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## Preparation and Characterization of Activated Charcoal as an Adsorbent

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**Abstract** Charcoal was prepared from coconut shell and activated at three temperatures 300, 350 and 400°C in constant flow of air or nitrogen. Adsorption of oxalic acid and maleic acid from their aqueous solution on charcoal was studied. Oxalic acid gave Langmuir type of adsorption isotherm indicating monolayer formation but maleic acid gave sigmoid shaped isotherm, BET (Brunauer, Emmett and Teller) type II isotherm. These contrasting results are explained as follows: activated charcoal, like graphite has both polar and basal sites and the polar heads of the carboxylic groups in oxalic and maleic acids are chemisorbed on the polar sites of activated charcoal but in addition to this the unsaturated hydrocarbon chain in maleic acid opens up to form weak bonds with the basal sites of the activated charcoal. It has been observed that the amount of adsorption of both oxalic and maleic acid increases with the increase of temperature of activation.

**Keywords :** Active carbon, coconut shell, surface area, adsorption.

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