

Ordovician enigmatic sclerite-type elements from western Argentina: possible oldest axial components of alcyonacean octocorals

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The unusual findings of Lower and Middle Ordovician tiny sclerite-type elements in the San Juan Formation of the Argentine Precordillera are described and analysed. The well-preserved silicified and phosphatized association consists of spindle-shaped morphotypes, ornamented with small regular granules or tubercles with some elements connected by their tips in a linear manner. Some morphologic characteristics of these mostly fused or connected sclerite-type elements are present in the alcyonacean octocorals. Their affinities with sponge spicules are also discussed. The oldest records of alcyonacean sclerites have been dated as late Llandovery to late Wenlock (Silurian). The discovery of possible octocoral skeletal elements in the Lower Ordovician of western Argentina may represent the oldest occurrence of such fundamental skeletal elements in the evolutionary history of the octocorals. Although a proper group assignment is still speculative at this state of knowledge, there is an implication that these early forms could be axial skeletal elements comparable to those seen in the *Scleraxonia* or *Calcaxonia* octocorals. One new genus *Catenatus* and new species *Catenatus argentinus* are described.

Key words: Octocoralia, sclerite-type elements, Ordovician, Palaeozoic, Precordillera, Argentina.

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