Compositional modifications suffered by crude oils during the secondary migration are not associated only with the biomarkers, but also with other phenomena. Modifications due to geochromatographic effects, loss of components and phase changes are also related to the compositional modifications during migration related to the gravity, thermal segregation, water washing and biodegradation.

The purpose of this research is to correlate only the changes among the biomarkers which have been noticed through simulations in laboratory, using lacustrine and marine shales. Such source rocks cover a relatively wide span of time, ranging from the Paleozoic, Mesozoic and Tertiary, as well as the oil or condensates from the same ages.

Biomarkers are fossil molecules used in geochemistry to characterize crude oils and source rocks. Through these compounds, it is possible to establish the origin, maturation and secondary alteration processes, and making possible the correlation oil/oil, oil/rock. The knowledge of geochemical parameters of the source rocks and oils is essential for the understanding of petroleum systems in a basin.

However, in cases of highly matured crude oils we hardly find direct correlation, due to the changes suffered by oil during migration and/or its stay in the reservoir. In such situations it is possible the incorporation of biomarker molecules from immature or mature organic substances which are in the migration conduit.

Recent researches have been showing that molecules that represent a low thermal maturation have been recuperated into the oil with a high thermal evolution from Tertiary reservoirs (Curiale, 2002). The assimilation of these molecules changes the biomarker distribution within the crude oils, mainly among the terpanes and steranes. It is also possible to observe modifications in maturity parameters that could wrongly to suggest an immature oil.

In this research, to simulate the contamination in oils by biomarkers during migration it is proposed an experiment that simulates the migration process through a rock with already known geochemical characteristics. In this case oil would act as a solvent of biomarkers within the migration pathway. Maturation and biodegradation parameters will be analyzed, with the purpose to check the hypothesis of the capture of syndepositional compounds from organic substances that are in the carrier rocks, and could change the molecular and isotopic composition of the crude oil.

REFERENCE