Supercapacitor Electrodes Synthesised from Aquilaria Malaccensis Bagass

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In a world where there is so much waste, there are needs to be a way in order to reduce it. Each year, tons of agarwood (Aquilaria Malaccensis) bark waste are produced after all its oils are extracted to make perfumes and ointments.this research addressing on mechanism in order to deal with the issue. Hence, in making use of the agarwood waste by turning it into an electrode of a supercapacitor is due to the fact that supercapacitors are used in many automotive machines. Firstly, agarwood bark are grinded into a powder. Once grinded into a powder, add acetic/nitric reagent, centrifuge . Discard the supernatant after each centrifuge. Add distilled water and redo centrifuge. Remove supernatant again until it is satisfactory. Next, turn it into carboxymethylcellulose (CMC). Then, alkalise the cellulose using NaOH solution. Cover with aluminium foil. Agitate at 150 rpm. Once done, add more NaOH along with chloroacetic acid. Filter and rinse with ethanol. Dry in oven at 105 °C for 3 hours. Once CMC is produced, dissolve in water with different CMC concentrations each and freeze dry after to turn into CMC aerogel. Put it into pyrolysis to turn into carbon aerogel. The aerogel is tested using Scanning Electron Microscope (SEM) for its porosity, a Capacitance Test to test capacitance and a Resistance Test to test resistance. As a conclusion, the carbon aerogel does not have great qualities and are compatible to be used as an electrode in a supercapacitor but also as a new sources of renewable energy as it originates from biomass.

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