

Table S8: Quartet sampling (QS) scores (QC/QD/QI) from analysing the best ML tree inferred from analysing the amino acid dataset (sm-aa). Bootstrap support (BS) and the QS scores are given as follows: node label = label of the internal or terminal branch, freq 0 = number of concordant replicates over the non-uncertain total, qc = Quartet Concordance score (internal branches only; measures frequency of concordant over discordant), qd = Quartet Differential score (internal branches only; measures skew in the two discordant tree counts), qi = Quartet Informativeness score (internal branches only; measures number of replicates that fail likelihood cut off), num replicates = number of replicates actually sampled per branch, and count 0 = count of the number of QS replicates for the concordant quartet arrangement, count 1 and count 2 = count of the number of QS replicates for both discordant quartet arrangements.

taxonomic group(s)	BS	node label	freq0	qc	qd	qi	count 0	count 1	count 2	num replicates
Ammoplanidae and Anthophila	75	QS7	0.226	-0.061	0.683	0.265	12	14	27	200
Psenidae to (Anthophila + Ammoplanidae)	22	QS8	0.233	-0.069	0.638	0.450	21	22	47	200
Pemphredonini partim. + (Philanthidae + (<i>Eremiasphecium</i> + <i>E. concinnus</i>)) to all remaining species	62	QS9	0.870	0.606	0.222	0.345	60	1	8	200
Pemphredonini partim. to (Philanthidae + (<i>Eremiasphecium</i> + <i>E. concinnus</i>))	37	QS12 ₉	0.663	0.228	0.621	0.430	57	9	20	200
Philanthidae to (<i>Eremiasphecium</i> + <i>E. concinnus</i>)	33	QS13 ₆	0.549	0.140	0.510	0.565	62	13	38	200
<i>Eremiasphecium</i> and <i>E. concinnus</i>	47	QS14 ₆	0.623	0.305	0.150	0.530	66	37	3	200
Bembicidae to all remaining species	34	QS10	0.190	-0.067	0.766	0.290	11	18	29	200
Astatidae to all remaining species	47	QS11	0.466	0.038	0.872	0.365	34	22	17	200
(Crabronidae + Sphecidae) + (Heterogynaidae + Mellinidae) to all remaining species	100	QS77	0.903	0.666	0.400	0.515	93	2	8	200
(Crabronidae + Sphecidae) and (Heterogynaidae + Mellinidae)	48	QS12	0.437	0.028	0.842	0.675	59	44	32	200
Crabronidae and Sphecidae	47	QS13	0.452	0.050	0.702	0.520	47	37	20	200
Heterogynaidae and Mellinidae	77	QS75	0.112	-0.120	0.984	0.710	16	64	62	200
Ampulicidae to all remaining species	100	QS78	1.00	1.00	NA	0.995	199	0	0	200