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Supplementary material

Phylogenetic position of *Aculamprotula polysticta*, comb. res. (Bivalvia : Unionidae) inferred from phylogenetic relationships in Unionida

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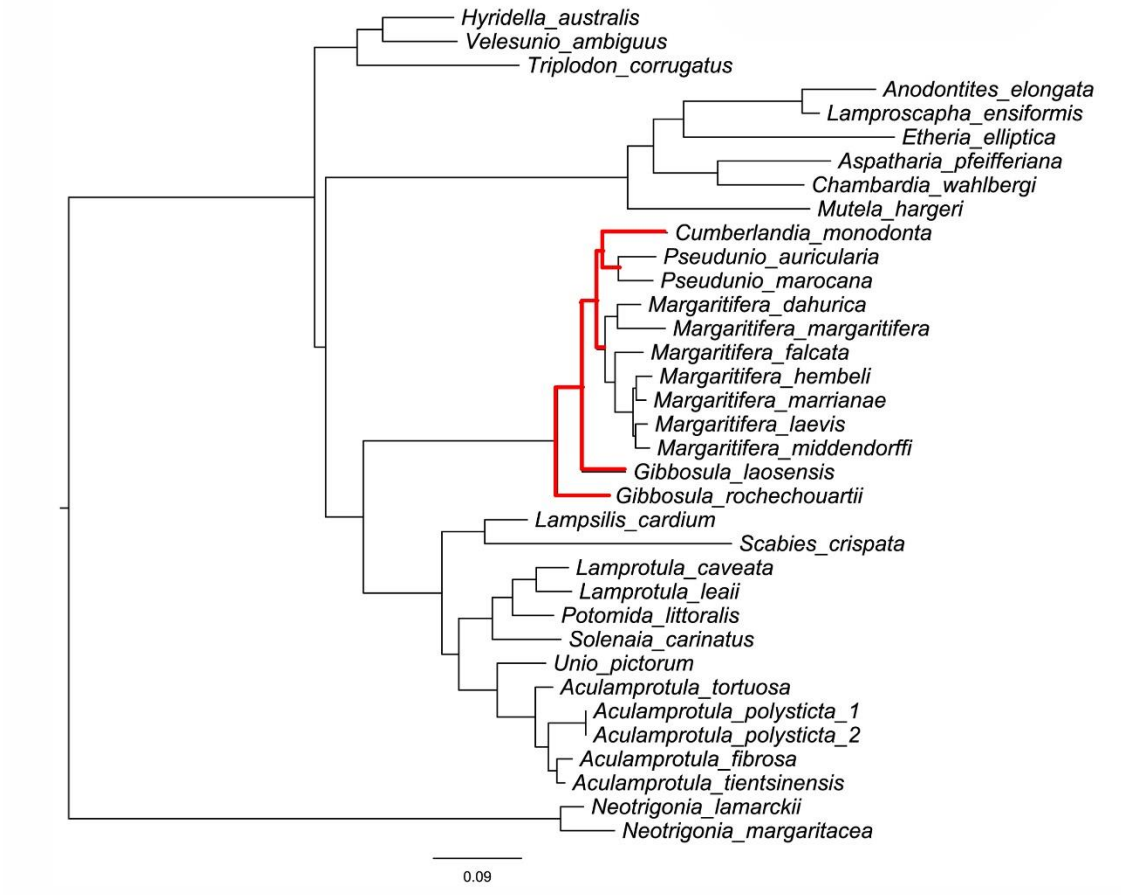

Fig. S1.


Unio rochechouarti. H.
riv. Siang. (Hounan.) Chine
U. affinis, H.
1043. Chine

Fig. S2.

Table S1. Sequences from five-gene dataset used for molecular analyses and corresponding GenBank numbers

Subclass	Family	Taxon	Voucher number	Location	16S	COI	28S rRNA's expansion segment D3	18S	Histone H3
Palaeoheterodonta	Margaritiferidae	*Cumberlandia monodonta*	MCZ DNA100863	Missouri, USA	AY579089	AY579131	AY579121	AY579105	AY579144
		Gibbosula laosensis	(ML3)	Mun River, Thailand	KU763193	KU763224	KU763298	KU763255	KU763342
		Gibbosula rochechouartii	FM092137	Nanxinxiang (28.811560, 116.087020), Gan River, Jiangxi, China	MF072505	MF072498	MF072512	MF072519	MF072526
		Margaritifera dahurica	MCZ DNA100683	Komissarovka River, Primorye Terr., Russia	KF514426	AY579123	AY579107	AY579091	AY579133
		Margaritifera falcata	MCZ DNA100844	Idaho, USA	AY579085	AY579128	AY579117	AY579101	AY579141
		Margaritifera hembeli	(000)	Valentine Creek, Louisiana, USA	KU763189	KU763218	KU763293	KU763250	KU763336
		Margaritifera laevis	MNCN-FW1502-1	Iwaizumi Town, Honshu, Japan	EU590914	KU763221	KU763295	KU763252	KU763339
		Margaritifera margaritifera	MNCN-FW1408-3	Thurma River, Kola Peninsula, Russia	AF303296	AF303334	KU763314	KU763271	KU763357
		Margaritifera marrianae	UAUC1651	Hunter Creek, Alabama, USA	KU763214	KU763243	KU763326	KU763283	KU763369
		Margaritifera middendorffi	MT32-04	Togakushi, Nagano, Japan	KU763215	KU763244	KU763327	KU763284	KU763370
		Pseudunio auricularia	MCZ DNA100674	Ebro River, Tarragona, Spain	AY579083	AY579125	AY579113	AY579097	AY579137
		Pseudunio marocana	MNCN-N1252	Oum Er Rbia River, Dange Bradia, Morocco	EU429687	EU429677	KU763323	KU763280	KU763366
	Unionidae	*Aculamprotula fibrosa*			MK683001	MG933687	MK683026	MK682976	MK682951
		Aculamprotula tientsinensis	FM084028	Nanxinxiang, Gan River, Jiangxi, China	MF072511	MF072504	MF072518	MF072525	MF072532
		Aculamprotula polysticta	NCFM180411	Tachangxiang (116.110486, 28.510144),	MK687412	MK687418	MK687416	MK687414	MK687420

Subclass	Family	Taxon	Voucher number	Location	16S	COI	28S rRNA's expansion segment D3	18S	Histone H3
				Dongganqu River, Jiangxi, China					
		Aculamprotula polysticta	NCFM180412	Tachangxiang (116.110486, 28.510145), Dongganqu River, Jiangxi, China	MK687413	MK687419	MK687417	MK687415	MK687421
		Aculamprotula scripta	NCFM170623	Qinglan Lake (116.159208, 28.504331), Jiangxi, China	MK683002	MF991456	MK683027	MK682977	MK682952
		Aculamprotula tortuosa	NCFM171204	Qinglan Lake (116.159208, 28.504331), Jiangxi, China	MK683003	MG933691	MK683028	MK682978	MK682959
		Lamprotula caveata	NCFM171205	Qinglan Lake (116.159208, 28.504331), Jiangxi, China	MK683006	MG383689	MK683031	MK682981	MK682962
		Lamprotula leaii	NCFM087113	Qinglan Lake, Jiangxi, China	MF072510	MF072503	MF072517	MF072524	MF072531
		Lampsilis cardium	BivAToL-421	Illinois, USA	KX713226	KX713472	KX713394	KX713305	KX713547
		Potomida littoralis	MNCN-N706	Cadiz, Spain	KP217981	KP217871	KU763330	KU763287	KU763373
		Scabies crispata	BivAToL-373	Unknown [UK aquarium trade]	KX713253	KP795023	KX713429	KX713342	KX713577
		Solenaia carinatus			MK683025	NC_023250	MK683050	MK683000	MK682975
		Unio pictorum	BivAToL-204	England, UK	KC429266	KC429109	KC429447	KC429349	KC429186
	Trigoniidae	*Neotrigonia margaritacea*	MCZ 379090	Tasmania, Australia	KX713243	KP068122	KP068171	KP068219	KP068290

Subclass	Family	Taxon	Voucher number	Location	16S	COI	28S rRNA's expansion segment D3	18S	Histone H3
		Neotrigonia lamarckii	BivAToL-97	Queensland, Australia	KC429262	KC429105	KC429443	KC429345	KC429182
	Etheriidae	*Etheria elliptica*	BivAToL-404	Zambia	KX713219	KX713462	KX713384	KX713296	KX713540
	Iridinidae	*Aspatharia pfeifferiana*	BivAToL-330	Zambia	KC429264	KC429107	KC429445	KC429347	KC429184
		Chambardia wahlbergi	BivAToL-405	Zambia	KX713202	KX713448	KX713365	KX713277	KX713520
		Mutela hargeri	BivAToL-401	Zambia	KX713237	KX713482	KX713405	KX713317	KX713559
	Mycetopodidae	*Anodontites elongata*	BivAToL-323	Peru	KX713190	KX713444	KX713357	KX713268	KX713512
		Lamproscapha ensiformis	BivAToL-382	Peru	KX713225	KX713471	KX713393	KX713304	KX713546
	Hyriidae	*Hyridella australis*	BivAToL-378	New South Wales, Australia	KX713224	KX713467	KX713389	KX713301	KX713545
		Triplodon corrugatus	BivAToL-380	Peru	KX713262	KX713505	KX713438	KX713352	KX713585
		Velesunio ambiguus		New South Wales, Australia	KC429263	KC429106	KC429444	KC429346	KC429183

Table S2. Sequences from mtDNA dataset used for molecular analyses and corresponding GenBank numbers

Taxon	GenBank accession number
UNIONIDAE	
Ambleminae	
Quadrula quadrula (Rafinesque, 1820)	FJ809750
Venustaconcha ellipsiformis (Conrad, 1836)	FJ809753
Potamilus alatus (Say, 1817)	KU559011
Leptodea leptodon (Rafinesque, 1820)	NC_028522
Toxolasma parvum (Barnes, 1823)	HM856639
Lampsilis ornata (Conrad, 1835)	NC_005335
Gonideinae	
Pronodularia japanensis (Lea, 1859)	AB055625
Lamprotula leaii (Griffith & Pidgeon, 1833)	NC_023346
Ptychorhynchus pfisteri (Heude, 1874)	KY067440
Potomida littoralis (Cuvier, 1798)	NC_030073
Solenaia oleivora (Heude, 1877)	NC_022701
Solenaia carinatus(Heude, 1877)	NC_023250
Sinohyriopsis schlegelii (Martens, 1861)	HQ641406
Sinohyriopsis cumingii (Lea, 1852)	NC_011763
Unioninae	
Acuticosta chinensis (Lea, 1868)	MH919390
Arconaia lanceolata (Lea, 1856)	KJ144818
Lanceolaria grayana (Lea, 1834)	NC_026686
Pyganodon grandis (Say, 1829)	FJ809754
Utterbackia peninsularis Bogan & Hoeh, 1995	HM856636
Utterbackia imbecillis (Say, 1829)	HM856637
Lasmigona compressa (Lea, 1829)	NC_015481
Anodonta anatina (Linnaeus, 1758)	NC_022803
Sinanodonta woodiana (Lea, 1834)	HQ283346
Sinanodonta lucida (Heude, 1877)	KF667529
Anemina arcaeformis (Heude, 1877)	KF667530
Anemina euscaphys (Heude, 1879)	NC_026792
Cristaria plicata (Leach, 1814)	KM233451
Lepidodesma languilati (Heude, 1874)	NC_029491
Schistodesmus lampreyanus (Baird & Adams, 1867)	MH919388

Taxon	GenBank accession number
Cuneopsis pisciculus (Heude, 1874)	NC_026306
Cuneopsis heudei (Heude, 1874)	MH919389
Cuneopsis capitatus (Heude, 1874)	MH919387
Nodularia douglasiae (Griffith & Pidgeon, 1833)	NC_026111
Unio delphinus Spengler, 1793	KT326917
Unio pictorum (Linnaeus, 1758)	NC_015310
Unio crassus Retzius, 1788	KY290446
Unio tumidus Retzius, 1788	KY021076
Aculamprotula tortuosa (Lea, 1865)	NC_021404
Aculamprotula scripta (Heude, 1875)	MF991456
Aculamprotula coreana (Martens, 1886)	NC_026035
Aculamprotula polysticta **comb. res.**	MK728823
Aculamprotula tientsinensis (Crosse & Debeaux, 1863)	NC_029210
MARGARITIFERIDAE	
Gibbosula rochechouartii (Heude, 1875)	KX378172
Margaritifera falcata (Gould, 1850)	NC_015476
Cumberlandia monodonta (Say, 1829)	NC_034846
Margaritifera dahurica (Middendorff, 1850)	NC_023942
HYRIIDAE	
Echyridella menziesii(Dieffenbach, 1843)	NC_034845
IRIDINIDAE	
Mutela dubia (Gmelin, 1791)	NC_034844
MYCETOPODIDAE	
Anodontites trapesialis (Lamarck, 1819)	KU873119
NEOTRIGONIIDAE	
Neotrigonia margaritacea (Lamarck, 1804)	KU873118

Table S3. Partitioning schemes and best fit models identified by ModelFinder and PartitionFinder for the combined mitochondrial and nuclear five-gene dataset

Partitioning schemes	ModelFinder	PartitionFinder
	IQ-TREE	Mrbayes
Nine partitioning (16s, 18s, 28, COI_1st,COI_2nd, COI_3rd, H3_1st, H3_2nd, H3_3rd)	TIM2+F+I+G4 16s TIM+F+R3 18s TN+F+R2 28s TN+F+I+G4 COI_1st GTR+F+I COI_2nd TPM2u+F+R3 COI_3rd TN+F+I H3_1st TIM3e+I+G4 H3_2nd HKY+F+G4 H3_3rd	GTR+I+G 16s GTR+I+G COI_2nd, H3_2nd, H3_1st, 18s, 28s GTR+I+G COI_1st HKY+G COI_3rd HKY+G H3_3rd

Table S4. Partitioning strategies from PartitionFinder for whole mt genome dataset for BI analysis

Subset	Best Model	sites	Partition names
1	GTR+I+G	1195	ATP6_pos1, ND5_pos1, ND4_pos1
2	GTR+I+G	1195	ND5_pos2, ND4_pos2, ATP6_pos2
3	GTR+I+G	1195	ND5_pos3, ND4_pos3, ATP6_pos3
4	GTR+I+G	995	COI_pos1, COII_pos1, COIII_pos1
5	GTR+I+G	995	COI_pos2, COII_pos2, COIII_pos2
6	GTR+I+G	1190	ND3_pos3, ND4L_pos3, COII_pos3, COI_pos3, COIII_pos3
7	SYM+I+G	673	CYTB_pos1, ND1_pos1
8	GTR+I+G	1143	ND2_pos2, ND6_pos2, CYTB_pos2, ND1_pos2
9	GTR+I+G	1143	ND2_pos3, CYTB_pos3, ND1_pos3, ND6_pos3
10	GTR+I+G	470	ND6_pos1, ND2_pos1
11	GTR+I+G	390	ND4L_pos1, ND4L_pos2, ND3_pos2, ND3_pos1

Table S5. Partitioning strategies from ModelFinder for whole mt genome dataset

GTR+F+R4	ATP6_codon1; ND4L_codon1,
GTR+F+R5	ATP6_codon2; ND3_codon2; ND4_codon2,
GTR+F+R4	ATP6_codon3; ND3_codon3; ND4L_codon3,
TPM2u+F+I+G4	COII_codon1,
TVM+F+R3	COII_codon2; COIII_codon2,
TVM+F+R3	COII_codon3,
K3Pu+F+I+G4	COIII_codon1,
TPM2u+F+R5	COIII_codon3; COI_codon3,
TIM2+F+I+G4	COI_codon1,
TVM+F+R3	COI_codon2,
TIM2e+R4	CYTB_codon1,
TIM3+F+R3	CYTB_codon2,
TIM3+F+ASC+R3	CYTB_codon3,
SYM+I+G4	ND1_codon1,
GTR+F+I+G4	ND1_codon2,
TIM2+F+ASC+R3	ND1_codon3,
TIM2+F+R4	ND2_codon1; ND6_codon1,
GTR+F+R5	ND2_codon2; ND6_codon2,
TVM+F+R4	ND2_codon3,
TIM2+F+I+G4	ND3_codon1,
GTR+F+R4	ND4L_codon2; ND5_codon2,
TIM2+F+R4	ND4_codon1; ND5_codon1,
GTR+F+R2	ND4_codon3,
GTR+F+R3	ND5_codon3,
TIM2+F+ASC+G4	ND6_codon3;