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A matter of peduncles: integrative systematics reshapes the genus *Aspidiophorus* (Gastrotricha, Chaetonotida)

The taxonomy of Gastrotricha is currently being reshaped by molecular phylogenetics, revealing widespread incongruence between morphology-based classifications and evolutionary relationships. Within Chaetonotidae, the most species-rich family of the phylum, diagnostic characters such as cuticular ornamentation have proved highly homoplastic, resulting in extensive para- and polyphyly of several established genera. The genus *Aspidiophorus*, traditionally defined by the presence of pedunculated scales, represents one of the clearest examples of this taxonomic instability. Here, we reassessed the evolutionary relationships within *Aspidiophorus* by substantially expanding its molecular sampling. Sixteen newly sequenced terminals were added to the dataset, including six marine species (one new to science) and nine freshwater taxa (three new to science). Phylogenetic relationships were inferred using a concatenated multilocus dataset (18S, 28S and COI) analysed within a broad Chaetonotida framework. Molecular evidence was integrated with detailed morphological investigations to provide a comprehensive systematic assessment. Our analyses recovered a deep and strongly supported split between marine and freshwater lineages. The marine clade was resolved as the earliest-diverging lineage within Chaetonotida, sister to all remaining taxa, suggesting that pedunculated scales may represent a plesiomorphic condition within Paucitubulatina. In contrast, freshwater representatives were distributed among at least three independent clades within Oiorpata, indicating multiple homoplastic origins of pedunculated scales in freshwater environments. Based on these findings, we propose the establishment of a new genus to accommodate the monophyletic marine lineage, supported by congruent morphological, molecular and ecological evidence. Our results provide a substantially improved phylogenetic framework for *Aspidiophorus*, support a deep marine origin of pedunculated scale-bearing gastrotrichs, and call for a comprehensive taxonomic revision of freshwater species currently assigned to this genus.