

expressions characteristic of possible reaction mechanisms. The calculated kinetic parameters are of a great practical value for technological applications, since kinetic modeling successfully replaces time- and material-consuming experiments, necessary for process equipment design. Kinetic experiments clearly indicated that adsorption of lead metal ion ( $\text{Pb}^{2+}$ ) on bentonite was a two steps process: a very rapid adsorption of lead metal ion to the external surface was followed by possible slow decreasing intraparticle diffusion in the interior of the adsorbent which has also been confirmed by intraparticle diffusion model. Overall the kinetic studies showed that the lead adsorption process followed pseudo-second-order kinetics.

## **On the mineralogy, physical characteristics, and main elemental content of urban road dust particles from the historic centre of the city of Thessaloniki, northern Greece**

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The objective of this study was to characterize urban road dust particles and to study their possible health effects. Road re-suspended dust has been recognized as one of the major contributors to TSP elevating concentrations in Thessaloniki. Eight samples of road dust were collected from the accumulated matter at the edges of major roads in the historic centre of the city of Thessaloniki. The predominant size fraction, according to mass, was 125–500 $\mu\text{m}$ , while the mass fraction of the suspendable dust particles (20–63 $\mu\text{m}$  and <20 $\mu\text{m}$ ) was the lowest. Special emphasis was given to the mineralogical characteristics of the urban deposits. Road dusts were mainly composed of quartz, calcite, while plagioclase, dolomite, K-feldspars, amphiboles, micas and chlorite were contained in minor amounts. Amorphous phase was also determined mainly in the finer fractions (20–63 $\mu\text{m}$  and <20 $\mu\text{m}$ ). Scanning electron microscopy shows that dust particles consist of subhedral to anhedral crystalline grains, near-spherical and irregular agglomerates as well as few organic materials. EDS analyses reveal that the composition of dust particles is basically Ca-rich, Fe-rich and silicates.

## **Accumulation and distribution of organic matter in sediments of salt-affected shallow lakes at Szeged, Hungary**

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The primary aim of the research is to investigate the accumulation and distribution of organic material [OM] in saline shallow lacustrine sediments. This study focuses on the OM parameters of sediments at two areas with different hydrology, land use, and vegetation cover. The study area is located at the Fehér Lake, Szeged (Hungary). The studied salt-affected lake system has been under intensive fish breeding from 1970. Sampling was made during the spring of 2007. In case of the profiles a 4 m deep 10 cm diameter sediment core was extracted. The OM data were measured with Rock-Eval pyrolysis, and the proportion of different OM groups was determined by the mathematical deconvolution of Rock-Eval pyrograms. It is showed that there are significant differences in OM distribution and characteristics if the different study sites are compared. In case of both profiles similar changes can be detected in the origin, quantitative and qualitative parameters of OM at depths of 15, 30, and 65–70 cm, which proves that the two sites belonged to the same depositional system, and similar changes affected them during sediment formation. Although both profiles have the same depositional environment, significant difference can be seen between the profiles. The profile 1 used to be located in coastal natural territory till 1970 and the profile 2

represents a constant water-irrigated fields. The fluctuation of F1+F2 and F3 values in Profile 1 suggests that the OM content of the marginal territory (both in its natural and present state) is determined by the alternation of dry and wet periods, sometimes with a high algae production in slack waters. Based on the quality parameters of OM, dry and wet accumulation periods can be separated, and signs of human influence can also be identified.

## **Middle and Late Triassic radiolaria from Kotel'nyi Island (New Siberian Islands, Russia, Arctic) and their paleobiogeographical significance**

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Kotel'nyi Island is located in the Arctic Ocean near to the prolongation of Southern Anyi ophiolite suture zone which is supposed to be remnant of southern Anyi Paleo-ocean located between Eurasian and North American plates. Therefore the information on Early Mesozoic faunas of this area and their paleobiogeographic affinities represent high interest for paleogeography and paleotectonics. Triassic of Kotel'nui Island is represented by all three series that are well characterized by ammonites, nautiloids, coleoids, bivalves and radiolarians. Section is characterized by predominance of soft clays. Radiolaria are present in the Middle and Upper Triassic, from Upper Anisian to Middle Norian.

The Middle Triassic is represented by Anisian black clays with interlayers of bituminous shales, clayey limestones and phosphatic concretions with total thickness 30 - 140 meters. Ladinian is composed of similar clays with thickness 6 - 15 meters. Radiolaria were found in the Upper Anisian together with ammonites *Indigiophyllites popowi* Konstantinov. They are represented by *Glomeropyle clavatum* Bragin, sp. nov., *G. boreale* Bragin and others (11 species). Next radiolarian assemblage was found in the Upper Ladinian (with bivalvs *Daonella* sp. ex gr. *D. frami* Kittl.): *Muelleritortis firma* (Gorican), *M. kotelnyensis* Bragin, sp. nov., and others (10 species). Upper Triassic is represented by Carnian clays with siderite and phosphatic concretions (100 m) and Norian clays with siderite and phosphatic concretions (up to 500 m). Radiolaria are present in the Lower Carnian (with ammonoids *Discophyllites taimyrensis* Popov): *Pentactinocarpus colum* Bragin, sp. nov., *Glomeropyle cuneum* Bragin, sp. nov., and others (12 species); Upper Carnian (with ammonoids *Yakutosirenites yakutensis* (Kiparisova): *Pseudostylosphaera glabella* Bragin, sp. nov., *P. gracilis* Kozur et Mock, and others (34 species); and in the Lower Norian (with ammonoids *Striatosirenites kinasovi* Bytschkov): *Pseudostylosphaera glabella* Bragin, sp. nov., *P. gelida* Bragin, sp. nov., and others (10 species). Each radiolarian assemblage includes several forms know from low-latitude regions as Mediterranean and Japan. These taxa constitute from 25 to 40 % of all species present in assemblage/

These results allow making several conclusions:

1) The sections include several radiolarian assemblages ranging from late Anisian to the early Norian. Taxonomic diversity of the assemblages increases at the stratigraphic levels rich in phosphorites and bituminous shales, which probably correspond to transgression episodes and well correlate with intervals of abundance of cephalopods.

2) Triassic radiolarian assemblages from Kotel'nyi Island significantly differ from the coeval radiolarians of Pacific and Mediterranean. They are characterized by domination of genus *Glomeropyle* Aita et Bragin which is present only in Northern Siberia and in the New Zealand and displays bipolar distribution pattern. Triassic radiolarian assemblages of these regions display clear affinity. Radiolarians can serve as paleoclimatic indicators for the Triassic.

3) The Middle Triassic radiolarian assemblages from Northern Siberia and regions of Mediterranean and Pacific include a number of common species (25-40 %). Using them, we can correlate Triassic deposits. This approach is helpful for solving the basic problem of correlation between Triassic deposits accumulated in the high- and low-latitude zones.

4) The presence of low-latitude species in radiolarian assemblages is well correlative with constant presence of low-latitude taxa among cephalopods. Their assemblages include