

Morphological variability in planktonic foraminifers from Messinian sediments (Eastern Dahra, Algeria)

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Detailed observations of planktonic foraminifera collected from infra-gypsum diatomitic marls (Ain Merane, Eastern Dahra) revealed evidence of significant morphological variability in most genera. In fact, it reflects the presence of various morphotypes corresponding to intraspecific forms and concomitant interspecific transitional forms.

In this study, we focused on quantitative variability analyses of *Globigerina* and *Globigerinoides* populations among others. This parameter allows us to:

-differentiate two morphotypes in *Gn bulloides*, characterized by the primary aperture square to sub-square shape for the first and triangular slit for the second;

-identify very close forms of *Gn bulloides* (*Globigerina quadrilatera*, *Gn concinna*, *Gn megastoma*, *Gn bermudezi*, *Gn cariacensis* and *Gn riveroe*) which have been considered as species or subspecies by some authors (Galloway and Wisseler, 1927; Seigle, 1963; Bolli and Bermudez, 1965; Rogl and Bolli, 1973), even simple phenotypic variants for others (Bandy, 1972; Kennett and Srinivasan, 1983) ;

-distinguish two morphotypes groups within *Globigerinoides ruber*, related to the shape and size of the last chamber: the former is provided with tests very close to those of *Gs ruber s.s.* (Wang, 2000) and *Gs ruber* « type a, normal» (Numberger, 2009), the second with tests comparables to those of *Gs ruber s.l.* (Wang, 2000) and *Gs ruber* « types b, playts» (Numberger, 2009);

Moreover, several transition forms have been observed on the one hand, between *Gn bulloides* and *Gn apertura*, *Gn praecalida*, *Gn praedigitata*, *Globigerinella siphonefera*, and on the other hand, between *Gs ruber* and *Gs obliquus*, *Gs extremus*, *Gs bulloideus*, *Gs amplus*, *Gs conglobatus*.

This variability appears to be consistent with recent phylogenetic studies (Darling and Kroon, 1999 ; De Vargas *et al*, 2001 ; Kucera and Darling, 2002 ; Darling *et al.*, 2006, 2007 ; Darling and Wade, 2008 ; Aurahs *et al.*, 2011) where some minor intra-specific morphological differences could reflect genotypic discrimination ; It could be a valuable tool for a better paleoecological and palaeoenvironmental approach (Bandy, 1972 ; Rogl and Bolli, 1973 ; Malmgren and Kennett, 1975 ; Wang, 2000 ; Aurahs *et al.*, 2011 ; Numberger, 2009 ; Shrivastav *et al.*, 2016).