UNIVERSITI TEKNOLOGI MARA
Cawangan Terengganu
Kampus Bukit Besi

TITLE:

PRODUCTION OF TEA CHAR AT DIFFERENT CARBONIZATION TIME AS A POTENTIAL APPLICATION IN SOIL AMENDMENT

SUPERVISOR:
DR. IR MOHD SAUFI BIN MOHD ZAINI

SCHOOL OF CHEMICAL ENGINEERING
COLLEGE OF ENGINEERING

2024

AUTHOR'S DECLARATION

" I hereby declare that this report is the resof my own work except for quotations and summaries which have been duly acknowledged."

Name of Student	:	NUR MASYITAH BINTI MOHAMAD ALI
Student I.D. No.	:	2022885946
Programme	:	Diploma in Chemical Engineering
College/School	:	College of Engineering/School of Chemical Engineering
Signature of Student	:	.....
Date	:	12 FEBRUARY 2025

ABSTRACT

Tea waste is a waste product of tea processing. Biochar production from organic waste is a resulting modern technology where biochar can be used as a soil amendment for environmental improvement and carbon capture. Therefore, the aim of this study was to determine the optimal pyrolysis conditions in producing tea waste biochar for such applications. Tea waste samples were randomly collected and basic physical and proximate analyses were performed. The production of tea charcoal at different carbonization times as a potential application in soil amendment with the same temperature (500 degree Celsius) and remaining time (20 min, 40 min and 60 min).. Longer carbonization times decreased char yield but increased energy density and carbon content, according to the results, suggesting better fuel quality. The results explain how carbonization time affects char characteristics and provide recommendations for maximizing the value of tea waste for energy and environmental uses.

TABLE OF CONTENTS