

Activated carbon and their nanocomposites derived from vegetable and fruit residues for water treatment

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Water pollution remains a pressing environmental issue, with diverse pollutants such as heavy metals, pharmaceuticals, dyes, and aromatic hydrocarbon compounds posing a significant threat to clean water access. Historically, biomass-derived activated carbons (ACs) have served as effective adsorbents for water treatment, owing to their inherent porosity and expansive surface area. Nanocomposites have emerged as a means to enhance the absorption properties of ACs, surpassing conventional AC performance. Biomass-based activated carbon nanocomposites (ACNCs) hold promise due to their high surface area and cost-effectiveness. This review explores recent advancements in biomass-based ACNCs, emphasizing their remarkable adsorption efficiencies and paving the way for future research in developing efficient and affordable ACNCs. Leveraging real-time communication for ACNC applications presents a viable approach to addressing cost concerns.

Słowa kluczowe

Wastewater treatment, Biomass, Biomass-derived activated carbon, Nanocomposites, Pollutant removal

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