Disponible en ligne sur www.sciencedirect.com
ScienceDirect
Annales de Paléontologie 93 (2007) 317–330
ANNALES DE PALÉONTOLOGIE
http://france.elsevier.com/direct/ANNPAL/

Original article

Linguaserra spandeli sp. nov. (Echinodermata: Ophiocistioidea) from the Late Permian (Zechstein) of Thuringia, Germany

Linguaserra spandeli sp. nov., un nouvel ophiocistioïde (Echinodermata) du Zechstein (Permien supérieur) de Thuringe, Allemagne

Linguaserra spandeli sp. nov. (Echinodermata: Ophiocistioidea) aus dem Zechstein (Ober-Perm) von Thüringen, Deutschland

Mike Reich

Geoscience Centre of the University of Göttingen, Museum, Collections and Geopark, Goldschmidt-Strasse 1–5, 37077 Göttingen, Germany

Available online 8 November 2007

Abstract

From the Late Permian Zechstein reefs (Lopingian: Wuchiapingian) of eastern Thuringia, Germany, the new ophiocistioid goniodont *Linguaserra spandeli* sp. nov., is described, figured, and discussed, within the Linguaserridae Reich and Haude, 2004. The (para)genus *Linguaserra* is redefined; the stratigraphical and regional distribution as well as the phylogenetic position are briefly discussed. *Linguaserra spandeli* sp. nov. is the stratigraphically youngest record of this echinoderm group (Echinozoa: Ophiocistioidea) worldwide.

Résumé

Un nouveau goniodonte d'ophiocistioïde, *Linguaserra spandeli* sp. nov., provenant des récifs du Permien supérieur (Zechstein, Lopingien : Wuchiapingien) de la Thuringe orientale (Allemagne), est décrit, figuré, discuté et placé au sein des Linguaserridae Reich et Haude, 2004. Le (para)genre *Linguaserra* est redéfini ;

E-mail address: mreich@gwdg.de.

0753-3969/$ – see front matter
doi:10.1016/j.annpal.2007.09.007

ses répartitions stratigraphique et régionale, ainsi que sa position phylogénétique sont brièvement discutées. *Linguaserra spandeli* sp. nov. représente l'occurrence la plus récente (stratigraphiquement) connue au monde de ce groupe d'échinodermes (Echinozoa : Ophiocistioidea).

Zusammenfassung

Aus Riffsedimenten des Zechsteins (Lopingium: Wuchiapingium) von Ost-Thüringen (Deutschland) wird der neue Ophiocistioideen-Winkelzahn *Linguaserra spandeli* sp. nov. beschrieben und abgebildet. Die (Para)-Gattung *Linguaserra* wird neu definiert; ihre zeitliche und regionale Verbreitung sowie phylogenetische Stellung wird kurz diskutiert. Bei *Linguaserra spandeli* sp. nov. handelt es sich um den stratigraphisch jüngsten Nachweis dieser Echinodermengruppe (Echinozoa: Ophiocistioidea) weltweit.

Keywords: Echinodermata; Ophiocistioidea; Permian; Zechstein; Thuringia

Mots clés : Echinodermata ; Ophiocistioidea ; Permien ; Zechstein ; Thuringe

Schlüsselwörter: Echinodermata; Ophiocistioidea; Perm; Zechstein; Thüringen

1. Introduction

Ophiocistioids are a small group of pentaradiate, free-moving echinoderms, known only from the Early Ordovician to the Late Permian (Reich and Haude, 2004). These echinozoans have a large, rather depressed test, very long and typically skeletonized ('sieve plates') ventral podia as well as a masticatory apparatus with goniodonts, in general similar to the Aristotle's lantern of echinoids. The wall of the test is either plated, or 'naked' with microscopic wheel-like ossicles in the body wall. The Ophiocistioidea can be considered as a sister group of the Holothuroidea and Echinoidea, with characteristics of both groups.

Due to the rarity of body fossils, the mode of life of this echinoderm group is nearly unknown. New observations on functional morphology of the lantern and podia suggest distinct differences in the mode of life between plated and 'naked' ophiocistioids (Haude, 2004). Plated ophiocistioids presumably had the capacity for more speedy stalking locomotion, comparable to modern elasipodid holothurians (see Hansen, 1972, 1975: p. 205; Gebruk, 1990: p. 34), whereas 'naked' ophiocistioids were able, with reservations, to climb or side step in bulky environments, e.g. in reef areas.

In his monograph on the Late Permian echinoderms of Germany, Erich Spandel (1898) described 'hands of pedicellaria' ("Hände von Pedizillarien") of the cidaroid echinoid "*Eocidaris Keyserlingi* Gein." [= *"Miocidaris" keyserlingi* (Geinitz, 1848); cf. Döderlein, 1887; Kolesch, 1887; Lambert, 1900; Jackson, 1912; Smith and Hollingworth, 1990; Smith, 2004], but evidently these findings have clear goniodont affinities, as first mentioned by Weber (1997: p. 489) and Boczarowski (1997b: p. 331; 2001: p. 85).

Single skeletal remains of Permian ophiocistioids have so far been recorded only from the Early Permian (Wolfcampian/Sakmarian) Florena Shale of Kansas (Kornicker and Imbrie, 1958: Pl. 1, Figs. 12 and 13; goniodonts figured as "Holothuroidea(?) incertae sedis") and from the Middle Permian (Wordian) of Sicily, Italy (Kozur and Mostler, 1989: p. 679; description of ophiocistioid wheels as *Pararotasaccus permicus*). Because of the rarity of this group, each record is of great importance, particularly with regard to biostratigraphy – the following new species is stratigraphically the youngest record of the ophiocistioids worldwide.