

Original Paper

The Depiction of Coconut Products (Food and Non-Food) In Tidore Islands, North Maluku

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Abstract— Indonesia is the highest producer of coconut in the world. One of the cities in Indonesia which is the central producer of coconut is Tidore Islands, North Maluku. Tidore Islands is a city in the east part of Indonesia located in the province of North Maluku. Tidore Islands has many products made of coconut tree parts as raw materials. The products are varied from food products to non-food products. This research was a descriptive study to discover the variety of coconut products produced in the Tidore Islands as basic data to develop an integrated coconut industry in the Tidore Islands. The research was conducted in 4 sub-districts that had >40 ton/year production of coconut. The result showed that black copra was the main product of coconut widely produced by people in the Tidore Islands. Other food products were white copra, coconut oil, and VCO. Non-food products widely produced by people in Tidore Island were coconut shell charcoal, coconut fiber, broomstick, and liquid smoke.

Keywords— coconut products, Tidore islands, black copra, white copra

I. INTRODUCTION

Coconut is one of the crops, which widely can be found in tropical countries. Coconut grows well in countries around Asia. The coconut fruit without the fiber (husk) consists of 51.7 % endosperm or coconut meat, 9.8% coconut water or coconut juice, and 38.5% coconut shell [1]. The whole coconut fruit consists of 35% husk or coconut fiber, 12% shell, 28% meat, and 25% water [2]. Coconut meat is an important part of the coconut tree. It is rich in nutrients. It has 47 ml water content, 3.33 g protein, 33.5 g total lipid, 15.2 g carbohydrate, 9 g total dietary fiber, 356 mg potassium, 113 mg phosphorus, 32 mg magnesium, 14 mg calcium, and 3.3 mg vitamin C per 100 g [3]. Other parts of the coconut are also valuable. All parts of coconut have their own economic value. It can be used as the raw material of many products

either food or non-food products. Based on those values, the coconut tree is well known as a multipurpose plant [4].

Indonesia is in the first place as producer of coconut, followed by Philippines, India, Sri Lanka, and Brazil [5]. Indonesia produced 2.811.900 ton coconut in 2020. It was slightly lower than the previous year, which reached 2.839.900 ton. Five provinces with high production of coconut in Indonesia were Riau, North Sulawesi, West Java, North Maluku, and Middle of Sulawesi [6].

North Maluku is a province in the east part of Indonesia. North Maluku is an archipelago area, which consists of 395 islands. As much as 83% of the islands are inhabited. The ratio of land and waters area in North Maluku is 24:76. Coconut is one of main agricultural product in North Maluku, beside clove and nutmeg. It produced 211.400 tons of coconut in 2020. Coconut production increased by 0,23%, compared to the previous year [6].

People in North Maluku mostly make copra from coconut meat. Copra is the main product of coconut processing from North Maluku. The type of copra made by the majority in North Maluku is black copra [7]. Besides copra, they also make traditional coconut oil and virgin coconut oil (VCO) from coconut meat. Non-food products widely made by people in North Maluku are coconut shell charcoal and coconut fiber.

Tidore Islands is one of the cities in North Maluku province. It is in fifth place as one of the cities in North Maluku with high coconut production, after West Halmahera, Morotai Island, North Halmahera, and Sula Islands. Tidore Islands produced 12.205 ton/Ha coconut in 2020 [8]. As other areas in North Maluku, people in Tidore Islands also make copra as their main coconut product. Other than copra, they sell fresh coconut fruit, traditional coconut oil, VCO, and non-food product such as coconut shell charcoal and coconut fiber.

Based on the number of coconut production, Tidore Islands becomes a potential place to build an integrated coconut industry with a specific coconut product as the main product. This research was conducted to elaborate the development of the coconut industry in Tidore Islands as a basic information. The depiction of coconut industry in Tidore Islands is important as basic data for many purposes related to the development of industries with coconut trees part as the raw material.

II. METHODS

A. Time and Site of Data Collection

This research was conducted in 4 sub-districts (North Tidore, Oba, Middle of Oba, and South Oba) in Tidore Islands, North Maluku from June to July 2021.

B. Research Method

This was descriptive research. The data was collected directly by interviewing research subjects (farmer, copra home production owner, and government official), and field observation. The secondary data was collected from public departments related to coconut industry. There were 4 sub-districts of Tidore Islands involved as research site. All the sub-district was chosen based on coconut production in a year. Each potential research site had more than 40 tons of coconut production in a year. The chosen locations were North Tidore, Oba, Middle of Oba, and South Oba.

III. RESULT AND DISCUSSION

Tidore Islands consists of 8 sub-districts, which include Tidore, East Tidore, North Tidore, South Tidore, North Oba, Middle of Oba, Oba, and South Oba. Every sub-district is divided to some villages. All of it has their coconut farms have different sizes of land area. The width of the coconut farm will affect the number of coconut production. Based on secondary data from the sub-districts, coconut production in Tidore Islands was around 1.4-717.7 tons/year/village. From 8 sub-districts in Tidore Islands, there were 4 sub-districts with coconut production reaching over 40 tons/year, which were North Tidore, Oba, Middle of Oba, and South Oba.

North Tidore has 14 villages. The village which produced coconut >40 ton/year was Fobaharu dan Jaya. Middle of Oba also has 14 villages. Lola, Akeguraci, Akesai, and Tadupi were the villages that produced coconut >40 ton/year. Oba has 13 villages and South Oba has 7 villages. All the villages in Oba dan South Oba produced >40 ton/year coconut. The villages with coconut production numbers>40 ton/year became the research site. Oba produced the highest amount of coconut. It had 4.954 Ha land area of coconut and produced coconut 6.133,5 ton/year. Oba, Middle of Oba, and North Tidore were the second, third, and fourth place, after Oba.

The people in North Maluku, produced food and non-food products with parts of coconut tree as the raw material. They made copra from coconut meat. Copra is the main product from coconut which widely produced by people in

North Maluku. There are two kinds of copra, black copra, and white copra. They produced both of it, but the majority of people in North Maluku made black copra. Black copra processing is easier and faster than white copra, thus people prefer to make it rather than white copra.

Black copra was made by smoking the coconut meat until it lost its water content and dry. Fresh coconut meat was chopped to 2 or more parts, which were then put on the wire. Below the wire was a small fire. The warm smoke gradually dried the coconut meat and turned it into copra. The process needed 1-2 days to finish with a temperature of around 60°C [9][17]. Copra produced by this method made the color of coconut meat turn black, therefore lowering the quality and selling price.

White copra was made without the smoking process. White copra was dried using solar drying (the traditional or modern way) or oven. Drying white copra needed 2-3 days with a temperature >60°C. Since it was not made by smoking process, the coconut meat color was still white [9]. Another resource stated drying process of white copra using traditional solar drying method needed 5-7 days to complete [10]. Copra is an intermediate product, which will have another further processing to be converted into various products like coconut oil, coconut butter, cosmetic base, etc. White copra is more desirable than black copra, because of its white color, free from contaminant, rich in coconut scent, and more hygiene.

TABLE I. COCONUT PRODUCTS IN TIDORE ISLANDS

Product	Sub-District			
	North Tidore	Middle of Oba	Oba	South Oba
Food Products				
Black copra	Available	Available	Available	Available
White copra	Available	Available	Available	Not available
Coconut Oil	Available	Available	Available	Available
VCO	Available	Not available	Available	Not available
Nata de coco	Not available	Not available	Not available	Not available
Whole coconut fruit	Available	Available	Available	Available
Non Food Products				
Coconut shell charcoal	Available	Available	Available	Available
Coconut fiber	Available	Available	Available	Available
Broom stick	Available	Available	Available	Available
Liquid smoke	Available	Not available	Available	Not available

In North Maluku, people made black copra using traditional method. Coconut meat was chopped to 2 parts and put it on the shelf made from wood or bamboo. Under the shelf was small fire. Coconut shell and coconut fiber was burned as the source of smoke. The smoke gradually dried the coconut meat and turned it to be copra. Occasionally the coconut meat was turned up and down, so it could be dried properly. The process needed 1-2 days to complete. Black copra has lower quality than white copra. White color of coconut meat

changed to be black as the effect of smoking process. The process also nullified the coconut natural scent. It looked dirty and less hygiene than the white copra [11]. White copra had higher price than black copra in the market. Black copra price was IDR 9.500 while white copra was IDR 16.000 per kg. White copra price was almost twice higher than black copra in North Maluku. Even though the price was higher, people in North Maluku preferred to make black copra than white copra. It was due to faster process, and people there used to make copra using smoke drying method. It was their tradition passed from generation to generation.

The other products produced by people in Tidore Islands are presented in Table 1. Coconut oil in Tidore Islands is made by traditional method. Coconut milk is extracted from coconut meat. Coconut cream is then separated from water by rested the coconut milk for 24 hours. Coconut cream then is boiled until the oil is extracted from the waste. The process needs 1-2 hours to complete. Coconut oil is rich in fatty acid. A previous study reported that coconut oil made by the traditional method is rich in lauric acid, myristic acid, palmitic acid, oleic acid, and stearic acid [12].

VCO is also well-known coconut product in Tidore Islands. VCO is made using various technics such as fermentation, cold processing, low heat processing, and inducement technic. VCO is reported to have a health benefit due to its bioactive components. It is rich in medium-chain fatty acids such as lauric acid, phytosterol, and phenolic compounds [13][16].

Coconut water or coconut juice is one of coconut fruit parts, which is rich in nutritional compounds. It is rich in minerals such as potassium, sodium, and magnesium. Other than minerals. It is also rich in vitamins B1 and B6 [14] [15]. Coconut water is deemed a waste in Tidore Islands as it has not yet been well utilized. No product is made from coconut water. Coconut water is usually sold as a refreshing drink with coconut meat from a young coconut. It is served with sugar syrup. However, coconut water from the copra industry or coconut oil industry is considered waste. Usually, it will be thrown away.

No food product made from part of the coconut tree is diversified. The most widely produced one is coconut shell charcoal. The charcoal was used as the fuel in a traditional restaurant, which serves roasted food. Coconut shells and coconut fiber are a waste products of the coconut industry mostly from copra industry. However, the amount of home production of products made from coconut shell and coconut fiber is low because the coconut shell and coconut fiber are directly used as fuel to make black copra.

Broomstick is made from the steam of dried leaf of coconut tree. Other non-food products is liquid smoke. Liquid smoke is made of coconut shell. All parts of the coconut tree can be used as raw materials for many various products. The products made from coconut tree part in Tidore Islands are hardly diversified. With new technology and science, these materials still can be developed further to increase the economic value of coconut to benefit the farmers and the businessman involved in the coconut industry.

Tidore Islands has at least 15 micro, small, and medium enterprises (MSMEs) working in coconut-based product manufacture. Most of them produced black copra as their main product, while the others were varied. Through these MSMEs, government and scientists can try to develop a new product to widen the variety of coconut products. Training, accompaniment, and venture capital assistance are needed to develop and widen the coconut industry in Tidore Islands.

IV. CONCLUSION

Coconut is one of the main agricultural products from the Tidore Islands with future potential development. There are various products made from the parts of the coconut tree, both as food products and non-food products. Black copra is still the main product made of coconut widely made by the people in Tidore Islands. Black copra is indeed faster to make and use through a simple method. It holds the potential to become a superior product across generations. Nevertheless, black copra is sold in a low price, and many big companies do not want to buy it due to its low quality. The coconut farmers in Tidore Islands often repine low price of black copra, which leads them to damnification. Innovation and more diversification on products made from coconut need to be underway. There are so many scenarios that can be applied to improve the coconut industry in Tidore Island.

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