**Synthesis of Activated Carbon/Sodium Alginate Composites for Wastewater Treatment**

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**Abstract**

In this study, we present a sustainable approach for the production of activated carbon derived from olive pits using chemical activation with potassium hydroxide impregnation. The resulting activated carbon is subsequently employed to fabricate composite materials in combination with sodium alginate (AC/Alg) for potential applications in wastewater treatment.

The production process involves impregnating olive pit precursors with KOH, followed by chemical activation to create activated carbon with high porosity and specific surface area. Composite beads are then formed by mixing the activated carbon with sodium alginate, offering an eco-friendly and effective adsorbent for pollutant removal. Various AC/Alg formulations were tested to optimize adsorption efficiency. The research explores the influence of adsorption parameters, such as contact time, initial pH, and initial pollutant concentration, on the removal of a model molecule.

The findings demonstrate the potential of AC/Alg composites for efficient and environmentally friendly wastewater treatment. This study contributes to the development of sustainable solutions in the field of water purification and underscores the importance of utilizing agricultural waste for environmental benefit.

**References**

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