

## **Production of coconut shell based charcoal and enhancement of its adsorptive properties**

Activated carbon is used as an excellent because of its very high adsorption capacity which is due to its fine pore distribution. Coconut shell based charcoal has better characteristics than wood based charcoal. However, its maximum potential has not been realized yet. Since coconut shells are cheap and readily available in Sri Lanka, it is imperative that we develop its adsorptive and catalytic properties.

The basic structure of the activated carbon can be created by the carbonization process in which the raw material is heated in an inert gas atmosphere at high temperature. After carbonization, the activation step is carried out using steam as the activating agent. Activated carbon with different textures can be obtained by varying the raw material as well as by changing the conditions of carbonization, activation processes and also activating agents. In order to measure the adsorptive capacity of charcoal, methylene blue and acetic acid were used as adsorbates in this study. The extent of adsorption of these adsorbates was determined using spectrophotometric and titrimetric methods, and the results were compared with those for several commercially available charcoal samples. By this study parameters were those for several commercially available charcoal samples. By this study parameter were developed to enhance the adsorption characteristics of coconut shell charcoal. A 400% enhancement of adsorption capacity was achieved by activation of charcoal samples.

All the charcoal samples so produced exhibited high activity for adsorption of acetic acid compared to the commercially available and BDH charcoal, owing to their micro pore structure formed as a result of the low activation and carbonization time at relatively low temperatures.