria plicata</i>	5	----	----	Gan River	Jiangxi	China	NCU 16_XPWU_SU048	Huang et al 2019 [17]
MG462958	<i>Cristaria plicata</i>	4	----	----	Wang Lake	Hubei	China	NCU 16_XPWU_SU049	Huang et al 2019 [17]
MG462959	<i>Cristaria plicata</i>	3	----	----	Qinglan Lake	Jiangxi	China	NCU 16_XPWU_SU050	Huang et al 2019 [17]

MG933708	<i>Cristaria plicata</i>	7	----	----	----	----	China	NCU BM 20180222	Wu et al 2018 [95]
NC_012716	<i>Cristaria plicata</i>	70	----	----	----	Zhejiang	China	----	Jiang et al Unp.
EU698909	<i>Cristaria</i> sp.	49	----	----	Yangtze basin	----	China	H17	Jia-Le et al 2009 [95]
EU698910	<i>Cristaria</i> sp.	48	----	----	Yangtze basin	----	China	H18	Jia-Le et al 2009 [95]
EU698937	<i>Cristaria</i> sp.	20	----	----	Yangtze basin	----	China	H45	Jia-Le et al 2009 [95]
EU698940	<i>Cristaria</i> sp.	19	----	----	Yangtze basin	----	China	H48	Jia-Le et al 2009 [95]
EU698942	<i>Cristaria</i> sp.	18	----	----	Yangtze basin	----	China	H50	Jia-Le et al 2009 [95]
EU698943	<i>Cristaria</i> sp.	17	----	----	Yangtze basin	----	China	H51	Jia-Le et al 2009 [95]
OP491287	<i>Cristaria truncata</i>	83	22.5522	106.3966	Bằng River	Đông Bắc	Vietnam	IEBR FM CT01	Konopleva et al 2023 [86]
OP491288	<i>Cristaria truncata</i>	84	22.5522	106.3966	Bằng River	Đông Bắc	Vietnam	IEBR FM CT02	Konopleva et al 2023 [86]
OP491289	<i>Cristaria truncata</i>	84	22.5522	106.3966	Bằng River	Đông Bắc	Vietnam	NCSM 102885.1	Konopleva et al 2023 [86]
OP491290	<i>Cristaria truncata</i>	84	22.5522	106.3966	Bằng River	Đông Bắc	Vietnam	NCSM 102885.2	Konopleva et al 2023 [86]
OP491291	<i>Cristaria truncata</i>	84	22.5522	106.3966	Bằng River	Đông Bắc	Vietnam	NCSM 102885.3	Konopleva et al 2023 [86]
OUTGROUP									
SUBMITTED	<i>Pletholophus honglinhensis</i>	----	18.5314	105.7234	Hong Lin	Bắc Trung Bộ	Vietnam	NCSM 47211.1	THIS STUDY
SUBMITTED	<i>Sinanodonta jourdyi</i>	----	18.5314	105.7230	----	Bắc Trung Bộ	Vietnam	NCSM 47207.01	THIS STUDY
MH293546	<i>Gibbosula crassa</i>	----	44.9143	142.5843	Bằng River	Đông Bắc	Vietnam	IEBR FM GC01	Lopes-Lima et al 2020 [18]