

Researchers have proved that olive stones used to clean waste can also be used as fuel

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Scientists have demonstrated that olive stones can be used during nine cycles to clean waste from industrial metals discharged in water and as an environmentally friendly biofuel.

The study, carried out by a UGR research team, focused on solids concentration and biological restoration, and analyzed the use of olive stones as a biosorbent to clean contaminated waters. The stones can then be used as a fuel after undergoing an additional process.

One of the members of the research team, Alicia Ronda, has dedicated her doctoral thesis to these uses of olive stones. Ronda explains that she and her colleagues found in the initial phase of the study that, after chemical activation, the capacity of the stones to absorb heavy metals increased. The team employed nitric acid, which increases the ability to remove lead waste materials from the olives stones by up to 35 times.

The study also showed that the stones can be recycled for reuse as a biosorbent up to nine consecutive times before becoming fully saturated.

The UGR researchers note that the stones can additionally take on a second function as a biofuel, particularly for use in biomass boilers.

The study showed that the thermal decomposition process of the chemically activated material is equal to that of the olive stones that are not activated in order to improve their performance as a water decontaminant. The activated material still maintains the properties

necessary for its use as a fuel.

"We concluded that the olive stone can be chemically activated in order to improve its performance in the elimination of lead in waste waters, recycled for further use, and finally used as a fuel for energy production", the researcher notes.

The team is also studying the possible environmental effects of the second use of the olive stones. In an initial study, they have shown that the cleaned metals remain in the ashes after its use as a fuel.

The team is continuing to study how to eliminate the metals that the stones absorb, in order to assure that the proposed alternative is viable from an environmental perspective.

Provided by University of Granada

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