

THE KINETIC STUDY ON HYDROLYSIS OF CELLULOSE SAWDUST

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REG NO: CHE/2007/084

DEPARTMENT OF CHEMICAL ENGINEERING,

FACULTY OF ENGINEERING

CARITAS UNIVERSITY AMORJI-NIKE EMENE ENUGU,

ENUGU STATE.

IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE

AWARD OF ENGINEERING (B.ENG) DEGREE IN

CHEMICAL ENGINEERING.

AUGUST 2012.

CERTIFICATION

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DEDICATION

This work is dedicated to the Almighty God who has taken care of me throughout my stay in school. The Holy Spirit, giver of all wisdom and my blessed mother Mary, the powerful intercessor, and also my beloved parents Mr. and Mrs. Nwachukwu and my lovely sister, Adaugo and Chidera and my friend Maduka.

ACKNOWLEDGMENTS

It is difficult to recognize all who in one way or the other provided help to bring this work to empirical realization. I wish to first of all thank the Almighty God specially, who is the author and fountain of all wisdom, for the strength he bestowed on me during the restless days of this work. My special thanks go to my supervisor, Engr. Mrs. V.C. Otegbulu, who was really there for me throughout the course of this work and her encouragement.

I would not forget to thank my HOD, Engr. PROF. Dr. J.I. Ume for his fatherly advice and concern. Mention must be made of some worthy academic personalities for their constructive advice, and encouragements and making me what I am today. Such people like Engr. Ken Ezeh, Engr. G.O. Mbah, Engr. Mrs. Odilinye, Engr. Boniface Ugwu and host of other lecturers, may God richly bless you.

I wish to express my profound gratitude to my dear parents, Mr. and Mrs. Nwachukwu, for without them, I would not have seen the four walls of University.

My final thanks goes to my sisters Adaugo and Chidera Nwachukwu and friends especially valatine chukwu for their words of encouragement and prayers. I love you all.

ABSTRACT

This research project studied the kinetic of hydrolysis of cellulose using acids. The steps employed to achieve this project involved separation of fine particles of sawdust from others using sieves and the hydrolysis of cellulose (sawdust) to glucose. This was followed by glucose analysis. Different experiments were conducted during acid hydrolysis to study the effect of various acids on the hydrolysis of cellulose to glucose. The finest sawdust particle was weighed and mixed with water. The process used in the hydrolysis was acid hydrolysis in which two different inorganic acids (hydrochloric and sulphuric) were used at constant temperature of 80°C.

Finally, during this experiment, it was observed that HCl hydrolyzed faster than H_2SO_4 and Glucose analysis was carried out to determine the acid with the highest glucose concentration and the best acid for the hydrolysis. From the result obtained, it was noticed that the concentration of glucose was relatively higher from HCl hydrolysis when compared with H_2SO_4 hydrolysis which yielded glucose concentration of 0.128g. Therefore the best acid for acid hydrolysis is HCL.

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