

Nanomaterials for adsorption of contaminants in water

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Abstract

Currently, methods of water disinfection, decontamination and desalination can mitigate some of the problems related to water pollution. These treatment methods are generally chemically and energy intensive, so heavy investments are required. In addition, they are not able to eliminate the presence of some pollutants which are in very small concentrations, but that even at these levels involve a risk to society, such as drugs, detergents or heavy metals. Nanotechnology is the potential solution for long-term water forecasting with techniques such as filtration, the use of nanoparticles in catalysis and desalination. Moreover, with the development of nanotechnology, conventional techniques used in water treatment such as adsorption, flocculation and coagulation can be enhanced. Pharmaceuticals are products used in large doses in daily life considered as contaminants of emerging concern. Due to the large amounts of drugs consumed, the hydrogenic sources suffer from contamination processes that give rise to toxicological effects in humans despite its low concentrations. Many medicines considered as emerging contaminants are constantly detected in groundwater, wastewater treatment plants and water supply. The inefficiency of conventional methods used in water treatment plants to remove the contaminant motivates the development of effective methods to treat effluent contamination. Nanoparticles have been employed in recent studies to remove emerging pollutants from different media due to its very small size and high contact surface, thus achieving a high adsorption efficiency. Heavy metals present in water are also easily removed by emulating nanostructured adsorbents.

Meca Focusing their research work on the adsorption of contaminants through the use of nanoparticles.

Speaker Publications:

1. "Magnetic core-modified silver nanoparticles for ibuprofen removal: an emerging pollutant in waters"; Sci Rep. 2020 Oct 26;10(1):18288.
2. "In Situ Formation of Ionic Liquid by Metathesis Reaction for the Rapid Removal of Bisphenol A from Aqueous Solutions"; 2019.

[31st World Nano Conference](#); Webinar- November 24, 2020.

Abstract Citation:

Y. Vicente-Martínez, Nanomaterials for adsorption of contaminants in water. Nano 2020, 31st World Nano Conference; Webinar- November 24, 2020.

<https://nano.expertconferences.org/abstract/2020/nanomaterials-for-adsorption-of-contaminants-in-water>



Biography:

Dr. Yesica Vicente Martínez obtained her doctorate in chemistry at the University of Murcia (Spain) in 2014. During her research career she has worked on the development of nanotechnology-based analysis techniques for contaminants that are in trace concentrations. At present she has founded the research group Physico-chemical of the environment together with doctors in physics Manuel Caravaca and Antonio Soto