



## **Initial study on removal of organic pollutants from contaminated water by using coconut shell based activated carbon**

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The ability of coconut shell based activated carbon to remove resorcinol (benzene -1, 3-diol), a common pollutant from contaminated water has been investigated. Activated carbon was produced using coconut shells as the raw material and phosphoric acid and steam as the activating agents. The effects of process variables such as chemical activation temperature, impregnation ratio (w/w%) between coconut shells and phosphoric acid and soaking time on the product performance towards adsorption of resorcinol were investigated. The adsorption of methylene blue on activated carbon was also studied for comparison of the adsorption of both adsorbates. The amounts adsorbed were determined using spectrophotometric method. The results were compared with the performance of commercially available and steam activated carbon samples using the same adsorbates. The activated carbon produced with soaking temperature 450 °C, impregnation ratio 80% and soaking time 1 hour, exhibited the best performance towards both adsorbates giving 1.5 times higher adsorption amounts compared with the performance of other carbons produced in this study. Acidic surface groups were established by Fourier Transmittance infrared Spectroscopy (FTIR) technique.

**Keywords:** Activated carbon, Coconut shell, Chemical activation, Resorcinol, Adsorption.