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ABSTRACT

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Where are all the Ordovician sea cucumbers (Echinodermata)?

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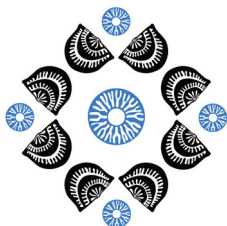
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The Ordovician Period witnessed the first evidence of appearance of all modern echinoderm clades as well as it is the most concentrated interval of echinoderm diversity in Earth's history. This knowledge is largely based on reports from Baltica, Avalonia, Laurentia and Gondwana. However, the Ordovician record of sea cucumbers (Holothuroidea) and their allies, like echinoids and ophiocystioids (Echinozoa), is sparse and patchy. The earlier published Cambrian or Ediacaran records of echinozoan echinoderms (e.g., sea cucumbers) are based on misinterpreted specimens of other phyla. Neither the origins of the Echinozoa nor the split of holothuroids from ophiocystioids or echinoids are properly understood. One reason for this is the fact that less than 100 (articulated) Ordovician specimens of sea urchins, sea cucumbers and ophiocystioids have been recovered worldwide so far.

In general, fossil remains of the Holothuroidea are limited to (1) innumerable microscopic and/or mesoscopic ossicles of the body wall, (2) five distinct calcareous plates which supported the anus in some (more highly evolved) sea cucumber groups, and (3) a total of usually ten radial and interradial elements of the calcareous ring surrounding the pharynx. The latter represents a synapomorphy for the entire group and is important in the higher-level group systematics. In addition, to date, there are only about two dozen known Phanerozoic localities (Konservat-Lagerstätten and obrution deposits) that have yielded (4) articulated body fossils of holothurians.

Few attempts have been made to use disarticulated fossils of Echinodermata to understand the distribution, diversity and early radiation of Holothuroidea, Echinoidea and Ophiocystioidea. Only during the last two decades, advanced micropalaeontological and macropalaeontological techniques have been combined to investigate these understudied echinoderm groups in greater detail. This will help to gain further understanding about the Early Palaeozoic echinozoan echinoderms.

In this presentation, a short overview of known holothurian finds (mostly from Baltica) is given.



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