

Characterization and Its Significance of n-Alkanes in the Non-zonal Soil of Jilin Province, Northeast China

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N-alkanes and isoprenoid compounds, including pristane and phytane, in modern soil can indicate the changing environment. The different content, carbon number range and geochemical parameters of them in different soil profile reflects the diversity of the soil maturity, redox properties and the organic matter's source.

In this study, 57 soil samples from seven kinds of non-zonal soil (meadow soil, saline-alkali soil, swampy soil, alluvial soil, peat soil, aeolian sandy soil and paddy soil) and 8 plants samples were collected in Jilin Province, Northeast China and the concentration of N-alkanes and isoprenoid compounds, including pristane and phytane, were detected by gas chromatography analysis method. Based on the results and distribution characterization of n-alkanes and isoprenoid compounds, we came to the conclusion that there were very large differences among the non-zonal soil in n-alkanes distribution characterization because of the different soil terrain, climate, time and matrix. Their universality is that the terrestrial higher plants are the main source of soil organic matter. A few types of soil have mixed carbon source characteristics. The maturity of non-zonal soil is generally very low and the soil zone affects the soil redox properties greatly.