

PALYNOSTRATIGRAPHY OF ORDOVICIAN SEDIMENTS IN SOUTHEASTERN CASPIAN, NORTHERN IRAN

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SUMMARY

An undated lower Palaeozoic sequence is well exposed, near Kholin-Darreh village at Fazelabad area, 46km southeastern Gorgan city. The sequence has in ascending stratigraphic order divided into the Lalun (Early Cambrian) Formation and Abastu and Abarsaj formations (Ordovician). Both Ordovician rock units were measured and sampled, treating for palynomorph entities. All samples contain well-preserved palynomorphs (acritarchs, chitinozoans, scolecodonts and cryptospores). Twenty-one acritarch species were identified. Based on stratigraphic potential of acritarch taxa a Late Ordovician is assigned to Ordovician rock units of Kholin -Darreb village, in the Fazelabad area, in North Alborz Mountain Ranges.

Keywords: Gorgan Province; Caspian Sea; Northern Alborz; Palyno-biostratigraphy; Late Ordovician; acritarchs.

A lower Paleozoic succession is well-developed in the Kholin-Darreh area, which is located approximately 46km southeastern the city of Gorgan. A total of 37 surface samples were treated and investigated in the Palynological Laboratory of Exploration Directorate of National Iranian Oil Company. The Lower Paleozoic strata in ascending stratigraphic order have divided into Lalun (Cambrian), Abastu (Ordovician), Abarsaj (Ordovician) and Soltan Maidan (Silurian) formations. All samples of Ordovician strata contain acritarchs, chitinozoans and scolecodonts.

In this article, the acritarch group was considered and the important encountered species are: *Baltisphaeridium perclarum*, *Baltisphaeridium oligopsakium*, *Multiplicisphaeridium irregulare*, *Multiplicisphaeridium bifurcatum*, *Orthosphaeridium insculptum*, *Orthosphaeridium ternum*, *Orthosphaeridium inflatum*, *Orthosphaeridium bispinosum*, *Navifusa ancepsipuncta*, *Ordoviciidium elegantulum*, *Evittia denticulata*, *Actinotodissus crassus*, *Villosacapsola setosapellicula*, *Veryhachium oklahomense*, *Frankea hamulata*, *Veryhachium hamii*, *Tunisphaeridium eisenackii*, *Dactylofusa spinata*, *Eupoikilofusa cabottii*, *Polygonium gracile* and *Peteinosphaeridium accinctulum*.

Based on stratigraphic potential of the above mentioned acritarch taxa, a Late Ordovician age is suggested for the Abastu and Abarsaj formations in the studied area. The known acritarch taxa from the late Ordovician sediments of southeastern Caspian Sea were compared with those of the same age elsewhere, indicating the cosmopolitan distribution of acritarch taxa during the Late Ordovician time

On the other hand, the presence of acritarchs, chitinozoans and scolecodonts in the Late Ordovician sediments of Kholin-Darreh area suggests a marine environment for these sediments and it is consistent with those of other parts of Alborz, Zagros and Central Iranian basin.