

Table S9: Quartet sampling (QS) scores (QC/QD/QI) from analysing the alternative ML tree inferred from 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 / 2 = count of the number of QS replicates for one of the 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	0.333	-0.090	0.471	0.255	17	8	26	200
(Psenidae + <i>E. concinnus</i>) to (Anthophila + Ammoplanidae)	25	QS8	0.229	-0.172	0.375	0.415	19	12	52	200
Psenidae + <i>E. concinnus</i>	50	QS146	0.943	0.766	0.800	0.440	83	3	2	200
Pemphredonini <i>partim.</i> + (Philanthidae + <i>Eremiasphecium</i>) to all remaining species	62	QS9	0.864	0.566	0.545	0.405	70	3	8	200
Pemphredonini <i>partim.</i> to (Philanthidae + <i>Eremiasphecium</i>)	45	QS129	0.679	0.256	0.560	0.390	53	7	18	200
Philanthidae + <i>Eremiasphecium</i>	46	QS136	0.641	0.228	0.464	0.780	100	13	43	200
Bembicidae to all remaining species	34	QS10	0.254	-0.019	0.864	0.295	15	19	25	200
Astatidae to all remaining species	47	QS11	0.582	0.122	0.848	0.395	46	19	14	200
(Crabronidae + Sphecidae) + (Heterogynaidae + Mellinidae) to all remaining species	100	QS77	0.870	0.597	0.333	0.465	81	2	10	200
(Crabronidae + Sphecidae) and (Heterogynaidae + Mellinidae)	48	QS12	0.535	0.080	0.900	0.645	69	33	27	200
Crabronidae and Sphecidae	47	QS13	0.500	0.059	0.840	0.500	50	29	21	200
Heterogynaidae and Mellinidae	77	QS75	0.197	-0.041	0.981	0.660	26	54	52	200
Ampulicidae to all remaining species	100	QS78	0.994	0.952	0.0	0.950	189	0	1	200