

February 19-20, 2018
Paris, France

B C Ladeira, J Org Inorg Chem 2018, Volume: 4
DOI: 10.21767/2472-1123-C1-003

PRODUCTION OF ACTIVATED CARBON FROM BRAZILIAN AGRICULTURAL WASTE

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The development of low-cost adsorbents is an alternative for the reuse of agroindustrial waste, contributing to the reduction of waste disposal costs. A great example of this is the production of activated carbon containing a large consumer market. Activated carbon is a material frequently used in the treatment of water, liquid effluents and exhaust gases. Several carbonaceous materials can be used in the production of activated carbon. In this study was developed an activated carbon production method from Brazilian agricultural waste, biomass used were guava seed, jatropha curcas peel and passion fruit seeds. Residues in natura were characterized for moisture content, volatiles, ash and fixed carbon. For the production of activated carbon through the guava seed, was used as activating agent the zinc chloride for jatropha curcas and passion fruit seeds, the activating agent was phosphoric acid. After impregnation with activating agent, the biomasses were carbonized under flowing argon to 100 ml per minute. For the pyrolysis, the time used was 3 hours and the temperatures used ranged from 400 to 600 °C. The activated carbons obtained in the trials were been tested as adsorbents for the removal of methylene blue an aqueous solution and subsequently compared with the commercial activated carbon. The adsorption of methylene blue was favorable for activated carbon made by guava seed and Jatropha curcas peel. The isotherms certified that the adsorption capacity of the produced activated carbon is greater than commercial activated carbon, which makes promising use of biomass as a precursor for activated carbon production.

Biography

B C Ladeira has recently completed his graduation in Chemical Engineering from Faculdades Integradas de Aracruz – FAACZ and currently studying Post-graduation in Production Engineering at Universidade Cândido Mendes – UCAM. He worked as a Research Assistant in the development laboratories of Fibria Celulose S.A. in Brazil, working with cellulose pulping and bleaching, physical paper assays and nanocellulose pilot plant. Currently, he is a trainee in the field of Drug Product Development at Hovione FarmaCiência SA in Portugal.

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