

POLYAROMATIC HYDROCARBONS OCCURRING IN THE SEDIMENTS OF THE SOUTHERN BAIKAL

KURAKOLOVA E. A., BURKOVA V.N. and VOROBYEVA N.S. Institute of Petroleum Chemistry, Tomsk, Russia

The distribution and mechanism of polyaromatic hydrocarbon accumulation have been studied in the bottom sediments of the riftogenic Lake Baikal. Fluoranthene, pyrene, chrysene and benz(a)pyrene are the most distributed components. They often occur in the pelyte sediments, with the increased concentrations (up to 0.20 mkg/g of the sediment) at water depth of 20m in aleurites. Maximal concentrations of perylene, anthracene and benz(qhi)perylene were observed in pelytes at depth of 200 m. Phenanthrene and benz(e)pyrene occur very rare. Perylene have diagenetic origin. Fluoranthene and pyrene are the products of fuel pyrolysis and combustion. Benz(a and e)perynes and benz(qhi)perylene resulted from forest fires are occur in all the sediments. Perylene contents are as small as a background. It is probable precursors were formed by diatomaceous algae. Sulphide-oxidizing bacteria has been shown to release perylene from these precursors. Effluents of energetic plants and the railway are considered as the sources of fluoranthene and pyrene. The main way of their input into the lake – on abrasive aleurite minerals, which fall into the lake by river inflows. Hydrocarbons formed during forest fires come into the lake from water basin similar to fluoranthene and pyrene. An increase polyaromatic hydrocarbons content (up to 40 mkg/g of the sediment) was registered in one area. The composition and distribution of these hydrocarbons allows one to suggest a hypothesis on their endogenic formation.