Effect of temperature on the formation and distribution of steranes in geological conditions

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Hydrous pyrolysis simulation experiments were carried out, the samples included a marine shale of Xiamaling Formation from Zhangjiakou region(Mesoproterozoic) and Paleogene lacustrine mudstones (Es3) from Liaohe western depression, respectively. The research indicated that there are no steranes in Xiamaling Formation shale original samples, but there are regular steranes and rearranged steranes in the simulation experiment productions. Which shows steranes can be formed or be released from the kerogen on the temperature effect. For the lacustrine mudstone, the formation and distribution of steranes showed dramatically differences under different temperature conditions[1]. Many petroleum geology researches demonstrate that the formation, releasing, composition and distribution of steranes, influenced by the temperature, are the problem which existed a long time., Because there are obvious differences between the practical and the experiential sterane parameters, which influences the evaluation of source, type, maturity of organic matter. Therefore, in the biomarker research, the above problems are classified as “Problem area and further work”. The finding of steranes in Archean rocks have been presented as key evidence of the early rise of oxgenic photosynthesis and eukaryotes[2], the researches on steranes are very important to petroleum, it is significant to discuss the influence of temperature on formation and distribution of steranes.

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