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YUCOMAT 2022
&
TWELFTH WORLD ROUND TABLE CONFERENCE
ON SINTERING
XII WRTCS

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Study of oil type pollutant adsorption on Vrbas river sediments (Bosnia and Herzegovina)

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Samples of coastal river sediments of the Vrbas River were examined in this paper. Samples were taken at 18 locations in a 250 km long river course. They were collected during October and November 2021: five samples were taken in the upper part of the stream from the spring to the city of Banja Luka. Six samples were taken from the coast that belongs to the city itself, and seven samples belong to the part of the flow from Banja Luka to the confluence of the Vrbas and the Sava River. Samples were taken from the surface (up to a depth of 10 cm). Organic substance was isolated in all sediments and its content was determined. It was analyzed in detail using column chromatography, followed by gas chromatographic mass spectrometric (GC-MS) analysis of alkanes and aromatic fraction (n-alkanes, isoprenoid aliphatic alkanes, polycyclic alkanes and aromatic hydrocarbons of naphthalene and phenanthrene type). On the other hand, the mineralogical composition of the samples was defined using X - ray fluorescence analysis (XRF). The obtained results made it possible to assess the extent to which the inorganic composition of sediment affects the adsorption of organic pollutants of petroleum type (some of its compounds, as well as the corresponding structural and stereochemical isomers), and how much it affects retention of petroleum pollutants in coastal areas.