



The genus *Serrodiscus* (Trilobita) in the upper Marianian (early Cambrian) from northern Huelva province, SW Spain

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Abstract

The presence of the genus *Serrodiscus* in the early Cambrian rocks from the province of Huelva has been previously remarked by preceding authors. Nowadays, the genus *Serrodiscus* is noted as the first trilobite genus with global distribution in the early Cambrian oceanic platform environments, so its FAD is currently considered for the definition of the base of Cambrian Stage 4. Therefore, its presence in the Marianian rocks from northern Huelva could strengthen the correlation with another early Cambrian localities worldwide.

Keywords: *Serrodiscus*, Marianian, Cambrian Series 2-Stage 4, Sierra de Aracena y Picos de Aroche Natural Park, Ossa-Morena zone.

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1. Introduction

The genus *Serrodiscus* Richter & Richter, 1941 was defined as a subgenus of *Eodiscus* Matthew, 1896, into the so-called “*Fauna von Cala*” from Huelva (Richter & Richter, 1941). Sdzuy (1961) depicted *Serrodiscus* as an independent genus from *Eodiscus* and Sdzuy (1962) discussed the similarities between German and Spanish specimens. Soon after, Sdzuy (1971) divided early Cambrian rocks of Iberia into three stages (Ovetian, Marianian and Bilbilian), establishing the genus *Serrodiscus* as an index for middle Marianian stage. Afterwards, Liñán *et al.* (1993) mark off the LAD of *Serrodiscus* as the upper limit of the Marianian stage. Subsequent works (e.g. Liñán *et al.*, 2002, 2004; Gozalo *et al.*, 2003) portray the base of the upper Marianian by the FAD of *Serrodiscus*, which is contemplated as an index for the base of the Cambrian Stage 4 (see Shergold & Geyer, 2003; Peng *et al.*, 2012).

2. Material and methodology

The study area is located in the north of the province of Huelva, within Sierra de Aracena and

Picos de Aroche Natural Park. This study area is distributed among two municipalities: Cumbres de San Bartolomé and Arroyomolinos de León. Studied fossil sites belong to the southwest of the Ossa-Morena Zone, on the southern branch of the Variscan orogen of the Iberian Peninsula. Cambrian outcrops of the Ossa-Morena Zone are divided into tectosedimentary units called ‘*cubetas*’, which correspond to ancient sedimentary basins limited by faults (Liñán & Quesada, 1990). In the present work, studied materials correspond to the Cumbres Cubeta (Cumbres de San Bartolomé site) and Herrerías Cubeta (El Pozuelo site).

Field methodology was based on the survey of stratigraphic logs at the Cumbres de San Bartolomé and El Pozuelo sites. The lithologic study of these columns has been accompanied by the level-by-level paleontological study of both sections. Cleaning and preparing process has been carried out in the General Research Laboratory of the Department of Earth Sciences and the Research Group RNM276 (Paleontology Section) on the Faculty of Experimental Sciences of the University of Huelva.

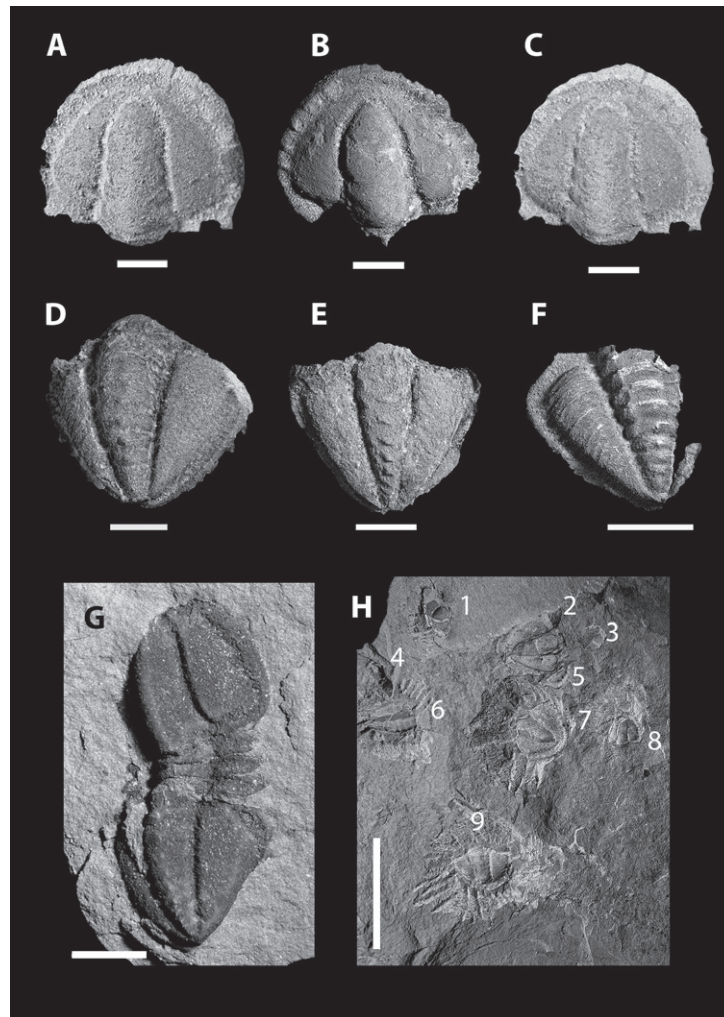


Fig. 1. -*Serrodiscus silesius* Richter & Richter, 1941 A-C- Dorsal view of the cephalons, internal moulds (A:CSB-10 ; B:CSB-29; C:CSB-02). D-E- Dorsal view of the pygidiums, internal moulds (D: CSB-07 ; E: CSB-11; F:CSB-09) G) Dorsal view of a complete specimen, internal mould (CSB-14). Scale bar: 2 mm. H- Cluster with several specimens (CSB-100). Scale bar: 10 mm.

3. Results

A total of three complete specimens, more than 100 cephalons and 50 pygidia preserved as internal and external moulds have been found. Most specimens have different states of deformation. The studied material is deposited in the paleontological collection of the Department of Earth Sciences of the University of Huelva.

Serrodiscus silesius Richter & Richter, 1941 (Fig.1)

Description: Semi-elliptical cephalon. Wide, tuberculated anterior border. Subtriangular shaped glabella, tapered forward, with three lateral, non-transglabellar furrows. Occipital lobe, small occipital spine. Convex, homogeneous acrolobe.

Thorax composed of three thoracic segments. Narrow axial rings. Subtriangular shaped pleurae. Shallow, subtriangular shaped pleural furrow. Short, wide pleural spine.

Subtriangular pygidium. Pygidial rachis narrowed towards the posterior area. Ten pygidial segments with axial tubercles. Convex pygidial acrolobe. Wide, homogeneous lateral border, occasionally presenting three to four spines on the margin. Ornament on the pygidial acrolobe composed of subtle ridges curved backwards.

4. Discussion and conclusions

The specimens found at the Cumbres de San Bartolomé and Pozuelo sites present the diagnostic characters of *Serrodiscus silesius* as defined by Richter & Richter (1941) and later characterized by Sdzuy (1962) and Geyer & Elicki (1995). Both Sdzuy (1962) and Geyer & Elicki (1995) reviewed the species and commented on its diagnostic characters and differentiating elements with other nearby *Serrodiscus* species, with which we fully agree.

In consequence, the presence of this genus into the early Cambrian rocks from northern Huelva

province and other Spanish localities from the Ossa-Morena and Central-Iberian zones (see Sdzuy, 1962; Gil Cid, 1986; Liñán *et al.*, 2004) would permit better biostratigraphic and paleobiogeographic correlations with several Cambrian domains (e.g. Taconic Allochthon, Greenland, Newfoundland, Poland, Morocco, Australia, Siberia and China, among others), with special interest for defining the base of the Cambrian Stage 4.

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