Martha E Jimenez-Castaneda et al., J Hydrogeol Hydrol Eng 2017, 6:3
DOI: 10.4172/2325-9647-C1-002

Use of non-conventional materials for the removal of heavy metals from water

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Environmental issues such as oil spills, seepages, leachates from mining processes, land disposal of solid wastes and effluents from industries have resulted in the accumulation of heavy metals in aquatic environments. These elements are persistent, bio-accumulative and can disrupt the metabolic functions and vital organs in humans and animals. Elevated concentrations of heavy metals including Cd, As and Cr, amongst others, have been reported in diverse areas of Mexico. Therefore, this research aims to minimize the heavy metal load, specifically chromium, from drinking water using agro-wastes and byproducts as adsorbents. Adsorption is an effective process for removing heavy metals from aqueous solutions. Conventional adsorbents include inorganic materials with high adsorption capacity, such as activated carbons (ACs), zeolites and clays. Recently the search for new materials has been directed to the use of agro wastes and other byproducts. In this context, the project will compare the efficiency of rice husk, eggshells, iron filling and fly ash for the chromium removal from water. The material with the highest efficiency for chromium removal will be applied in the treatment of drinking water. The discharge of heavy metals has exposed millions of people to their harmful effects and it is one of the biggest environmental challenges currently faced by the world. The use of non-conventional and low-cost materials for the removal of heavy metals, specifically chromium is a promising technology for drinking water treatments.

Biography

Martha E Jimenez-Castaneda has her expertise on the biogeochemistry of extreme environments. Currently, she is a PDRA in the Center for Research and Advanced Studies of the National Polytechnic Institute, Mexico. Her work focuses in the removal of heavy metals (Cr, Cd & As) from drinking water.

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