MODELING OF MUSKMELON SEED OIL EXTRACTION UNDER SUPERCRITICAL CARBON DIOXIDE CONDITION

SAKINAH BINTI KHAIDZIR

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FACULTY OF CHEMICAL ENGINEERING UNIVERSITI TEKNOLOGI MARA SHAH ALAM

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ABSTRACT

From a secondary supercritical extraction data of muskmelon seed which was obtained from the work done by J. Prakash Maran and B. Priya, a suitable mathematical model was found for the oil yield extracted. The reason this study was done is to obtain a model for the process which will be able to predict oil yield of future experiments on supercritical carbon dioxide extraction of muskmelon seed oil. An application of Artificial Neural Network model was used where it was trained until desired output was obtained. A simple mathematical model was derived by applying the equation of straight line to the regression plot of the model. The regression value of the plot is 0.97. The average absolute deviation obtained for the comparison of actual and model oil yield is 2.63%. The actual oil yield and model values show good agreement with each other thus making the model obtained reliable to be used in the future.

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CHAPTER ONE

INTRODUCTION TO RESEARCH PROJECT

BACKGROUND STUDY

1.1 INTRODUCTION

Muskmelon (*Cucumis melo*) is a fruit under the melon species. It has been cultivated into many types such as honeydew, crenshaw, casaba as well as variety of cultivars namely cantaloupe, persian melon and christmas melon. The armenian cucumber is known as a type of muskmelon but it resembles mostly to cucumbers. This fruit has such an assortment in variation that it was even grown in a square shape (Ellis, 2004).



Plate 1.1: Muskmelon fruit and a square-shaped species which was cultivated in Japan

Muskmelon was originally cultivated in Armenia, Anatolia as well as Iran. Its non-primary centers are Afghanistan and northwest India. Just like watermelons, muskmelons are a scrambler and trailer (vine-like) flowering plant (Mabberley, 1987).