Paleoenvironment, Microfacies and Determination of Original Mineralogy in Ilam Formation Based on Geochemistry and Isotopical Studies in Type Section, Payun Anticline and DA#a

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Abstract

Ilam Formation from Bangestan Group with Santonian to Campanian age is consist of carbonate units. This Formation is disconformably overlain by Surgah and Sarvak Formations and underlain by Gurpi Formation in Type section, Payun Anticline and DA#a, (Zagros Basin), southweast of Iran. Detailed petrographic investigation have led to the recognition of 13 microfacies and five microfacies belt associations: tidal flat, lagoon, shoal, slope, open marine in a ramp platform of Ilam carbonates. Major (Ca, Mg) and minor elements (Sr, Na, Fe, Mn) and carbon and oxygen isotope quantities used to determine carbonate mineralogy in Ilam Formation. Bivariate plots of major and minor elements and oxygen and carbon isotope values indicate that mixed aragonite and calcite were the original carbonate mineralogy in studied formations. Paleotemperature calculation based on heaviest oxygen isotope quantity of the least altered sample, indicates that sea water temperature during precipitations of Ilam Formations was 28ºC.

Keywords:

Bangestan Group, Ilam Formation, carbon and oxygen Isotopes, aragonite and calcite