

THE MAKING OF DYE POWDER OF DUWET (*Syzygium cuminii*) RIND BY USING SPRAY DRYER METHOD AND THE STABILITY DURING THE STORING

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Abstract

Along with the development of food processing industry, the use of dye at food processing industry also increases. Most of the dye used is synthetic, both liquid and powder, which can generate the problem of health. To reduce the risk, the use in foodstuff begins omitted and changes over into the use of natural dye. However, the limited amount of natural substance is one of the reasons to look for natural dye source of Indonesian typical plant, such as duwet. All this time, duwet (*Syzygium cuminii*) is not optimally exploited yet, so by using this fruit as the staple of dye will be able to improve the economic value of it. The most economic and efficient powder drying method is dryer spray method with the addition of filler substance of maltodextrin 10%, 15%, and 20%. It is caused the storing of anthocyanins in a long time and high temperature is easy spoiled. This research is conducted to know the process of making duwet rind dye powder, the characteristic of dye powder which is produced, and the stability level during the storing. In this research, the extraction of duwet rind is conducted by using the combination of solvent water : etanol (1:1). The obtained extract is combined with filler substance of maltodextrin 10%, 15%, and 20%. This mixture is dried using spray dryer. The result of this process is dye powder. Then, its characteristics are observed, enclose total yield, water content, ash content, solubility, hygroscopicity, colour, quantity of anthocyanins, losing of anthocyanins during drying and analyzing the stability during the storing. The results of research of dye powder are: total yield 80.35%-88.33%; water content 5.46%-6.74%; ash content 0.22%-0.48%; temperatures solubility 27⁰C (98.82%-99.58%) and temperatures 40⁰C (99.49%-99.89%); hygroscopicity 22.02 g / 100g-25.36 g / 100g; the colour tends to reddish blue (purple); quantity of anthocyanins 3.72 mg / mg g-8.93 / g; and drying loss 16.73%. For the stability of dye powder during the storing which is done at frozen temperature and room temperature (RH 32%) indicate that the endurance stability of anthocyanins during the storing at frozen temperature more stable than at RH 32%. Degradation rate ranged 0.002 week⁻¹ x (10⁻¹) - 0.030 week⁻¹ x(10⁻¹) at frozen temperature and 0.003-0.016 week⁻¹ x (10⁻¹) at room temperature (RH 32%). Half-life 22.796 - 407.647 week at frozen temperature and 44.710-238.966 week at room temperature (RH 32%).

Keywords: *Anthocyanin; Duwet rind; Maltodextrin; Dye powder; Stability of storing.*

Introduction

Colour is the first sensory parameters which are observed when consumer look at the food product, food dyes also have important role to the food quality (Winarno, 2002). Most

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