GSA Connects 2021 in Portland, Oregon

Paper No. 25-27
Presentation Time: 9:00 AM-1:00 PM

PHYLOGENETIC ANALYSIS OF THE FAMILY AFROGRAPTIDAE (BRANCHIOPODA-DIPLOSTRACA-ESTHERIELLINA)

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No phylogenetic analyses have been conducted on fossil clam shrimp and few have explored the implications of extant clam shrimp molecular phylogenies for the fossil record. At the same time, phylogenetic hypotheses of relationships between fossil taxa have been a great topic of debate and are not very well understood. The carapace is often the only preserved element of the group in the fossil record. The systematic and evolutionary history of the group are based on their stratigraphic occurrence and morphological features of the carapace (such as size, shape, position of the umbo, ornamentation, and frequency of growth lines). In this work, we have created a morphological phylogenetic analysis on fossils clam shrimp particularly Family Afrograptidae to evaluate the phylogenetic structure of the ingroup. The Family Afrograptidae is a clam shrimp group with multiple radial costae reaching the margin of the carapace from the umbo. Afrograptidae contains six described genera: *Afrograpta*, *Camerunograpta*, *Congestheriella*, *Graptoestheriella*, *Surreyestheria* and *Lahuerguinagrapta* with a total of fifteen described species which are reported from the Jurassic and the Cretaceous in Africa, Europe and South America. The phylogenetic analysis was performed using 23 species-level terminal taxa, including ten outgroup species (six from the superfamily Estherielloidea, three from Leaiina, and one Euestheriidae) and 13 taxa in the ingroup (including all afrograptid genera). We used 58 characters (including both discrete and continuous characters), and analyzed them using TNT 1.5 under equal and implied weights. All of our results recovered Afrograptidae as a monophyletic family including *Afrograpta*, *Surreyestheria*, *Graptoestheriella*, *Camerunograpta* and *Lahuerguinagrapta*, but *Congestheriella* species were found within a different clade. The speciose genus *Congestheriella* was recovered in different placements and may actually consist of two clades. Some of the synapomorphies of the Afrograptidae includes a high number of growth lines (>25, excepting *Surreyestheria*), wave aspect of ventral margin related to radial ribs, concentric lines stout, presence of crowded sculptural elements on concentric lines, and thick costae.

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Exhibit Hall A (Oregon Convention Center)

Geological Society of America *Abstracts with Programs.* Vol 53, No. 6
doi: 10.1130/abs/2021AM-369144

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