

**COMPARISON BETWEEN COCONUT WASTE PARTS AS ACTIVATED
CARBON RAW MATERIAL**

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.



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ABSTRACT

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This study examines the production of activated carbon from coconut waste by chemical activation using potassium hydroxide (KOH) and phosphoric acid (H_3PO_4). Available in abundance as an agricultural waste material, coconut shells are a favorable raw material because they have a high carbon content, and natural porosity. The study aimed to optimize the process of activation in order to maximize the surface area, pore structure, and adsorption ability of the final activated carbon product. Raw coconut waste was carbonized and then chemically activated with KOH and H_3PO_4 under controlled conditions to study their effect on activated carbons chemical properties and organic compound removal efficiency. Characterization techniques used to study activated carbon physical properties included surface area, organic compounds analyzer. Preliminary results showed both activation agents greatly improved porous structure. Results indicated the potential of using coconut waste as a low-cost, sustainable precursor for high-performing activated carbon.

Keywords: Activated carbon, Filtration, Coconut waste, Chemical activation, Water treatment.



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DEDICATION

This work is dedicated to my family, my friends and my beloved lectures whose unwavering support and encouragement have been my foundation throughout this journey.



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