

**Table S1.** DNA sequences used in the phylogenetic analyses of this study. N: Number of sequences.

Suborder	Family	Species	N	Accession Number		
Calycophorae	Abylidae	<i>Abylopsis eschscholtzii</i>	16	GQ119937, KX384609, MH444747-MH444758, MW125242, MW125247		
		<i>Abylopsis tetragona</i>	4	GQ119938-GQ119939, HM053518, MW125218		
		<i>Bassia bassensis</i>	4	GQ119959-GQ119960, MW125215, MW125229		
		<i>Ceratocymba leuckartii</i>	1	ON553405*		
		<i>Ceratocymba sagittata</i>	1	GQ119961		
		<i>Enneagonum hyalinum</i>	4	GQ119974-GQ119975, MW125228, MW125239		
	Diphyidae	<i>Chelophyes appendiculata</i>	7	MW125230, MW125232-MW125233, MW125237, MW125240, MW125248, MZ292871		
		<i>Chelophyes contorta</i>	3	MZ292872-MZ292874		
		<i>Dimophyes arctica</i>	3	ON539931*, GQ119966, MZ292875		
		<i>Diphyes bojani</i>	6	GQ119967-GQ119970, MZ292030-MZ292031		
		<i>Diphyes chamissonis</i>	17	KF962109-KF962110, KF977265-KF977271, MH388299, MH401084-MH401085, MZ292876-MZ292880		
		<i>Diphyes dispar</i>	11	AY937367, GQ119971-GQ119973, KU529462, MH401081-MH401083, MZ292881-MZ292883		
		<i>Eudoxoides mitra</i>	12	GQ119977-GQ119980, MH401079-MH401080, MW125217, MW125231, MW125236, MZ292884-MZ292886		
		<i>Eudoxoides spiralis</i>	6	GQ119981-GQ119983, MW125238, MZ292887-MZ292888		
		<i>Lensia achilles</i>	1	GQ120000		
		<i>Lensia campanella</i>	4	GQ120001, GQ120066, JQ353738-JQ353739		
		<i>Lensia conoidea</i>	1	GQ120002		
		<i>Lensia cossack</i>	1	MZ292889		
		<i>Lensia exeter</i>	1	GQ120003		
		<i>Lensia fowleri</i>	4	GQ120004-GQ120007		
		<i>Lensia grimaldii</i>	1	GQ120008		
		<i>Lensia hotspur</i>	1	GQ120009		
		<i>Lensia meteori</i>	1	GQ120010		
		<i>Lensia multicristata</i>	4	GQ120011-GQ120014		
		<i>Lensia subtiloides</i>	3	ON532017 - ON532018*, KF977289		
		<i>Muggiaea atlantica</i>	24	ON540133 - ON540143*, JQ353740-JQ353745, KF977296-KF977299, MZ292890-MZ292892		
		<i>Sulculeolaria quadrivalvis</i>	4	AY937378, GQ120048-GQ120050		
		Clausophyidae**	<i>Kephyes ovata</i>	1	GQ119999	
		Physonectae	Agalmatidae	<i>Agalma elegans</i>	6	AY937363, GQ119940-GQ119943, KF962059
				<i>Agalma okenii</i>	14	GQ119944-GQ119948, MH708467-MH708471, MW125221-MW125223, MW125246
				<i>Athorybia rosacea</i>	4	AY937364, GQ119956, MW125219-MW125220
				<i>Frillagalma vityazi</i>	2	GQ119986-GQ119987
				<i>Halistemma cupulifera</i>	2	GQ119989-GQ119991
<i>Halistemma isabu</i>	6			MT933178-MT933183		
<i>Halistemma rubrum</i>	1			AY937372		
<i>Marrus claudanielis</i>	1			GQ120021		
<i>Marrus orthocanna</i>	1			GQ120019		
<i>Nanomia bijuga</i>	11			ON532083 - ON532086*, AY937373, JQ716068-JQ716071, KF977305, LN901200		
<i>Nanomia cara</i>	7			GQ120023-GQ120029		
Cordagalmatidae**	<i>Cordagalma cordiforme</i>			1	AY937366	

\*New acquired sequences; \*\*: Outgroup.