

TOARCIAN LAKE SYSTEMS IN WEST SIBERIA

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In the vast area of West Siberia the lower part of the Lower Toarcian is represented by black and dark-grey argillites defined as the Togur formation. The sediment accumulation in the Early Toarcian occurred under the conditions of eustatic rise of the World ocean level. In the central and southern regions of the basin a system of large lakes has formed in which phytoplankton developed intensely. The climate was warm and humid that favoured the impetuous high productivity of lake systems. Organic carbon concentrations in argillites vary from 1.5 to 5.0% and bitumen content from 0.1 to 0.7%. Organic matter of type II and III and their mixture in different proportions prevail. Biogeochemical diversity of organic matter in the Togur Formation allows some biogeochemical facies to be defined within its composition. In the biogeochemical facies I the isotopic and hydrocarbon composition indicates that organic matter composition throughout the most of the section is dominated by lipid components of land plants and biota of freshwater basins, and the organic matter is assigned to type III. The organic matter of this biogeochemical facies is characterized by ^{13}C values of $(-26)\text{--}(-28)\text{‰}$, in steranes ethylcholestane shows maximum concentrations and tricyclanes are dominated by C19-C20 hydrocarbons. In the biogeochemical facies II the remains of marine biota have been identified, the organic matter is attributed to type II. ^{13}C values of $(-28)\text{--}(-30)\text{‰}$ are characteristic of it, cholestane shows maximum concentration in steranes and the C23-C26 hydrocarbons are in the highest concentration among tricyclanes. In the Lower-Middle Jurassic, at the base of the sedimentary cover and in the Paleozoic carbonate escarpments oil shows with similar hydrocarbon composition have been detected.