

Multiple records of tapeworm eggs from Permian coprolites and their palaeoparasitological significance

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The fossil record of intestinal parasites is a crucial aspect of understanding host-symbiont coevolution. This study reports two new types of eggs attributable to tapeworms in a Permian vertebrate coprolite from the Coproland outcrop, Brazil, expanding previous records and providing insights into helminth diversity during the late Palaeozoic. The discovered eggs within the packet, exhibiting oncospheres with three pairs of hooks, are morphologically comparable to extant taxa such as *Echinobothrium*, *Dipylidium*, and *Kapsulotaenia*. Isolated eggs with thicker walls are more reminiscent of those of Taeniidae in size and structure. The abundance and diversity of these parasite eggs in Coproland spiral shark coprolites corroborate the presence of complex life cycles and suggest diverse transmission strategies. It may also indicate a high prevalence of tapeworms in Permian aquatic ecosystems, but preservation factors and final host ecology likely also contributed to the exceptional richness of these discoveries.

Key words: Platyhelminthes, Cestoda, bromalite, palaeoparasitology, Rio do Rasto Formation, Permian, Paraná Basin.

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