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Olive Stones to Depollute Industrial Sewage Water



Research carried out by the Department of Chemical Engineering makes it possible to remove chrome, a hard metal which is dangerous for humans. The process is based on biosorption, which uses the property of certain types of biomass to retain pollutants. It can be used to purify water from painting, tannery or the galvanizing industry, among others.

A question arises whenever olive oil is obtained: what can we do with its agricultural residues, such as olive vegetable water, browse leaves, or the solid waste known as 'alperujo'?

A study carried out by Dr. Germán Tenorio Rivas, a member of the research group "Solids concentration and bioremediation" from

the Department of Chemical Engineering of the University of Granada found an interesting use for the apparently useless olive stones: eliminate hard metals –chrome, to be precise– by biosorption in sewage from industries such as painting, tannery or galvanizing industry.

Biosorption is a physical and chemical process, which enables certain types of biomass –for example, agricultural residues– to retain the hard metals in industrial sewage water. The main advantage of this research is that the stones are used. Germán Tenorio points out: "We don't need to bring it anywhere else, we already produce it here, and we produce a great amount that is also clean and cheap".

The process of biosorption of chrome by olive stones stems from their capacity to retain metallic ions in their surface. As the UGR scientist explains: "

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due to the difference in electrical charges. Olive stones are negatively charged, whereas metal is positively charged. That is the reason why they come together, thanks to ionic attraction”.

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