

Viable Use of Natural Extract Solutions from Tuberous and Cereals to Enhance the Synthesis of Activated Carbon-Graphene Composite

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Abstract : Enhancing the properties of activated carbon is very imperative for various applications. Indeed, the activated carbon has promising physicochemical properties desired for a considerable number of applications. In this regard, we are proposing an enhanced and green technology for increasing the efficiency and performance of the activated carbon to various applications. The technique poses on the use of natural extracts from tuberous and cereals based-solutions. These solutions showed high potentiality to be used in the synthesis of activated carbon-graphene composite with only 3 mL. The extracted liquid from tuberous sourcing was enough to induce precipitation within a fraction of a minute in contrast to that from cereal sourced. Using these extracts, a synthesis of activated carbon-graphene composite was successful. Different characterization techniques such as XRD, SEM, FTIR, BET, and Raman spectroscopy were performed to investigate the composite materials. The results confirmed a conjugation between activated carbon and graphene material.

Keywords : activated carbon, cereals, extract solution, graphene, tuberous

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