October 03-07, 2022 • Tirana, Albania

2022 TNT nanoBalkan

Abstracts Book

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TNT2022 Foreword

On behalf of the International and Technical Committees, we take great pleasure in welcoming you to Tirana (Albania) for the "Trends in NanoTechnology" International Conference (TNT2022).

The 22nd edition of the Trends in Nanotechnology International Conference (TNT2022) is being launched following the overwhelming success of earlier Nanotechnology Conferences. TNT2022 will take place in Tirana (Albania) for the 2nd year in a row in particular to launch a new conference series denominated nanoBalkan.

This high-level scientific meeting TNT series aims to present a broad range of current research in Nanoscience and Nanotechnology as well as related policies or other kind of initiatives such as nanoAlb. TNT events have demonstrated that they are particularly effective in transmitting information and establishing contacts among workers in this field.

The TNT2022 structure will keep the fundamental features of the previous editions, providing a unique opportunity for broad interaction.

On the occasion of TNT2022 several specific sessions on hot topics will be organised: "Graphene and 2DM" one-day Symposium, Meet Editors of Biosensors and Bioelectronics journal, Future projects/Networking, etc.

We are indebted to the following Government Agencies for their financial support: Academy of Sciences of Albania and MAEC/Embajada de España en Albania.

In addition, thanks must be given to the staff of all the organizing institutions whose hard work has helped planning this conference.

TNT2022

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Size-adsorption related studies of four Albanian natural clays toward pesticides

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Abstract

The use of natural soil components, such as clays has recently gained increasing interest for their promising properties as adsorbents and pesticide carriers. Four natural Albanian clays (Brari, Currila, Dardha, Prrenjasi) were characterized by granulometric analysis and powder X-ray diffraction. The granulometric analysis performed by Andreasen pipette and Torsion balance techniques were employed to categorize the samples based on their particle sizes and to correlate these parameters to their adsorption behavior toward selected pesticides. Currila and Dardha clays reveal finer textures, consisting mostly of particles with a mean diameter of 2.6 μm. Brari and Prrenjasi clays have a higher percentage of particles with mean diameters varying between 8 and 14 μm. Differential distribution charts show that Andreasen Pipette method reveals better distribution results (fig. 1), especially on the determination of the largest size of particles, which are clearly disregarded by Torsion balance method. The particle size distribution and their content strongly influence the adsorptive capacities of these clays towards selected pesticides.
The adsorption behavior and the adsorption capacity of each clay employed were studied for pesticide concentrations varying below their solubility limit in water. The overall adsorption process in each case is studied by the adsorption isotherm based on Freundlich, Langmuir, Temkin and Dubinin-Radushkevich models for a selected concentration and a variable time as well as for a selected time against variable pesticide concentrations. Aspects of the adsorption kinetics and intra-particle diffusion mechanisms are considered for the elucidation of the adsorption mechanisms.

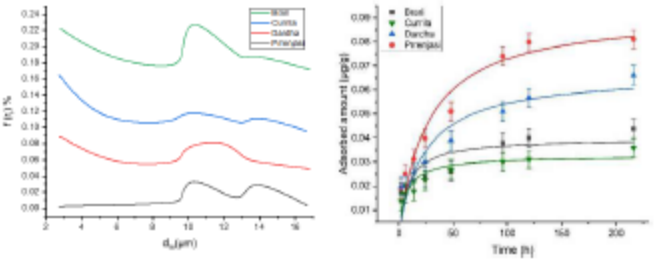

Figure 1: Differential distribution plots for four natural Albanian clays derived by Andreasen pipette analysis (left) and Langmuir adsorption isotherms of endrin (right).