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# Morphology and taxonomic position of the bizarre Permian pachydomid bivalve *Leinzia* from Western Gondwana

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The genus *Leinzia* is a typical member of the renowned Artinskian–Wuchiapingian (Permian) endemic bivalve fauna of the Passa Dois Group, Paraná Basin, Brazil. The extraordinary shells of *Leinzia* , characterized by a rostrum extending from the anterior cardinal margin led certain authors to regard them as bivalved arthropods (Spinicaudata). Due to the unusual morphology and typically poor preservation of the available specimens, the taxonomic position of *Leinzia* still remains obscure. *Leinzia* has been variously referred either to the Pterioida, the Crassatelloidea, the Sanguinolitidae, or the Megadesmidae, or to the Pholadomyida. Herein, based on a detailed review of the topotype material and description of newly found specimens of *Leinzia* from the Serrinha Member, Rio do Rasto Formation, southern Brazil, we shed light on the taxonomic position of this genus. The hinge of the right valve with its large, blunt, anteriorly inclined subumbonal tooth and corresponding socket in the left valve coupled with the absence of true lateral teeth indicate close affinities to *Pyramus* and *Cowperesia*. Thus, the data here strongly suggest a Pachydomidae (Edmondioidea) rather than a Crassatelloidea affinity for *Leinzia*. Conversely, *Leinzia* differs from all other known Pachydomidae due to its anteriorly rostrate and posteriorly elongated shell. Finally, detailed stratigraphic data indicate that the vertical distribution of *Leinzia* is constrained to the middle part of the Guadalupian Serrinha Member of the Rio do Rasto Formation.

**Key words:** Bivalvia, Pachydomidae, Megadesmidae, endemism, Guadalupian, Paraná Basin, Brazil.

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