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Pseudoskirroceras, a remarkable but poorly known Early Pliensbachian Tethyan ammonite genus: New data from the High Atlas (Morocco)

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Abstract

The discovery of new Early Pliensbachian ammonite faunas in Central High Atlas (Morocco) allows the re-examination of the taxonomic, stratigraphical and palaeogeographical framework of the genus *Pseudoskirroceras*, an intriguing but until now poorly known Tethyan taxon. For the first time, several specimens of *Pseudoskirroceras mastodon* (Fucini, 1935) the type species of the genus, have been collected in a well-known stratigraphical context. This material allows the evaluation of intra-specific variability and consequently the assessment of the taxonomical relevance of various geometrical and ornamental features. The best diagnostic features are the clearly evolute sub-serpenticone shell, associated with the very distinctive low location of the latero-ventral tubercles. In contrast, features such as rib density or the extent of the juvenile *Coeloceras*-like stage vary greatly with no taxonomic implications. These observations considerably reduce the scope of *Pseudoskirroceras*, which is in fact a rare taxon, probably localised in the western Mediterranean Tethys, and not a pantropical genus. Thus, the presence of *Pseudoskirroceras* in North and/or South America is unconvincing.

These results confirm that Mediterranean (West Tethyan) ammonite palaeobiodiversity includes more rare and localised species than can be found in NW Europe.

Keywords: Ammonites; Early Jurassic; Western Tethys; Biostratigraphy; Palaeobiogeography; Palaeobiodiversity

1. Introduction

The NW European Early Pliensbachian ammonite faunas [e.g., Portugal (Lusitanian Basin), Spain (Iberic Range), France, the British Isles, Germany, Denmark, Switzerland (Tessin excepted), and Bulgaria] are usually constituted by few species, at least if observed at a given moment, and are frequently dominated by a single abundant taxon, which is also widespread in almost all NW European localities. Conversely, rare and/or less widespread species are exceptions. Such a context is very convenient for the establishment of accurate local biostratigraphical scales which form the basis of the current chronostratigraphical framework. In the Mediterranean western Tethys [e.g., Portugal (Algarve), Spain (Betic Range), Morocco, Algeria, Tunisia, Italy, Switzerland (Tessin), Austria, Hungary, Greece, Albania, and southern Turkey], the situation is more complex. Indeed, if abundant and widespread species are also common in this area, rare and/or less widespread species are noticeably more numerous than in NW Europe. As a result (1) descriptions

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of newly discovered Tethyan species and even genera or supra-generic taxa are not rare in recent publications dedicated to Early Pliensbachian western Tethyan faunas and (2) formerly described Tethyan species remain often poorly known in terms of biostratigraphy, palaeobiogeography, and even sometimes relationships. This problem significantly biases analysis of the structure of Tethyan palaeobiodiversity and reduces the significance of comparisons with NW Europe. In this context, all advances in knowledge of western Tethyan faunas will improve analysis of palaeobiodiversity.

The present paper is dedicated to *Pseudoskirroceras*, an especially poorly understood and misinterpreted Early Pliensbachian genus, instituted by Wiedenmayer (1980) from an amazing species, *Pseudoskirroceras mastodon*, formerly collected in Sicily (Taormina) in a poorly documented stratigraphical context and described by Fucini (1935). This species, recently rediscovered in a well-defined context by one of the authors (S.S.) in High Atlas (Morocco), is here revised in terms of biostratigraphy, palaeobiogeography and phylogeny. Consequently, the use of the genus *Pseudoskirroceras* will also be reconsidered at a global scale.

2. Geographical and geological settings

All the ammonites studied here came from the east Central High Atlas and the west of Eastern High Atlas (Morocco), particularly from the sector situated between Rich (North) and Errachidia (South) (Fig. 1A and B). The fossiliferous localities (Taberhout, Agoudim, Jebel Serdrar and North Taabest) are shown in Fig. 1C.

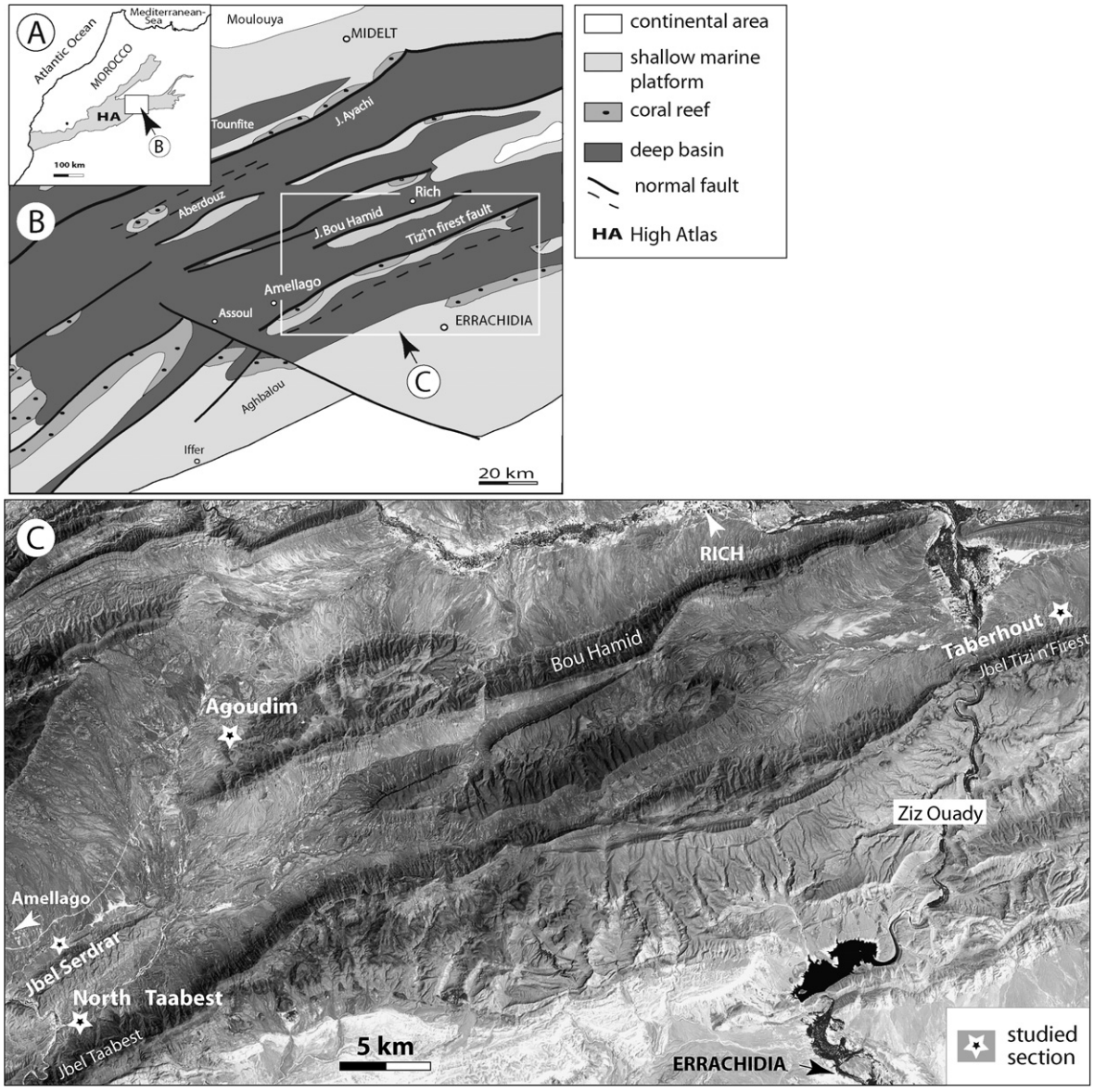

Fig. 1. (A) Geological and geographical domains in Morocco. (B) Map showing the Sinemurian palaeoenvironments in the Central-Eastern High Atlas (Poisson et al., 1998; modified). (C) Locations of the fossiliferous sections studied (Taberhout, Agoudim, Jebel Serdrar and North Taabest).