



SDI FINAL EVALUATION FORM 1.1

PART 1:

Journal Name:	British Journal of Applied Science & Technology
Manuscript Number:	2014_BJAST_12742
Title of the Manuscript:	Valorization of Cocoa shells (Theobroma cacao) for the production of Activated Carbon by Chemical Activation using H3PO4 and KOH: Kinetic and Equilibrium Studies of Cu(II) ions Adsorption from Aqueous Solutions
Types of article	Original Research Article

PART 2:

FINAL EVALUATOR'S comments on revised paper (if any)	Authors' response to final evaluator's comments
Maim line 96 spelling of main Compressed Abstract is required. Author may use the one below; This present research was aimed at studying the adsorption characteristics of Cu(II) ions from aqueous solutions onto two samples of low-cost, cocoa shell-based activated carbons (CSBAC) using the batch adsorption mode. Activated carbon samples were obtained by chemical treatment via pyrolysis using phosphoric acid (PAA) and potassium hydroxide (PHA) as activation agent. Findins from the studies unveiled a pH at zero-point charge (pHzpc) of 7.0 and 5.9 for PAA and PHA samples respectively. Contact time of 35 minutes for PAA and 15 minutes for PHA at $pH_{max} = 4$ by 0.1 g were observed. Optimum adsorption quantities were 62.2 mg/g for PAA and 42.2 mg/g for PHA for an initial metal ion concentration of 2400 ppm. The Langmuir model for PHA and Freundlich model for PAA best described the adsorption of Cu(II) ions from aqueous solution. The two CSBAC samples both obeyed pseudo-second order kinetics. Generally, these results indicate that CSBAC can be used as an effective and low-cost adsorbent for the removal of Cu(II) ions from aqueous solutions. Response to line 136 is wrong. Activation temperature is usually higher than that of Pyrolysis or carbonization. Please, note and correct this.	Main-Corrected Accepted as: This present research was aimed at studying the adsorption characteristics of Cu(II) ions from aqueous solutions onto two samples of low-cost, cocoa shell-based activated carbons (CSBAC) using the batch adsorption mode. Activated carbon samples were obtained by chemical treatment via pyrolysis using phosphoric acid (PAA) and potassium hydroxide (PHA) as activation agent. Findings from the studies unveiled a pH at zero-point charge (pHzpc) of 7.0 and 5.9 for PAA and PHA samples respectively. Contact time of 35 minutes for PAA and 15 minutes for PHA at $pH_{max} = 4$ by 0.1 g were observed. Optimum adsorption quantities were 62.2 mg/g for PAA and 42.2 mg/g for PHA for an initial metal ion concentration of 2400 ppm. The Langmuir model for PHA and Freundlich model for PAA best described the adsorption of Cu(II) ions from aqueous solution. The two CSBAC samples both obeyed pseudo-second order kinetics. Generally, these results indicate that CSBAC can be used as an effective and low-cost adsorbent for the removal of Cu(II) ions from aqueous solutions. In our case, it was not a two-step process. After impregnation and oven drying at 110 °C, carbonization/pyrolysis and activation were carried out simultaneous at the same temperature (400 °C)