UNIVERSITI TEKNOLOGI MARA

EVALUATION AND BENEFITS OF PHYSICO-CHEMICAL PROPERTIES OF *PHYSALIS MINIMA LINN* PLANT FOR FOOD ADDICTIVE

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ABSTRACT

The evaluation and benefits of physicochemical properties of Physalis Minima Linn plant were investigated. To identify these properties, the fruits of this plant need to be obtain in powder form. Therefore, the fruit was washed, dried about 24 hours and grinded using a grinder machine with the size of sieve 0.25 mm to obtain physalis minima linn powder. The physicochemical parameter of this seed are bulk density, true density, porosity, water absorption index, water solubility index, oil absorption index, swelling index, percentage of solubility, foaming capacity, and foaming stability. It was observed that, the results value are 0.3358 g/mL, 2.1633 g/mL, 0.8466%, 93.673 g/g, 53.6 g/g, 2.9783 mL/g, 1.3424 g/g, 2.3539 g/g, 0.05%, 141.67%, respectively. The moisture content for root, leaf and branch for this plant also were analyzed and the result was obtaining are 90.44%, 88.12% and 94.74%, respectively. Due to high percentage in water absorption and water solubility properties, it helps consumer to relieve diarrhea and avoid constipation.

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CHAPTER 1: INTRODUCTION

1.1 Research Background

Based on Food Agriculture Organization (FAO), in year 2050, World's population was expected to reach about 9.1 billion and it will require at least 70% increasing the food production with need net of food for biofuels (FAO, 2009; Mokhtar, Swailam, & Embaby, 2018). The type of food is very important to ensure people live with healthy lifestyle and can avoid from diseases. Nowadays, a lot of owner in industrial food processing used the addictive and flavor in their product to make that food more attractive and more delicious. It is very good for the company to make their product become commercial and well known. However, there will be a problem when dealing with an irresponsible company that used dangerous, addictive or overdose addictive in their product. For food additives, a study about function of plant in the processing food also needs to explore to know their characteristic and properties. A lot of plants have a good potential to enhanced and beneficial to food processing. Nowadays traditional health systems and medicinal plants in solving the health problem of the world are gaining increasing attention (Mohammad Hassan Moshafi & Ameria, 2009).

From that, the exploration of plant in processing food need to be done, because it will be beneficial to living things health, especially human that consumed variety of food every day in daily life. Moreover, in our forest, there are a lot of plants that people did not know their characteristics and their advantages. One of the plants that can be explored more is Goldenberry or also known as Physalis Minima Linn plant and this plant is from a member of the genus. Physalis Minima Linn comes from Solanaceae's family, which is important and produces edible fruits. (Mokhtar et al., 2018). The characteristic of this fruit is a very small, orange and juicy berry. This fruit has many numerous small seeds and this fruit covered by a calyx, which is papery husk. The roots of this fruit are very popular because it can make a tea that can make a medicine to people's health. This plant also used in local crafts, ornamental and food, the most common and most important use is in the preparation of sauces (Sánchez et al., 2008)(Vargas-Arana, 2013). Other than that, this plant also very famous in the medical treatment. It can treat a variety of diseases such as asthma, hepatitis, dermatitis malaria, and rheumatism (Sateesh Poojari, 2014). Although