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SOURCE ROCK POTENTIAL AND THERMAL MATURITY OF ORGANIC MATTERS OF THE TURA FORMATION OF PALAEOGENE AGE, MEGHALAYA SHELF, INDIA

Sikhawali Hazarika[1], Sarat Phukan[1], B.P. Duarah[1], Subodh Purohit[2], R. K. Barooah[2] and S. V. Raju[2]
[1].Department of Geological Sciences, Gauhati University, Guwahati, India
[2].Research and Development Department, Oil India Limited, Duliajan, India
Corresponding author: Sarat Phukan, email: saratphukan@gmail.com

Abstract

Source rock potential of the Tura Formation of Palaeogene age of the Meghalaya Shelf, Northeast India was evaluated by Rock-Eval pyrolysis. The organic facies of the Jaintia Group of the Meghalaya Shelf is best developed in the Tura Formation, as evidenced by an exposed coal belt along the northern extremities of the Meghalaya Shelf in West Khasi Hills and South Garo Hills districts. Between the exposed coal belt in the north and the Dawki Fault in the south, the Tura Formation is overlain by a succession of younger sedimentary rocks. The Rock-Eval Pyrolysis results of the coal and coaly shale samples of the Tura Formation indicates that the organic matters are represented by mixed type II and type III kerogens, possessing excellent source rock potential, but thermally immature to generate petroleum. The Tura Formation is the basal part of the sedimentary sequence in this region. Thus, organic matters of the subsequent sedimentary formations in this region would be less mature than those of the Tura Formation. Therefore, it could be concluded that the petroleum prospect of this region is a remote possibility. However, the scenario might be entirely different in the Sylhet Trough of Bangladesh on the southern side of the Dawki Fault, where, the Tura sediments are overlain by about 18km thick sequence of younger sediments, provided the organic facies of the Meghalaya Shelf has continuity to those areas.

Keywords: Meghalaya Shelf, Tura Formation, Rock-Eval analysis, petroleum prospect.