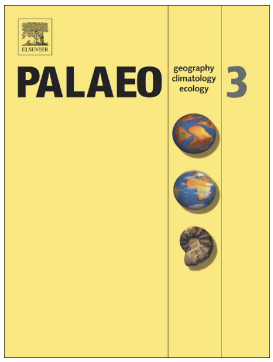

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Palaeoenvironmental reconstruction of lacustrine source rocks in the lower 1st Member of the Shahejie Formation in the Raoyang Sag and the Baxian Sag, Bohai Bay Basin, eastern China

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Abstract: The lower 1st Member (Es1L) of the Oligocene Shahejie Formation is the most important source rock interval in the Raoyang Sag and the Baxian Sag. To reveal the controlling factors that affected the distribution of organic-rich source rocks, we analyzed the lower Es1 (Es1L) samples collected from the Raoyang Sag and the Baxian Sag using sedimentological and geochemical techniques to reconstruct the lacustrine palaeoenvironmental conditions. Most of the samples had chemical index of alteration (CIA^*) values between 70 and 75, which reflect a stable and moderately weathered source under a transitional climate. The distribution of depocenters and palaeo-water depths indicated that the main catchment area was concentrated in the Raoyang Sag, with a maximum palaeo-water depth of 14 meters and a wave-base