Muslim Minorities Muhammadiyah West Papua: History, Struggle & Personality Haji Rauf Abu

Ismail S Wekke

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Lecturer Theater, UCYP Main Campus Tanjung Lumpur,
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Preface

This book is the compilation of papers from 1st International Student Colloquium in Conjunction upon a theme "**Adaptive Strategies for Sustainable Education**", which was held on November 30th, 2019. This colloquium was jointly organized by *University College of Yayasan Pahang (UCYP) & South-East Asia Academic Mobility (SEAAM) in Collaboration with Sekolah Tinggi Agama Islam Negeri (STAIN) Sorong, Universitas Muhammadiyah Sorong (UMS), Institut Agama Islam Negeri (IAIN) Pare-Pare*, Institut Agama Islam Negeri (IAIN) Ternate, Institut Agama Islam Negeri (IAIN) Kendari, Institut Agama Islam Negeri (IAIN) Padangsidimpuan and Universitas Negeri Padang (UNP).

As the chair of 1st International Student Colloquium, it gives me great pleasure to extend my warm welcome to all the 1st International Student Colloquium delegates. I would like to express my utmost appreciation and sincere thanks for your support. Without the tremendous support, this special event would not have materialized. On behalf of the organizing committee, I would like also to acknowledge our gratefulness and appreciation to all the sponsors and partners who have been supportive in ensuring the success of this event. The main aim of organizing this event is to offer a platform for researcher, academics, and students to present, share and promote their research and development strengths, particularly issues in education. This conference theme has attracted Malaysian students and international participants from 5 (five) countries including Indonesia and Thailand. Following the double-blind peer-reviewing process, a total of 34 abstracts were accepted for presentation and a total of 18 full papers were accepted for publication (in E-Proceeding).

Overall, the articles raise many concepts with aim to meet questions regarding the Adaptive Strategies for Sustainable Education. It considers thousands of alternative ways to explore the opportunities in sustainable education in discussion of conceptual papers, case study and empirical research. This volume is an important addition to the literature on education. It may also be valuable to an audience beyond academia interested in culture and social studies.

Last but not least, I would like to express my gratitude and credit to all members of the organizing committee for their full assistance and hard work throughout the year of 2019. This event would not have been possible without the help of them and their devotion to work in making this colloquium a success is greatly appreciated.

Kuantan, November 2019

Chairman of 1st International Student Colloquium

The Utilization of Aren Plant (*Arenga Pinnata Merr*) as a Nutritional Rich Tanama for Food Materials

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Abstract

Sugar palm plants have long been cultivated by the Indonesian people. The main product of palm sugar current is sap that is the result of tapping from male flowers and is processed into food and drinks such as palm sugar / brown sugar, vinegar, soft drinks and alcohol. Research conducted is to make sugar as a nutritious food source. The study was conducted by analyzing the levels of nutrients in the arena fruit or the sugar palm fruit in the form of vitamin C, starch, fiber, levels of Ca, and Fe. Analysis is done in the laboratory. The results showed that vitamin C levels increased with more ripe fruit, as well as Fe levels, while maturity caused a decrease in starch, Ca and fiber levels. Drinks and foods produced apart from containing nutrients, are also effected by fruit maturity. Young fruit is better for drinks, so that with medium maturity and old fruit is better for jam.

Keywords: *Utilization, Aren Plant, Food, Tanama*

Introduction

Background

Palm plant (Arenga pinnata MERR) is one of the plants that are widely planted in Indoensai, Kaliman, Sulawesi, North Sumatra and others. Sugar palm farmers develop these crops to meet their needs. But the use of palm sugar is still dominant for making brown sugar.

Palm trees function well for soil conservation as they have shallow and wide rooting characteristics, besides that they can grow on cliffs. This condition is useful to prevent landslides and soil erosion, to hold rainwater that directly falls on the surface of the soil which can be used a fairly dense leaves and stems that are covered by a layer of fibers. Sugar palm plants can also function as a habitat sustenance for certain fauna ecologically.

Sugar palm plants are very useful, not only water or fruit but the physical parts are also used for medicine (roots), stems are used for building materials, young leaves or mushrooms (for wrapping or substituting cigarette paper called kawung), the production result can be utilized for example young palm sugar fruit (for palm tree fruit), juice for making brown sugar or vinegar, starch or flour in stems for the manufacture of various foods and drinks.

Sugar palm fruit is the fruit of an old palm tree. A good sugar palm fruit is half ripe with the characteristic of thin, yellow-colored and flabby seed pods, white seed cores (endosperm) are rather clear and springy, these seed cores are processed into chips. To get the core of the seed, special treatment is needed, that is, the fruit is burned or boiled to remove sap (Sunanto, 1993).

The most potential yield from palm trees is to produce 20 tons of sugar / ha / year (Dalibard, 1999). Currently the sap produced is not only producing sugar but with developing technology, it can produce biofuels (Sangian et al, 2007). The period of harvesting the sugar palm is quite long, ranging from 7-12 years, by observing the benefits used from these plants is feared that scarcity will occur (Manaroinsong et al, 2006). Sugar palm cultivation has not been a priority as it has not yet been found in the cultivation technology of the plant, making people reluctant to develop it (Tulung, 2003).

The aren plant known as sugar palm plants, and its utilization has not been maximized. Usually they are only used as sweets and a mixture of food when fasting and feast days, while for daily use, they are only consumed as a mixture of drink or food in small amounts.

While research states that the sugar palm fruit is a fruit that contains nutrients that are very good for consumption.

Samudra's research results show that sugar palm has a very prospective opportunity. In increasing farmers' income, the palm sugar development strategy is carried out, namely (1) building palm sugar seedlings, (2) palm planted land area is increased in the scale of production and increasing the quality of palm sugar, (3) conducting counseling about cultivation, (4) building a palm sugar factory as a group with appropriate technology, (5) quality palm sugar processing training, (6) developing palm-based agro-industrial areas and (7) building a web-based palm sugar information system (Ari Aris, 2011).

High nutrient content in fruit, both fiber, vitamins, starch, Ca and Fe, the researchers are interested in analyzing the nutritional content with three (3) harvest conditions producing young fruits (8-12 months), moderate (16-18 months) and old (22-24 months). This is to perceive the precise conditions for producing food or drinks.

Research objectives

From the background description above, the purpose of this study is to analyze the nutritional content (levels of Vitamin C, starch, crude fiber, Ca and Fe) and how the fruit benefits in food and beverages.

Problem Formulation

The problem formulation in this study is to analyze the nutritional content (levels of Vitamin C, starch, crude fiber, Ca and Fe) of the fruit and the use of it in food and drink.

Methodology

Development of the use of the sugar palm fruit can provide economic growth and will ultimately improve the welfare of the community. The research method consists of several stages, namely:

1. Identification of the sugar palm fruit based on the level of maturity,

2. Nutritional content based on level of maturity analysis,

3. Test the nutritional content of the product after storing it for 1 (one) month.

The observation was conducted in 2 (two) locations, namely in the Village of Sijungkang, Angkola Timur District, South Tapanuli Regency and in the Laboratory of Plant Protection Service in South Tapanuli Regency. And the nutrient levels analysis was conducted in the laboratory of the Faculty of Agricultural Technology, Andalas University, Padang.

- sorting the sugar palm fruit based on level of maturity
- analysis of the sugar palm fruit in the laboratory
- food and beverage products manufacturing
- food and beverage products analysis

Results and Discussion

Results

The results of the analysis in the laboratory with two repetitions for the young, middle and old sugar palm fruit are shown in the following Table 1:

Table 1: *Result Analysis of sugar palm fruit*

No	Analysis	young	medium	old	unit
1	Vit. C level	103.49	122.02	166.47	mg/100 g
2	Essence level	72.21	64.51	56.81	%
3	Coarse Fiber	13.91	11.52	10.69	%
4	Ca Level	0.26	0.41	0.52	%
5	Fe Level	0.58	1.77	1.54	ppm

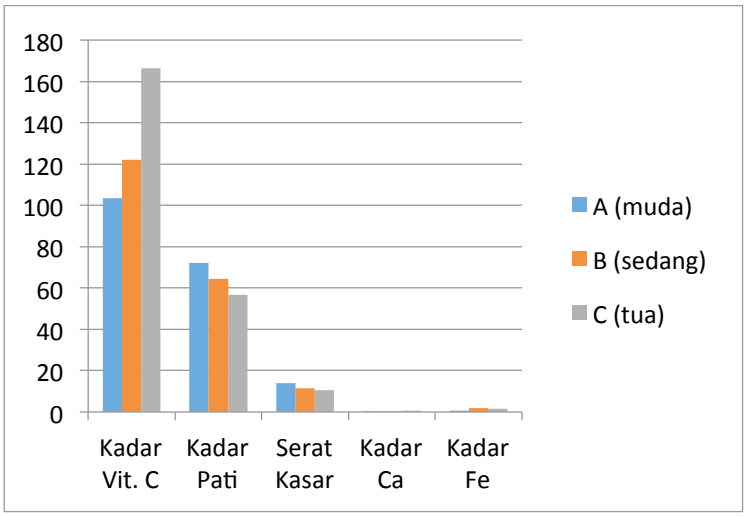

Figure 1: *Comparative graph analysis of the sugar palm fruit*

Table 2: *Results by Age of Utilization of Palm Fruit*

Age of fruit	Texture	Colour	Taste	Aroma
Young fruit	Soft	Clear	Sweet	None
Average fruit	Chewy	Not clear	Less sweet	Less special aroma of sugar fruit palm
Old fruit	Hard,	Darker (cream)	Tasteless	Special aroma of sugar fruit palm

Table 3: *Analysis of Beverage and Food Products*

Food and Beverages types	**Sugar level**	**Acid level**	**Vitamin C level**	**Coarse Fibre Level**
Beverage	14.42	0.0712	90,76	3,71
Jelly	27.31	0,0914	95.08	8.91
Jam	13.82	0,0449	114.41	6.75

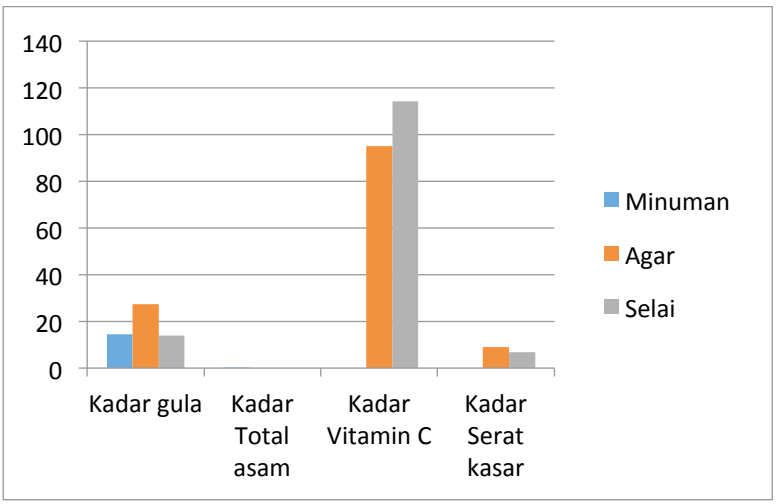

Figure 2: *Comparative graph analysis of the sugar palm fruit*

Discussion

The sugar palm fruit has a very good nutritional content, high fiber, vitamin C, Calcium (Ca) and iron (Fe). And food like the sugar palm fruit is nutritional for the body.

The results showed that the highest levels of vitamin C were derived from the oldest sugar palm fruit, 166.4 mg / 100 g, moderate 122.02 mg / 100 g and young 103.39 mg / 100 g. These results indicate that the older the sugar palm fruit, the higher the Vitamin C levels is.

The nature of vitamin C (L-ascorbic acid) is as a non-enzymatic and water soluble antioxidant. Non enzymatic. This compound functions as part of the body's defense system against reactive oxygen compounds in plasma and cells that were first isolated (Shapiro, 2001). In addition, vitamin C functions as a reducing agent for free radicals, while also reducing the damage caused by oxidative stress (Zakaria, 1996; Foyer, 1993).

This study produced 73.21 ppm (young fissures), 64.51 (moderate) and 56.81 (old). This shows that the starch content will decrease with the increasing harvest time because of the younger plants, and the energy they need is also higher.

Starch is a source of carbohydrates as the main source of human energy which is around 80%., Starch is an important nutrient in the daily diet, which is a glucose homopolymer with α-glycosidic bonds and are widely found in plants, especially in grains, tubers. . Various types of starch are not the same nature, depending on the length of the carbon atom chain, and straight or branched (Sutrisno Koswara, 2009).

Dietary fiber and crude fiber are two different things. Dietary fiber is a component in important plant foods that is resistant to the hydrolysis process by enzymes in the human digestive system. The largest component of dietary fiber is found in plant cell walls, which include structural compounds such as cellulose, hemicellulose, pectin and ligin. Dietary fiber is generally a polysaccharide found in cell walls, some of these compounds are neither polysaccharides nor cell wall compounds, compounds such as intercellular pectin, lignin which is a non-carbohydrate structural compound and some intercellular polysaccharides such as gum and musilase are also classified as dietary fibers.

The term food fiber (dietary fiber) must be distinguished from the term crude fiber (crude fiber) which is commonly used in proximate analysis of food ingredients. Crude fiber is a part of food that cannot be hydrolyzed by chemicals that are used to determine levels of crude fiber, namely sulfuric acid (H2SO41.25%) and sodium hydroxide (NaOH 1.25%). While dietary fiber is a part of food which cannot be hydrolyzed by digestive enzymes. Piliang and Djojosoebagio (2002), suggested that what is meant by crude fiber is leftover food that has undergone a process of heating with strong acids and strong bases for 30 minutes conducted in the laboratory. With this process, it can damage several kinds of fibers that cannot be digested by humans and the composition of each material that forms the cell wall cannot be known. Therefore crude fiber underestimates the amount of content 80% fiber for hemicellulose, 50-90% for lignin and 20-50% for cellulose.

The role of calcium as a nutrient is needed by the body as micronutrients needed by the body and most minerals are found in the body, which is 1.5 - 2% of adult body weight or approximately 1 kg (Almatsier, 2001). Almost all the calcium in the body is in the bones that plays a central role in the structure and strength of bones and teeth (IOM, 1997).

The function of calcium, among others, as the formation of bones and teeth, growth and as an auxiliary factor and regulator of biochemical reactions in the body. Calcium in bone in the form of salt (hydroxypatite) forms a matrix of collagen protein in the bone structure to form a skeleton that is able to support the body and the leaning place of the muscle that causes the possibility of movement (Goulding, 2000).

Iron is an important element in the body. It has an essential role in the body, namely as a means of transporting oxygen from the lungs to body tissues, as a mean of transporting electrons in cells, and as an integrated part of various enzyme reactions in body tissues (Linda et al., 2007). Besides iron is also a mineral that is needed in forming red blood cells

(hemoglobin), and also functions as a component to form myoglobin (a protein that carries oxygen to muscles), collagen (a protein found in bones, cartilage, and connective tissue), and enzyme. Iron also functions in the body's defence system (Samhadi, 2008).

The results of the analysis of sugar palm fruit is used as the basis for the manufacture of beverage and food products as a step in diversifying food products. The making of beverage and food products is initially made in basic formulations by using all groups of underwater groups and then adjusted to the product to be produced. Based on the basic formulation, the results are obtained as follows;

a. Young sugar palm fruit is very suitable for making drinks

b. Medium sugar palm fruit is very suitable for making agar

c. Old sugar palm fruit are very suitable for making jam

The basis for selecting the fruit and fruit in terms of age of the fruit to be used as a drink, agar and jam is based on the texture of the fruit. The younger age is softer and clearer and is easier to dissolve and is easier to blend with a solvent (water) making it suitable for drinks. The experiments conducted showed the best result in making jelly and jam with the choice of fruit age. The results of age compatibility with food products that have been tested organoleptically for each fruit.

Conclusions

Research conducted to make the sugar palm fruit as a nutritious food source. The results of the analysis showed that the content of Vitamin C and Fe is increasing with the level of fruit maturity. Fiber, starch and Ca decrease with increasing density. The results of food products show that young fruit is used for drinks, and medium and old for jelly. The drinks, jelly and jam produced have high nutritional content, namely fiber content, vitamin C content, total acid content and sugar content.

Suggestions

There are some suggestions from the research team;

1. Further research needs to be done on the shelf life of the product produced

2. Further research needs to be done by providing additional ingredients in the product to produce a more diverse beverage and food products.

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