

ORGANIC GEOCHEMISTRY OF PETROLEUM SYSTEMS IN SOUTH CONSON BASIN (SOUTH VIETNAM)

Yuri V. SAVINUKH and Tran L. DONG

NIPI, JV Vietsovetpetro, 105 Le Loi, Vung Tau, Vietnam

South Conson (SC) basin is located in the southeastern part of South Vietnam offshore. There is exploitation Daihung oilfield and some exploration wells. Last years two oilfields – Thien Ung and Mang Cao were opened in Miocene sediments.

The physical properties of Miocene petroleum fluids in SC basin vary considerably: from heavy resinous ones to gas and condensate. So, DST#3 bottom deposit in Mang Cao oilfield contains heavy waxy viscous oil, and DST#5 top deposit - light condensed oil.

DST#3 oil contains 69% of saturated hydrocarbons, 21% of aromatics and 10% of NSO compounds. Small amount of light component was detected in oil gas chromatogram; n-alkanes distribution is one-model, maximum being C22-C23. This oil is characterized by relatively high pristan/phytan ratio (6,7), predominance of C29 over other homologous steranes and diasteranes (51%), very high general content of compounds formed from polycadinene resins which are mainly produced from angiosperm trees (Fig.1) - oleanane (Oleanane/Hopane as % =186) and bicadinane (bicadinane T/hopane ratio = 0,27).

DST#5 condensate contains 94,7% of saturated hydrocarbon, 5% of aromatics and 0,3% of NSO compound. Alkanes range from C12 to C32, light fraction predominate (85% fraction is C12-C20), n-alkanes distribution is one-model, C14 being maximum. As well as DST#3 oil this condensate is characterized by relatively high pristan/phytan ratio (7,5), predominance of C29 over other homologous steranes and diasteranes (50%), very high content of oleanane (Oleanane/Hopane as % =112) and bicadinane (bicadinane T/hopane ratio = 0,35). This sample contains high concentration of compound 24/4-1, 24/4-2, which may be a descendant of A-oleanane/Ursane. Ratio $(24/4-1 + 24/4-2)/\text{Hopane} > 1$.

Thermal maturity parameters of DST#3 oil and DST#5 condensate are different. Vitrinite reflectance equivalent (%Ro) calculated from methylphenanthrene index-1 (MPI-1) was 0,7 for DST#3 oil and 0,9 for DST#5 condensate.

Both DST#3 and DST#5 have similar geochemical parameters and possibly common organic matter with high land plant components, but different thermal history.

High land plant components are contained in fluids from Miocene sediments of Thien Ung and Daihung oilfields, but their concentration is lower than in DST#5 condensate.

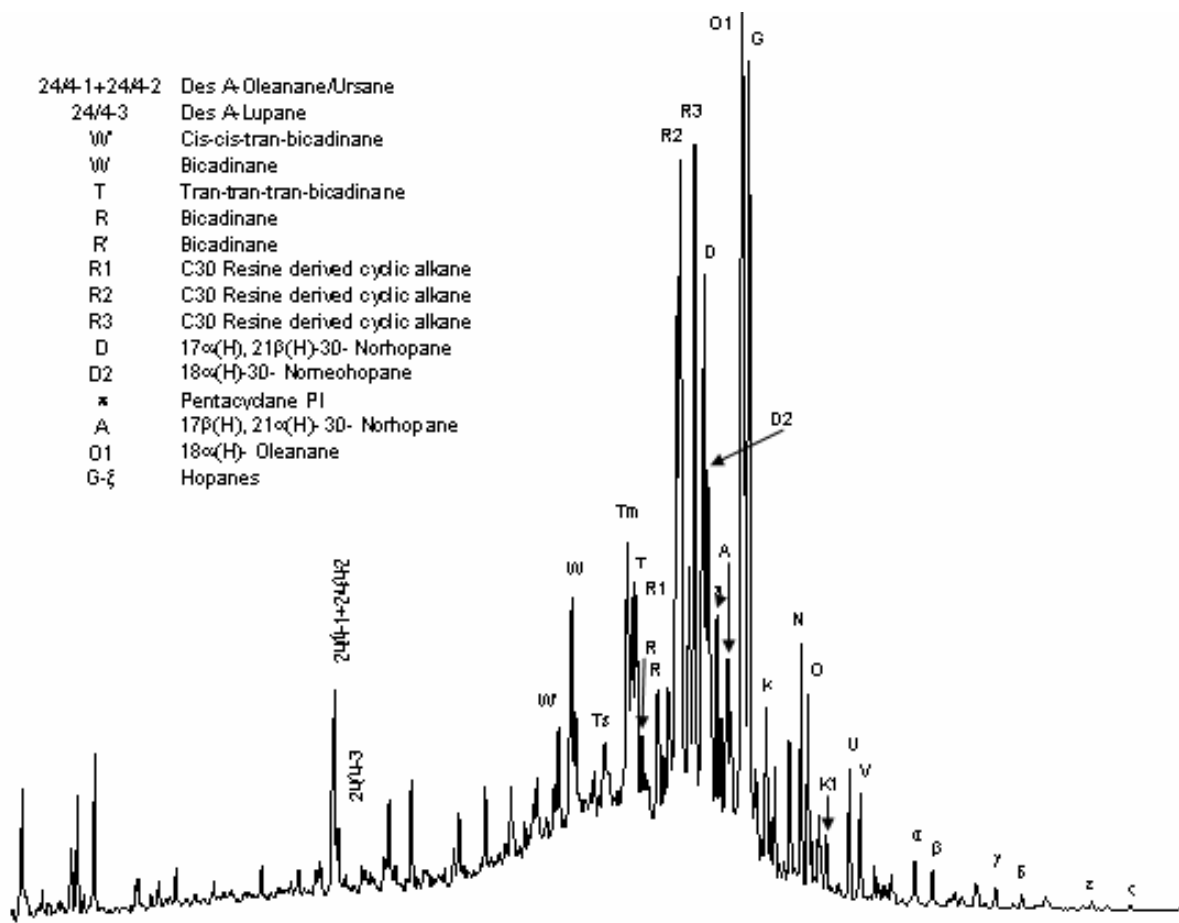


Figure1. Mass chromatogram of saturated fraction from DST#3 Mang Cao oilfield. Hopane distribution m/z 191.2