Palicourea QS Methods and Results

**Methods:** Quartet Sampling (cite, version) was used to calculate support for the species tree topology and explore potential sources of gene-tree discordance. We ran Quartet Sampling with 200 replicates and a log-likelihood threshold cutoff of two. All 810 final alignments were concatenated into a single super matrix and used as input for the analysis—no partition file was used. The 810 corresponding final gene trees were also used as input.

**Results:** The proportion of informative replicates, summarized by the quartet informativeness (QI) score, ranged from 0.88 – 1 (x̄ = 0.99) across all branches. Only one branch had a QI score less than 0.90, suggesting that low information was not a major source of gene tree discordance. Quartet topologies were largely concordant with the species tree topology. QC ranged from -0.34 – 1 (x̄ = 0.55), and only nine branches (8%) had a negative QC score— these negative scores were mostly concentrated in *Palicourea* subg. *Montanae*. 79 branches (72%) showed strong support (QC ≥ 0.2), and 40 branches (36%) showed full support (QC = 1) meaning that 100% if quartets supported the main topology. The quartet differential (QD), which measures skewedness in the frequencies of the two discordant quartet topologies was highly variable across the phylogeny, ranging from 0 to 0.99 (x̄ = 0.47). 15 branches (13%) had a QD of 0 (indicates complete skewedness), however 11 of these 15 branches had a particularly low number of total discordant quartets (1% or less of total replicates), which can exaggerate the skew (and decrease QD) towards one discordant quartet topology or the other. Lastly, the quartet fidelity (QF) score was >0.70 for 65% of taxa meaning that when sampled in quartets, most taxa tended to produce a quartet topology that was concordant with the species tree. QF ranged from 0.43 – 0.93 (x̄ = 0.75).

[[branches that show counter-support 🡪 negative QC and low QD; counter support for an alternative quartet topology—can mention these alternative topologies ]]