

**METHOD DEVELOPMENT FOR SOLVENT EXTRACTION OF
PIGMENT FROM MANGOSTEEN SKINS**

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ABSTRACT

METHOD DEVELOPMENT OF SOLVENT EXTRACTION OF PIGMENT FROM MANGOSTEEN SKINS

The attractive color of mangosteen skins has attracted researchers to commercialize the natural source of colorant. Anthocyanin is one of the pigments in the mangosteen skin. The objective of this study is to develop an efficient and selective method for pigment extraction from mangosteen skin. This can be achieved by changing some parameters that will make the extraction process more effective and more selective. Water and hexane extractions were not recommended as water extraction caused fungal growth while non polar hexane was not able to extract the polar colorant. The optimum time for the solvent extraction was 82 hour for both solvents (methanol and ethanol). A more acidic solvents will extract more crude extract compared to less a acidic solvents. This is due to the high stability of anthocyanin pigment in acidic condition. Anthocyanin is known for its sensitivity to pH, making the pigment color absorption vary in the spectrum of visible region besides the possible different composition exists in the extracted pigment. The normal absorption of anthocyanin (500 to 550 nm) only can be observed in extract from methanol pH=2, ethanol pH=2 and ethanol pH=3. The extract that comes from lower pH or more acidic solvents had lower values of L*. This means that the acidic condition produced a darker color of extract compare to less acidic in the solvents. These results can be used for further optimization studies to design a commercial production of mangosteen pigment extraction.

CHAPTER 1

INTRODUCTION

1.1. Colorant in industry

Color is an important factor in acceptability of food or textile products. Food industry uses colorant to enhance or restore the original appearance of food while in textile industry, colorant is an important material in expressing the design for customers. Color is also important for other applications such as for drawing and packaging. Synthetic colorant has become one of the alternatives in many industries as colorants. Foods are usually colored because they have no colors or their natural color has been altered during processing or storage. Most consumers find colorless food unappealing, thus colorants is added. Synthetic food colorants are regulated by the government. Just as with any substance, the chemical structures of each these colorants will determine its characteristics, for example whether is water soluble or not. Water-soluble colorants are useful in water-based foods, but not in fatty foods such as salad dressings and ice cream. Therefore a special form of colorant (called a lake) is prepared by attaching the water-soluble colorant to an insoluble material.

Curiosities on safety of the synthetic colorants and recently prohibition of some of them increase customer consciousness toward the natural colorant. For this purpose, pigment extracts from edible sources as well as concentrated juices are commercially available and used especially in food