UNIVERSITI TEKNOLOGI MARA

STABILITY OF YELLOW, ORANGE, AND GREEN EXTRACTED FROM VEGETABLES ON LIP BALM

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Thesis submitted in fulfillment
of the requirements for the degree of
Bachelor of Engineering (Hons.) Chemical

Faculty of Chemical Engineering

July 2019

ABSTRACT

The use of natural lip balm started to get the attention of people when they realized the harmful effects of synthetic colourant on lip balm towards human health. This research interest focused on to produce natural lip balm based on extracted natural colour from the carrot, *Pandan leaf*, and turmeric and to compare and study on the stability of natural lip balm with the existing synthetic lip balm sold in market. The stability of the natural lip balm being observed by taking the reading from Chromameter which yield values of L*, a*, and b*. The most stable pigment was Carotene with values in a range of 82 to 85 for L*, -2.5 to -3.5 for a*, and 9.3 to 10.7 for b*. Slightly stable pigment was Chlorophyll with values in a range of 70 to 76 for L*, -14 to -15 for a*, and 29 to 31 for b*. Least stable pigment was Curcumin which having values varies in range of 55 to 60 for L*, 5 to 10 for a*, and 15 to 25 for b*. In average, melting and breaking point of formulated natural lip balm are 36.5°C and 0.113 respectively. Low in values is due to high amount of Shea Butter use for the formulation. Melting point of synthetic lip balm is doubled from natural lip balm and this proven that the melting point relates to the amount of wax use since 2 types of wax use as ingredients of synthetic lip balm. Solubility test shows lipid characterization since lip balm was only totally dissolved in chloroform and failed to dissolve in both water and ethanol solvent. The highest peak wavelength absorbed was in a range of 2843 cm^{-1} to 2859 cm^{-1} for all 3 natural lip balms and this functional group belongs to Beeswax which the base ingredient for the formulation. In conclusion, the experiment was done successfully but the result do not reproducible due to the insensitivity of chromameter during colour measure.

ACKNOWLEDGEMENT

Firstly, I wish to thank God for giving me the opportunity to embark on my Degree and for completing this long and challenging journey successfully. My gratitude and thanks go to my supervisor Dr. Siti Noor Suzila Maqsood-Ul-Haque for the support, patience and guide during my research project and help me when I faced problems of the experiment.

Not forgetting to all lab assistant and staff of Chemical Engineering Faculty for guiding me in handling the equipment and giving the permission to use required equipment and necessary materials to complete the experiment.

Finally, this thesis is dedicated to the loving parents and family for the vision and determination to educate me also for the moral support. This piece of victory is dedicated to both of you. Alhamdulilah.

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CHAPTER ONE
INTRODUCTION

1.1 RESEARCH BACKGROUND

Colours is one of the most criteria that being evaluated and attracted the human on any materials. To produce color for any materials, the colourant is being used to an infinite variety of materials and things (Sabarudin, Sakinah, Munaim, & Wahid, 2016). Colourant is important in many areas such as paintings, printings, clothing, pictures, screens and staining (Sabarudin et al., 2016; Shindy, 2016). Colourant have been used from many years ago. First three(3) colourants that used in human life are verdigris, vermilion also known as Chilnese Vermilion and red iron oxide also known as Venetian Red (Orna, 2001).

Synthetic colourant is commonly used in the industries due to some advantages such as the availability and the stability of the synthetic colorants compared to natural colorant and this lead to decrease in number of applications of the natural colourant. Unfortunately, the synthetic colourants give lot of bad effects to the human body also to the environment. Synthetic colourants may cause respiratory, epidermal, carcinogenic and damage to the human kidneys and adrenals (Bachalla, 2016; Náthia-Neves, Angela, & Meireles, 2018). Besides, high consumption of the synthetic colourant also affecting kids health such as attention problems, hyperactivity, irritability, sleep disorders and aggressiveness in children (Ngamwonglumlert, Devahastin, & Chiewchan, 2017).

As years past, human starts to aware the effect on the high consumption of synthetic colourants and this makes the demand on the natural colourant is increasing since they prefer natural colourant instead of synthetic colorant (Sabarudin et al., 2016). The advantages of using natural colourant is they did not create any environmental problems at the production stage, and maintain the ecological balance (Sabarudin et al., 2016). Besides, the natural colourant also considered to be harmless and healthier than the synthetic colourants (Sabarudin et al., 2016).