Contribution ID: **488** Type: **Poster Presentation**

Adsorption of methylene blue from solution using pomegranate and orange peels powder

Tuesday, 31 May 2022 09:20 (1h 10m)

The textile industry is the major source of dyes and generates colored wastewater Colored dye effluents are generally considered to be toxic to the animal and plant life of a particular region and habitat. Moreover, almost all dyes are poorly biodegradable or resistant to environmental conditions and, therefore, create major problems in the treatment of wastewater stemming from the dyeing industry. In this context, numerous organic sorbents have been introduced in recent years to develop technologies aimed at preventing the pollution of soil and water. This work set out to study and compare the effect on the mobility of MB in a soil mixed with two low-cost organic residues (pomegranate and orange peels powder). The efficiency of pomegranate and orange peels powder as a low-cost adsorbent for removing the cationic dye methylene blue MB from silty soil collected from industrial zones in Tunisia has been investigated using batch mode experiments soils.
Particle size analysis is an essential phase for specifying samples of the soil studied. This analysis allows the determination of the size distribution and the distribution of the particles. The particle sizes are measured using a Microtrac S3500 laser particle size analyzer at the Center for Research and Energy Technology in Borj Cédria (CRTEN) in Tunisia.
Numerical modelisation were conducted under water unsaturated flow in hand-packed soil columns in which soil mixed with sorbents were incorporated as barriers. The effects of contact time have been studied to understand the adsorption behavior of the adsorbent under various conditions. The kinetic results of adsorption obeyed a pseudo-second order model for all adsorbent used in this study. The results revealed that the adsorption of methylene blue on the soil mixed with pomegranate and orange peels powder is feasible.

Acceptance of the Terms & Conditions

Click here to agree

MDPI Energies Student Poster Award

Yes, I would like to submit this presentation into the student poster award.

Country

Tunisia

References

Time Block Preference

Time Block A (09:00-12:00 CET)

Participation

In person

Primary author: Dr JEDIDI, Asma

Co-authors: Dr MARCOUX, Manuel; Dr DARDOURI, Sana; Prof. SGHAIER, Jalila

Presenter: Dr JEDIDI, Asma

Session Classification: Poster

Track Classification: (MS03) Flow, transport and mechanics in fractured porous media