Biostratigraphy of Late Miocene of North Eastern Morocco Contribution of Planktonic Foraminifera

Nadia Barhoun[1], Abdelkhalak Ben Moussa[2], and Khalil El Hajjaji[2]
[1] Departement de Geologie, Faculte des Sciences Ben M'Sik, Universite Hassan II Mohammedia BP 7955 Casablanca
[2] Departement de Geologie, Faculte des Sciences de Tetouen, Universite Abdelmalek Essaadi

The aim of this work is to contribute, starting from planktonic Foraminifera, at the realization of a precise chronological framework for the marine sediments of late Miocene in the Boudinar and Melillia - Nador basins (North Eastern, Rif Morocco). By their situation in the Eastern part of the southern Rifian corridor, these two basins recorded the various events having preceded the crisis by Messinian salinity. The sedimentation of late Miocene is generally detrital in the Boudinar basin; only a short phase essentially carbonated marked sedimentation during this period. Whereas sedimentary filling of the Melillia - Nador basin is composed of a marine series not very deep, evolving laterally to a complex forms carbonated marginal platform. In the two basins, marnodiatomitic alternations represent a principal component of Messinian sedimentation.

The biostratigraphic study based on planktonic foraminifera allows emphasizing bio-events, which are gauged directly on the magnetostratigraphic scale and the astronomical time scale (Hilgen and al., 1995; Krijgsman and al., 1999; Sierro and al., 2001), to date with precision the sediments from late Miocene and to establish high resolution correlations between the various Mediterranean and extra-Mediterranean basins. Detailed analysis of the planktonic assemblies of Foraminifera permitted to identify the succession of nine bio-events:

Five in late Tortonian and pre-evaporitic Messinian of the Boudinar bassin;

Four in pre-evaporitic Messinian of the Melillia basin - Nador.

These biostratigraphic events had already been recognized by Sierro and al. (2001) in the section of reference of Messinien "Abad composite" in Spain. Hence, this succession of bioevents allows deducing that the series of marno-diatomitic alternations of the Boudinar basin represents the base of Melillia – Nador ones.

Key words: Biostratigraphy, planktonic Foraminifera, Late Miocene, Morocco.