Abstract:

The Campanian-Maastrichtian Dakhla Formation consists mainly of dark gray, laminated shale with siltstone and sandstone inter-beds containing highly organic matter and is a potential source rock. The main objectives of the present research are to correlate the geochemical characteristics of the Dakhla Formation east and west of the River Nile in Upper Egypt and to discuss the main reasons for their variations. Fifty-nine samples were collected from the Komombo Basin and examined along with 230 published ditch and core samples from Gebel Duwi. These data indicate that the quality of the Dakhla source rock potentially varies from fair to good in the Komombo Basin with TOC 0.46–2.66 wt.% and good to excellent in Gebel Duwi with TOC of 2.1–14 wt.% Additionally, the Dakhla Formation kerogen is type III and type I/II kerogen in the Komombo Basin and Gebel Duwi, respectively; the organic matter of the Dakhla Formation in the Komombo Basin is mostly of terrigenous origin, while in Gebel Duwi, it is mostly of marine origin. Based on vitrinite reflectance (%Ro) and Tmax values, the analyzed samples of Dakhla source rock are in the immature to early mature stage for oil and gas generation in both areas where the Tmax values have a range of 422–444 °C in the Komombo Basin and 412–435 °C in the Gebel Duwi area, while %Ro values range from 0.43 to 0.78% in the Komombo Basin.

Keywords:

Komombo, GebelDuwi, Dakhla Formation, Source rock potential, Upper Egypt

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