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### Optimization study for removal of heavy metals from aqueous solution on to activated carbone prepared from olives seeds

Mesopours activated carbon prepared from Iraqi olives seeds (OS) using physical activation by carbon dioxide gasification. The effects of the activation temperature and activation time on the carbon yield and phenolic compounds removal were investigated. From the analysis of variance (ANOVA), the most influential factor on each experimental design response was identified. The optimum conditions for preparing Nano activated carbon from Iraqi olives seeds were found: activation temperature of 5000C and activation time of 60 min. The carbon yield was found to be 18.5% while the removal of Cu, Zn and CD were found to be 90, 91 and 88.0% respectively.

The Nano activated carbon prepared for the removal of phenolic compounds from aqueous solution by the adsorption process was found to contain, in general, large pore sizes. The higher activation temperature and carbon dioxide gasification applied is believed to be responsible for activated carbon characteristics which gave better outputs at least when compare to those being used commercially. However, the high surface areas and total pore volumes of the prepared activated carbon were believed to be due to the method of the activation process employed in this work which was a combination of both heating and physical activating agents of CO<sub>2</sub>. Pore development during the carbonization process is an important step because it enhances the surface areas and pore volumes of the activated carbon by promoting the diffusion of CO<sub>2</sub> moles into the pores thus increasing the CO<sub>2</sub>-C reactions; a process responsible for generating more pores in the activated carbon.

### Biography

Jasim Mohammed Salman is the Dean of Al-Kunooze university college - Iraq, board directors member in Iraqi chemists syndicate-Iraq, vice president of Al Raffiden association for chemical dealers-Iraq, member in Iraqi engineers syndicate, member of Iraqi inventors forum, member of international inventors association, member of American chemical society (ACS), member of Europe desalination society (EDS), member of international water association (IWA), member international association of advanced materials (IAAM), member of Greek research and education institute, consultant at CRDF, member of many local and international scientific societies and forums. He holds a PhD in chemical engineering, in addition to numerous international certifications in the field of environmental management. Dr. Salman's achievements span more than three decades of significant leadership in the fields of chemical engineer process, adsorption process, preparation of activated carbons, environmental applications, water, soil, air monitoring and analysis (laboratories & fields), solar energy applications. Dr. Salman published more than 100 scientific manuscript, book and patent, he participated many scientific conferences, meeting and workshop. He got many awards from different national & international sides; the last one was (scientist's medal 2017) from International association for advance materials in Swede

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