ABSTRAK

Penelitian dilakukan di Cekungan Sumatera Selatan dengan menggunakan data geokimia terdiri dari tiga sumur eksplorasi untuk mengetahui karakteristik geokimia seperti kualitas, kuantitas, kematangan, dan lingkungan pengendapan batuan induk, serta sejarah pemendaman satu dimensi daerah penelitian. Penelitian lebih lanjut menggunakan tiga sampel minyak bumi dan tiga sampel ekstrak batuan yang memiiki data Kromatografi gas (GC) dan Kromatografi gas-spektrometri massa (GC-MS). Parameter Biomarker dari GC dan GC-MS dianalisis untuk mengetahui karakteristik dari lingkungan pengendapan dari tiap sampel dan korelasi antara batuan induk dengan minyak bumi. Berdasarkan analisis batuan induk, Sumur TAN-1 terendapkan pada lingkungan *transitional,* Sumur TAN-2 berdasarkan tipe kerogen terendapkan pada lingkungan *transitional,* dan Sumur TAN-3 berdasarkan tipe kerogen terendapkan pada lingkungan *transitional.* Sedangkan berdasarkan analisis biomarker, TAN-1 dan TAN-2 memiliki karakteristik *oxic terrestrial/fluvio-deltaic* dengan kontribusi *higher plant* yang dominan. Sampel RA-12, RA-17, dan RA-61 memiliki karakteristik *suboxic – anoxic fluvio-deltaic* dengan kontribusi *marine algae* yang dominan. Sampel minyak yang diambil dari sejumlah sumur tersebut berkorelasi negatif dengan sampel batuan induk. Analisis kematangan pada Sumur TAN-1, TAN-2, dan TAN-3 masih pada fase *immature* berdasarkan pemodelan sejarah pemendaman satu dimensi.

Kata Kunci : Cekungan Sumatera Selatan, Batuan Induk Geokimia, Biomarker, Korelasi, Sejarah Pemendaman

ABSTRACT

The study was conducted in the South Sumatra Basin using geochemical data consisting of three exploration wells to determine geochemical characteristics such as quality, quantity, maturity, and depositional environment of the source rock, as well as the one-dimensional burial history of the study area. Further research used three petroleum samples and three rock extract samples which had gas chromatography (GC) and gas chromatography-mass spectrometry (GC-MS) data. Biomarker parameters from GC and GC-MS were analyzed to determine the characteristics of the depositional environment of each sample and the correlation between source rock and petroleum. Based on source rock analysis, the TAN-1 Well was deposited in the transitional environment, TAN-2 well based on the type of kerogen deposited in the transitional environment, and the TAN-3 well based on the type of kerogen deposited in the transitional environment. Meanwhile, based on biomarker analysis, TAN-1 and TAN-2 have an oxic terrestrial/fluvio-deltaic characteristics with a dominantly higher plant contributions. Samples RA-12, RA-17, and RA-61 have a suboxic – anoxic river-deltaic characteristics with contributions of dominantly marine algae. The oil samples taken from these wells have a negative correlation with the source rock samples. Maturity analysis of the TAN-1, TAN-2, and TAN-3 wells is still in its immature phase based on one-dimensional burial history modeling.

Keywords : *South Sumatra Basin, Geochemical Source Rocks, Biomarkers, Correlation, Burial History*