Experimental Analysis of Biochar produced from Waste Jute Stick

A thesis

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Experimental Analysis of Biochar Produced from Waste Jute Stick

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LETTER OF TRANSMITTAL

To

Md. Ahatashamul Haque Khan Shuvo

Assistant Professor

Department of Mechanical Engineering

Sonargaon University (SU)

Subject: Submission of Project Report.

Dear Sir,

We pleased to submit the project report on "Experimental Analysis of Biochar and Activated Carbon Produced from Waste Jute Stick". It was a great pleasure to work on such an important topic. This project has been done as per instruction of your supervision and according to the requirements of the **Sonargaon University.**

We expect that the project will be accepted by the concerned authority we will remain happy to further explanation that you may feel necessary in this regard.

Thank You

Sincerely yours

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DECLARATION

We hereby, declare that the work presented in this project is the outcome of the investigation and research work performed by us under the supervisor of **Md. Ahatashamul Haque Khan Shuvo,** Assistant Professor, Department of Mechanical Engineering, Sonargoan University (SU). We also declare that no part of this project and thereof has been or is being submitted elsewhere for the award of any degree.

……..

Md. Ahatashamul Haque Khan Shuvo
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ACKNOWLEDGEMENT

First, we started in the name of almighty Allah. This thesis is accomplished under the supervision of **Md. Ahatashamul Haque Khan Shuvo**, **Assistant Professor**, Department of Mechanical, Sonargaon University. It is a great pleasure to acknowledge our profound gratitude and respect to our supervisor for this consistent guidance, encouragement, helpful suggestion, constructive criticism and endless patience through the progress of the work. The successful completion of this thesis would not have been possible without his persistent motivation and continuous guidance.

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"The Authors"

ABSTRACT

Due to rapid industrialization and human activities soil losing fertility. To ensure food for our populated country, we have need to increase production of food with low cost. Biochar is very useful to improve soil fertility and production of food with low cost. The current review highlights the method of biochar production by using Pyrolysis. Biochar is a charcoal made from biomass waste, such as wood, jute sticks or others agricultural waste. We have used Jute sticks for biochar production. It increases soil aeration, reduce soil acidity, soil surface area, porosity, ion exchange, water holding capacity, pH of soil, nutrient exchange, soil fertility. As a result, production of food will be increased with low cost by using biochar. X-ray diffraction (XRD) is used to determine the crystal structure, phase composition and physical properties of material. FTIR can be used to measure infrared adsorption and emission spectra. FESEM can be used to study the microstructure of materials, elemental composition of materials and topological data of a material surface. Ultimate analysis (CHNS) is a method for determining the amount of Carbon (C), Hydrogen (H), Nitrogen (N) and Sulphur (S) in a sample. The results of ultimate analysis of the formed Jute stick briquette gave 94.2%, 5.89 %, 1.01 % and not detectable for contents of carbon, hydrogen, oxygen, nitrogen, and Sulphur, respectively.

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