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Heavy metal removal by nano magnetic adsorbent

Mona E Ossmar and Marwa Abd Elfattah
Pharos University, Egypt

Population growth in the Middle East countries plus the development of more manufacturing facilities has greatly increased the need for water. To have enough water, the Middle East countries have to treat industrial waste water. The present work explored the use of Manganese ferrite nanopowder as an adsorbent for removal of heavy metal from waste water. The produced Manganese ferrite nanopowder was fully characterized considering its adsorption properties (BET surface area and XRD) as well as its chemical structure and morphology. Application of using the produced Manganese ferrite nanopowder for removal of Ni was evaluated in a batch operation system and studies the effect of different operating conditions such as; effect of time, metal concentration, pH of the solution and weight of adsorbent used.

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Hassan H Abdallah²¹Salahaddin University, Iraq²University Technology Malaysia, Malaysia

Theoretical Chemistry is the field of solving the complex mathematical equations of the quantum mechanical methods with computers. It is an old and young topic at the same time, old for the history of the methods representing the principles of this field and young as it is connected with the fast developments in computer hard and software. Currently, computational chemistry has become an essential tool to study and explain problems in most of chemistry branches. Interestingly, computational chemistry has gone beyond being a complementary tool for experimental results. In order to save time, efforts and money, chemists need to run computational calculations before dissolving chemicals in solvents and installing reflux and condenser. In industry, computational chemistry has become an important unit to develop new products and to save the expensive cost of try and error. During my talk I am going to focus on the importance of computational chemistry in industry and the new applications of computational chemistry in the field of astrophysics, biology, drug design and nanotechnology.

hwchems@yahoo.com