

Mangrove Ecosystem in Iranian Coastal of Persian Gulf

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Abstract : One of the largest Iranian coastal ecosystems is Qeshm island's mangroves. This ecosystem, with an area about 120-150 square kilometers, has distinct geographic situation, because it has developed in northern most limit of the mangroves in the world. Another interesting fact is that there are many differences between mangrove ecosystem as a confined environment and southern coasts of the island as a true marine environment. Essential studies performed in present paper, consist of microfaunistic studies including foraminifera.

Key words: Microfaunistic , Foraminifera , Ostracoda , Diatoms , Harra , *Avicenia marina* , Biocenosis , Taphocenosis

1 Introduction

In southern part of Iran, Hormozgan province has 14 big and residential islands. Qeshm is the biggest island in the Persian Gulf. This island geographic coordinates are; N 27° ,1' to N26° ,32' of northern latitude and E55° ,16' to E56° ,27' of eastern longitude. It is separated from Iran main land by the Clarence Strait or Khore Khouran. . The Iranian southern coasts mangrove forest are located in the highest plant community latitude. In this region, shrubs with the highest of 5 m exclusively comprise *Avicenia marina* species with the native name of "Harra". In addition to the unique beauty, mangrove forests are very attractive to the tourists because of income source, convenience of access and congestion suitability point of view, they are valuable ecosystems for regional residents.

2 Sampling and preparation

After Qeshm topographic map (scale: 1:50,000) studies and preliminary visits to the region, sampling locations

were determined. Sampling , sedimentologic and microfaunistic studies and also water physico-chemical properties such as temperature, salinity, electrical conductivity, acidity and dissolved oxygen in water measurements were simultaneously done. Then , the grain sizes of sedimentary samples are categorized as follows; grain diameter with more than 1 mm, 0.5 mm, 0.1mm and 50 μ. Based on Walton method 1974, Rose Bengal solution was used for the tests protoplasm coloration. Carbon tetrachloride was used for samples condensation and concentration .Next , foraminifers classification based on three tests walls were done as follows; foraminifers with hyaline , cryptocrystalline(like porcelain)and agglutinated tests. After that , foraminifers were classified at genera and species level.

3 Discussion and Results

3.1 Investigation on physico-chemical properties of water in northern part of Qeshm island represents that mangrove forests region water is turbid because of

tidal waves and suspended particles. In this condition, dissolved oxygen in water is less than normal. The fluctuation range of water acidity is not very considerable. In general, high temperature and salinity will increase acidity, but these circumstances reduce the amount of dissolved oxygen in water.

3.2 Based on determined foraminifera species, the most important association is introduced; *Ammonia beccarii* association

- Salinity: 24.2-40 gr/litres
- Temperature: 21.4-36.1 °C
- Dissolved oxygen: 0.4-6.7 mg/litres
- Ph: 7.1-8.71
- Bed: Silty clay-coarse clay

Distribution:

ST1, ST2, ST3, ST4, ST5, ST7, ST9

Associated species are as follows ;

Asterorotalia dentata Hofker

Cibicides lobatulus Walker & Jacob

Cribronion gerthi Van Vorthysen

Quinqueloculina seminulum Linne

Quinqueloculina stelligera d'Orbigny

Triloculina inflata d'Orbigny

Spiroloculina depressa d'Orbigny

Study on living forms or biocenosis community and comparison of them with dead forms or taphocenosis from abundance point of view show that tepida variety of *Ammonia beccarii* Linne has the most living samples. *A. beccarii* has seven morphotypes and tepida is specially common for the highest salinity and temperature environments (Murray, 1991).

3.3 Foraminifera size study in Mangrove forests show that in these sediments their size is smaller than southern coasts ones. Southern coast foraminifera have also more adult samples. Smaller. Since previous research works have shown

foraminifera have smaller shells in high salinity environments than normal seas (Braisner, 1982).

3.4 Environmental study on mangrove bed shows that silty, muddy or silty-muddy beds are suitable for attendance, abundance and diversity of foraminifera with hyaline tests.

Cryptocrystalline (like porcelain) shells have significant attendance, but they are fewer than hyaline wall shells. *Quinqueloculina* with 13 species is the most abundant and various genus in this family. The most important point regarding Cryptocrystalline (like porcelain) tests is the abundance of thin, elegant and immature shells. The reason is the quality of sediments (muddy and small size grains) and confined mangrove environments which are assumed as a coastal marsh.

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