

The Triassic of Sidi S'id M'achou area (Western Meseta, Morocco):

Lithostratigraphical study and geodynamic evolution

ABDELKBIR HMINNA¹, HAFID SABER¹ & JÖRG W. SCHNEIDER²

¹Chouaïb Doukkali University, Department of Geology, B.P. 20, 24000, El Jadida, Morocco.

²TU Bergakademie Freiberg, Institut für Geologie, B.v.Cotta-Str. 2, 09596 Freiberg,

The Sidi S'id M'achou Triassic basin is located in the coastal meseta near El Jadida city, Morocco. It is filled with Upper Triassic detrital facies, which rest unconformably on the Palaeozoic. This area is limited to the East by the Palaeozoic and to the West by the Jurassic and cretaceous deposits. The Plio-Quaternary deposits assure the cover of the whole. The findings presented here are part of lithostratigraphy, sedimentology, magmatic and tectonic analysis.

In the Sidi S'id M'achou basin, the Triassic sedimentary deposits are subdivided into three continental formations about 500 m in the thickness: the basal conglomerates (Chaâbet Ben Kliba formation) rest upon the Hercynian basement; the middle sandy-siltstone (Oued Oum Er Rbiaâ formation), that is subdivided into two members: Sidi Mbarek member and Machr'a Abbass member; and the upper silty-sandstone named Machr'a Boujam'a formation. Depositional environments of the sequence can be characterized as alluvial fan, alluvial plain, fluvial and lacustrine. Basaltic volcanites are present on top.

The top of the Machr'a Abbass member (Wadi Oum Er Rbiaâ formation) contains a 60 cm thick lacustrine partially laminated calcareous red claystones and siltstones. The discovery of this level has allowed us to observe the invertebrate ichnia and the tetrapods tracks. The ichnofauna consists of trackways which are regarded as being of notostracans (*Acripes triassicus*), ostracods, insects (*Lithographus*) and others arthropods. They are associated with plant impressions. The three imprints, show features diagnostic of the ichnogenus *Brachyhirotherium*, that is a strong indication for a Carnian–Norian age of the sequence

From petrographical studies of the volcanic flows, three facies have been distinguished: intersertal porphyric (doleritic), porphyric microlitic and microlitic vacuolaire. Their chemical characteristics are similar to continental flood basalts and comparable to the Triassic–Liassic tholeiites of the rest of Morocco.

Structurally, this basin has been controlled by the inherited Hercynian tectonics that also strongly influenced sedimentary deposition. The reconstructed field of paleo-constraint responsible for the opening of this basin is a pure extensional regime, defined by a direction of extension close to N160.
