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Optimisation of the conditions involved in the preparation of activated carbon from mosambi peel and the evaluation of antibacterial activity of nano-sized activated carbon, silver nano-particles, and silver impregnated activated carbon

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Abstract:The present research work aimed to optimise the condition for the preparation activated carbon from mosambi peel. Variables involved in the preparation such as heating temperature, and heating time were optimised by keeping the missing ratio of H_2SO_4 and precursor as constant. The surface area, methylene blue adsorption capacity, iodine adsorption capacity and the yield of the final products were determined and compared. Silver nanoparticles were prepared using the chemical reduction method. They loaded into the activated carbon to form nano composite. The ability of the activated carbon, silver nano particles, and silver impregnated activated carbon were tested for its antibacterial activity using disc diffusion technique. Experimental results revealed that the activated carbon showed the highest BET surface area, methylene number iodine number was produced at the heating temperature of $350^{\circ}C$ and the heating time 90 mins. Silver impregnated activated carbon as nanocomposite showed the highest antibacterial activity than other two compounds.

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