

Production of Activated Carbon from Agricultural Residues

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Abstract : The research aim is become to identify the quality of activated carbon product from some agricultural residues. This goal is interested in both of largest amount of agricultural residues and expensive import activated carbon. To achieve research aim, three available of agricultural residues are collected (date kernels, residues of trimming peach trees and corn stalks) and experimentally analyzed under four furnace temperatures of 673, 773, 873 and 973 °K and four pyrolysis times (1.0, 1.5, 2.0 and 2.5 h). The output parameters from pyrolysis of activated carbon such as carbon concentration, yield, surface area, pore volume, ash ratio and SEM (Scanning Electron Microscope) were investigated. The vital carbon concentration were 4.95, 3.61 and 1.28 mg.g⁻¹ at pyrolysis time of 2.0, 2.0, and 1.0 h respectively for date kernels, residues of trimming peach trees and corn stalks. Furthermore, the obtained activated carbon can produced at furnace temperature and pyrolysis time of 673 °K through 2 h for date kernels and 973°K during 2 h for peach trees and 673 °K in 1 h for corn stalks.

Keywords : Activated carbon, Agricultural residues, Date kernels, Residues of trimming peach trees, Corn stalks, Temperature, Pyrolysis Time, Chemical activation, Carbon ratio, Surface area, Pore volume, Ash, Yield.