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Poster 28

A COMPARISON OF GEOCHEMICAL AND PETROGRAPHIC FEATURES OF OIL PRONE COALS FROM THE BALINGIAN PROVINCE WITH THOSE OF THE MALAY BASIN, MALAYSIA

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The role of coal as a source for oil continues to be debated in geochemical circles. This paper attempts to present the case for Malaysian Tertiary aged coals as a source rock for oil, as well as for gas.

The Malay Basin of offshore Peninsular Malaysia and the Balingian Province of offshore Sarawak, are petroliferous Tertiary basins. Both basins are known to contain coal-bearing sequences of Lower Miocene age (Group I in the Malay Basin; Cycle II in the Balingian Province.)

This paper compares and contrasts the respective geochemical and petrographic characteristics of the Balingian and Malay Basin coals with the purpose of assessing their oil generating capability and their source facies.

The oil-prone nature of these coals can be envisaged visually under reflected light microscope, in particular using fluorescence mode visualization, and by evaluating their chemical composition in terms of hydrocarbon content. Based on the current investigation, it is most apparent that both sets of coals possess many similar oil-generative features, such as the extensive development of exsudatinite crack network, common occurrence of oil haze, significant occurrence of oil-prone liptinite macerals e.g. suberinite, including its derivatives, and show some common biomarker distributions. The use of biomarker distributions as an aid to correlating the coals to the oils of the respective basins is also demonstrated. Combined use of biomarker assemblages, calibrated with biostratigraphic data, helps constrain the source facies of produced oils.

The application of detailed maceral analysis is described and is shown to be able to categorise the coal depositional settings of these basins into different sub environments.