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Distributional patterns of decapod crustaceans in the circum-Mediterranean area during the Oligo-Miocene

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During the Oligocene and Miocene, the circum-Mediterranean area was a complex network of (mostly) shallow marine basins. Significant biogeographic differentiation of this area has been documented (Harzhauser et al. 2007), mainly during the Miocene, when connections between Proto-Mediterranean, Paratethys and Proto-Indo-West Pacific were intermittently opening and closing. These seaways allowed migration of marine faunas. Distributional patterns has so far been discussed for several different animal groups, especially for molluscs (e.g. Studencka et al. 1998; Harzhauser et al. 2002, 2003, 2007). To test these patterns with decapod crustaceans, a database has been compiled including all previously published Oligocene and Miocene decapod occurrences and newly gathered data from examined material deposited in the institutional collections. Decapod associations have been significant components of marine habitats since the Mesozoic times with ever-increasing importance throughout the Cenozoic. Müller (1979) argued that brachyuran decapods are among the best zoogeographical indicators. Although decapods were used as such indicators before (e.g. Schweitzer 2001; Feldmann & Schweitzer 2006), no detailed analysis of the circum-Mediterranean taxa has been conducted so far. Based on proposed anti-estuarine circulation pattern, decapods originated in the Proto-Mediterranean, and migrated both into the North Sea and the Paratethys. Moreover, during the Early Miocene the Rhine Graben served as a connection between the North Sea and the Paratethys which enabled faunal exchange. The Middle Miocene Proto-Mediterranean and Paratethys decapod assemblages as taken together were relatively homogeneous, although distinct due to increasing rate of endemites in the Paratethys during the Miocene.

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