DRYING CHARACTERISTIC OF EMULSIFED GELATIN FILM

SAARWANI BINTI ABDULLAH

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FACULTY OF CHEMICAL ENGINEERING
UNIVERSITI TEKNOLOGI MARA
SHAH ALAM
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ABSTRACT

The purpose of this study are to determine drying characteristic of emulsified edible film at different temperatures and to determine the optimum condition for drying. Nowadays, the application of the edible film is being increased. Therefore, the uses of the edible film are also increasing. The edible film is introduced as alternative way to minimize the uses of synthetic polymer. It also can be eaten and degrade easily. The drying process is an important requirement in order for the film to be used as food packaging. The drying characteristic can be described in drying kinetic model and optimum temperature that used for the film. The drying of films also an effective ways of extending the shelf life by reducing the moisture content of the material that can reduced the microbial growth and enzymatic reaction. It is also involved the heat transfer from heating the medium to the product surface. The method used to prepare the film is by casting method. The film was dried at the different temperature which are 45ºC, 50ºC, 55ºC and 60ºC. The material or chemicals that used to prepare the film are plasticizer (glycerol), protein (gelatin), distilled water and lipids (vegetable oil) which is sunflower oil. The optimum temperature of emulsified gelatin film was 60ºC. When the drying time was increased, the moisture content was decreased. Lastly, Page model was the best fit model because R^2 was the highest, and lower MBE and RMSE which were 0.9396, 0.0026 and 0.0515 respectively.

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

The awareness among customer regarding to the healthy lifestyle is increase that have to improve the research on the technique of prolonging the shelf life of food product without the necessity addition of preservatives. Therefore, changing the mechanical and barrier properties depends on the main component in the bio polymer matrix that caused the increasing interest in composite structures, which enable to explore the complementary advantages of each component and to minimize the disadvantages. In addition an edible film is a primary packaging made from edible components and a thin layer that can directly coated the food as a food wrap without changing the original ingredients or processing method. It is used to improve the gas and moisture barrier, mechanical properties, microbial protection and also prolong shelf life of various food products.

Other than that, the emulsified materials are obtained during the one film-forming and one drying process (Fabra *et al.*, 2011) . The main components to prepare the edible film are proteins, plasticizers and different lipids (fats and oils). The biodegradability is the main advantage of structures as potential food packaging materials. Besides that, the mostly type of proteins that have been used are gelatin,