ACTA PALAEONTOLOGICA POLONICA

First Jurassic brittlestar from Neuquén Basin, Argentina

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Acta Palaeontologica Polonica 68 (1) 2023: 143-153 doi:https://doi.org/10.4202/app.01032.2022

Articulated fossil ophiuroids from South America were reported for the Devonian, Cretaceous, Eocene, and Miocene. Here we report the first Jurassic record of an articulated ophiuroid from the Sierra Chacaicó Formation (early Pliensbachian– Sinemurian) in Neuquén Basin, Argentina, and discuss the taphonomic processes that allowed its preservation. The Sierra Chacaicó Formation represents the onset of the Early Jurassic extensive marine transgression in the basin. The basal section comprises shoreface and offshore Gilbert-type delta system, which was affected by hyperpycnal discharges. The middle and upper sections are represented by offshore deposits, affected by storms and eroded by hyperpycnal channel-levee systems. The ophiuroid specimen was found in levels of massive, fine, tuffaceous sandstone beds and covered by coarse sandstone containing a large amount of plant debris and organic matter. It was preserved articulated, with a complete disc and almost complete arms. Based on the microstructure of the spine-bearing lateral arm plates, the ophiuroid is assigned to *Sinosura*, an extinct genus of the family Ophioleucidae, widespread in the Lower Jurassic deposits of Europe but previously unknown from other parts of the world. The posture of the ophiuroid, with one arm curved distally and extended in one direction and the other four arms symmetrically oriented in the opposite direction, suggests a walking or escape movement frozen in time. This implies that the ophiuroid was buried alive by sediment thick enough to prevent successful escape. The taphonomic and sedimentologic evidence indicates that the fossil material was found in hyperpycnal deposits accumulated in offshore positions, which carried a high concentration of sediment in suspension.

Key words: Echinodermata, Ophiuroidea, *Sinosura* , Pliensbachian, Sierra Chacaicó Formation, Neuquén Basin, Argentina.

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