

Recent benthic foraminifera and sedimentary facies from mangrove swamps and channels of Abu Dhabi (United Arab Emirates)

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Zonation of Recent mangrove environments can be defined using benthic foraminifera, however, little is known about foraminifera from mangrove environments of the Arabian Gulf. The objective of this study is to produce a detailed micropaleontological and sedimentological analysis to identify foraminiferal associations in several coastline environments (mangrove swamps and channels) located on the eastern side of Abu Dhabi Island (UAE). Detailed sediment sampling collection in mangal environments of Eastern Abu Dhabi was carried out to assess the distribution of living and dead benthic foraminifera in different sedimentary facies in the mangal and in the surrounding area comprising natural environments of the upper and lower intertidal area (mud flats and channels) and areas modified by anthropogenic activities (dredged channels).

The fine-grain sediments collected near mangrove (*Avicenna marina*) roots presented a high abundance of living and dead foraminifera tests. The assemblages in these samples show very low diversity and are almost entirely constituted of small-sized opportunistic species belonging to the genera *Ammonia* and *Elphidium*. In particular:

- Samples collected on the mud flat and in ponds at the margin of the channel show a foraminiferal assemblage characterised by abundant foraminifera belonging to the genera *Ammonia*, *Elphidium*, *Triloculina*, *Quinqueloculina*, *Peneroplis* and *Spirolina*.
- Samples collected in the lower (wet) intertidal area close to *Avicenna marina* roots, presented a low-diversity assemblage mostly comprising opportunistic foraminifera of the genera *Ammonia* and *Elphidium* along with rare *miliolidae*.
- Samples from the upper intertidal area (dry) close to *Avicenna marina* roots, produced an assemblage exclusively composed of small-sized opportunistic *Ammonia* and *Elphidium*, together with abundant specimens belonging to the genera *Trochammina*. *Trochammina* specimens have not been previously recorded from Recent sedimentary samples of the coastline environments of the Arabian Gulf.

The samples collected in the higher energy settings (channels) were characterised by a very low abundance of foraminiferal tests, no or rare living forms were found in the coarser grained facies. Most of the samples collected in the dredged channels were barren.

The distribution of Recent benthic foraminifera from mangrove environment of the Abu Dhabi region present a powerful tool for constructing zonation of marine coastline environments and can be employed as a modern analogue for interpreting the depositional environment of ancient coastline sediments.