



Ethnobotanical Study of Food Plant Diversity Tubers at Suralaga Village East of Lombok

Lalu Amrullah^{1*}

¹ Program Studi Teknologi Pangan, Institut Teknologi dan Kesehatan Aspirasi, Indonesia

laluamrullah@litkar@mail.com

Corresponding author email: laluamrullah@litkar@mail.com

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ABSTRACT

Suralaga village is located in Suralaga sub-district, East Lombok Regency, has great potential as a producer of tuber food because it has fertile agricultural land, this research uses exploratory or cruising methods and the data obtained is then analysed descriptively qualitative. From the results of the study found 5 families, namely: Euphorbiaceae family consists of 1 species namely *Manihot esculenta* Crantz (Cassava) with 2 colour variants namely: white colour and yellow colour. The Convolvulaceae family consists of 1 species, namely *Ipomoea batatas* L (Sweet potato) with 3 colour variants, namely: purple colour, white colour, purple colour. The Dioscoreaceae family consists of 1 species *Dioscorea esculenta* (Gembili). The Aracea family consists of 1 species of *Colocasia esculenta* (Taro) and the Cannaceae family consists of 1 species of *Canna Discolor* (Ganyong).

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INTRODUCTION

Food is a fundamental need that must be fulfilled by everyone and can determine the nature of a country's human resources and socio-political strength. The portion of food use is a marker of food security. The larger the portion of food consumption, the lower the food security.

Food security can also be interpreted as a condition of family food fulfilment which is reflected in the availability of sufficient (quantity and quality), protected, fair and reasonable food. The ultimate goal is to determine the food security of the community, among others,

through food expansion, as well as proposed food improvement programs. Food improvement is not intended to totally replace rice, but to change and further develop the pattern of community utilization so that there are more types of food with better healthy quality (Prana and Kuswara 2002; Elizabeth 2011).

Ethnobotanical studies emphasize the relationship between communities and food plant assets, both directly and indirectly. Information on the use of plants as food in public spaces requires a study of natural assets, so that biodiversity in a space can be saved (Setiawan and Maryatul, 2014). Ethnobotany is a science that examines the way of life of individuals in utilizing plants that are considered to provide benefits to humans, one of which is as food. Food plants are plants that are often consumed by the community to overcome calorie problems (Syafitri et al., 2014).

One of the benefits of plants is as a staple food binding material. The source of energy needed by the body in the form of starch is obtained from plants. Plant parts that are often used as food include: organic fruits, leaves, stems, shoots and tubers (Silalahi et al., 2018). The main sugar-producing plant for people in Indonesia is rice. Food variations such as tubers can also become sugar, so as to increase food utilization and reduce dependence on rice, people can depend on staple foods found in tubers such as cassava, sweet potatoes, potatoes, arrowroot, gandung, kimpul, taro, gembili, ganyong, (Latifah and Prahardini, 2020).

Addressing food needs on a limited scale, such as in rural areas, can be done using locally-traced crops (Amani et al., 2021). Information on food plants can expand efforts to maintain biodiversity, which is a source of food that should be guaranteed. Food plants play an important role in supporting human existence. Data on food plants need to be sought and investigated in various areas where their potential is unknown. The Suralaga area in the West Nusa Tenggara region has normal wealth. Biodiversity in the West Nusa Tenggara Region is not widely known to the general public, so it needs to be further researched, considering that the Suralaga Region, has fertile agricultural land.

Previously, several studies have been conducted in the West Nusa Tenggara region, and on the topic of root crops, it was revealed that there are 6 types of root crops that can be utilized as food crops in the town of Giri Menag, West Lombok Regency (Amrullah L, et al., 2023), while other explorations revealed that there are 71 species from 41 plant families that can be used as food and medicine by the people of Labulia City, Jonggat Region, Southeast Lombok (Amrullah, et al., 2023).

Suralaga Village is located in the Suralaga Region of East Lombok Regency, the people of Suralaga Village generally eat a variety of food ingredients known to their predecessors. Until now, the situation of food utilization from one era to another is still unfinished. Some of the ingredients that are eaten are also useful choices compared to other ingredients, for example, incorporated in cooking to have a distinctive flavor. This must be maintained to balance the intelligence of plants in society, especially those used as food crops.

Seeing the diverse types of food plants that can be utilized in various regions, the creator is interested in directing exploration on the Ethnobotany of Tuber Food Plants from Suralaga City, so as to provide knowledge and understanding of existing tuber food plants. It is believed that this data will benefit all parties, both the environment and individuals outside the region.

METHODS

The research was conducted in Suralaga Village, using exploratory or cruising methods and the data obtained were analyzed descriptively qualitatively. The tools used in this research, namely digital cameras, stationery (notebooks and pens), guidebooks and recent journals on the identification of root crops Latifah (2020), The identification process is carried out with the identification key guide and pictures (Purnomo et al, 2012). Materials used in this study, namely root crops, plastic bags, and interview sheets. Data collection techniques with observation, interviews, documentation.

a. Observation

Observations were conducted in Suralaga village which consists of six hamlets, namely: Kepah Hamlet, Timba Ekek Hamlet, Telaga Tampak Hamlet, Lauk Kul-kul Hamlet, Gelumpang Hamlet, Gubuk Puntik Hamlet to directly observe and gather information from community members.

b. Interview

Interviews were conducted by asking questions that had been prepared with a total of 30 farmers with a minimum age of 25 years.

c. Documentation

The tubers observed were documented using a camera for identification and inventory.

RESULTS AND DISCUSSION

A. Results

This research was conducted in October-December 2022. The results showed that, tuber food plants found in Suralaga Village totaled 5 species, with 5 varieties as in Table 1.

Table 1. Tuber Food Plants Species

No	Famili	Name of Species	common name	Colour variants
1	<i>Euphorbiaceae</i>	<i>Manihot esculenta</i> <i>Crantz</i>	Cassava	- white color - yellow color
2	<i>Convolvulaceae</i>	<i>Ipomoea batatas</i> L	Sweet Potato	-Yello color -white colour
3	<i>Dioscoreaceae</i>	<i>Dioscorea esculenta</i>	Gembili Tuber	
4	<i>Aracea</i>	<i>Colocasia esculenta</i>	Taro Tuber	
5	<i>Cannaceae</i>	<i>Canna discolor</i>	Umbi Ganyong	Ganyong Tuber

Source: Amrullah L, 2023

B. Discussion

Based on Table 1 found 5 types of tubers consisting of 5 families, namely: The Euphorbiaceous family consists of 1 species, namely *Manihot esculenta* Crantz (Cassava) with 2 color variants, namely: white color and yellow color. The Convolvulaceae family consists of 1 species, namely *Ipomoea batatas* L (Sweet potato) with 3 color variants, namely: purple color, white color, purple color. The Dioscoreaceae family consists of 1 species *Dioscorea esculenta* (Gembili). The Aracea family consists of 1 species of *Colocasia esculenta* (Taro) and the Cannaceae family consists of 1 species of *Canna discolor* (Ganyong).

In this study, information was obtained about the types of tubers that are often consumed by the community of all circles is the type of cassava because people who have rice fields plant cassava on bejengn rice fields, besides the tuber meat is soft and can be used as a food source because it contains carbohydrates. According to Komarayanti (2017) Tubers have a high use value for food and nutritional value for the community because they contain vitamins, minerals, carbohydrates and fiber.

The root crops found can be described as follows:

1. Ubi Kayu/ *Manihot esculenta Crantz*

Cassava (*Manihot esculenta Crantz*) has morphological characteristics of finger-shaped leaves and oval-shaped leaf curves with 7 leaf curves and young leaves are greenish soil colored then when the leaves are old, they are green. The stem is barrel-shaped, elongated and has a hub and has a green young stem and a greyish brown old stem. This plant has yellowish soil-colored roots and the roots will turn into round and hollow tubers with brown outer tuber skin and yellow tuber tissue.

Cassava is rich in healthy parts. In 100 g, cassava starch reaches 34.7 g, protein 1.2 g, calcium 33 mg, and L-ascorbic acid 30 mg. In contrast to rice, in 100 g of rice there are 79.34 g of starch, 6.6 g of protein, and 0.58 fat, while in 100 g of corn there are 63.6 g of sugar, 7.9 g of protein, and 3.4 g of fat (Suliartini et al. 2011; Arianingrum 2011). Based on these properties, local food types such as cassava can be a source of sugar to replace rice and corn, and can be differentiated.



Figure 1. Cassava Plants and Tuber Meat

2. Sweet potato/ *Ipomoea batatas L*

Ipomoea batatas L has a different leaf shape, tuber skin color, and tuber tissue color according to the type. Each type of sweet potato is different, such as white, purple, red, yellow or orange. The leaves are finger-shaped, heart-shaped, have three grooves, and the tips of the leaves are green. The stem is smooth, woodless and has segments and in the segments of the stem there are roots that will enlarge and change shape into tubers. The tubers of this yam are round and slightly elongated. The nutritional content of purple sweet potato is 150.7 mg anthocyanins, 1.1% fiber, 18.2% starch, 0.4% reducing sugar, 0.6% protein, 0.70 mg iron and 20.1 mg 152 Sustenance Diary Vol 9 No 1 Year 2020 L-ascorbic acid (Balitkabi, 2015).



Figure 2. Sweet potato plant

3. Ubi Gembili/ *Dioscorea esculenta*

Ubi Gembili (*Dioscorea esculenta*) belongs to the *Dioscorea* family. Ubi Gembili is a type of plant that proves to be fertile underground with its tubers that are pure white in color and have a smooth, yam-like surface. The spiny gembili yam stem grows on 3-5 cm tall plants with heart-shaped green leaves with pointed tips. This species can grow at ground level up to 700 metres above sea level. The gembili tuber is utilized by the community as a preferred food source because it contains carbohydrate components as a source of energy. According to Richana and Sunarti, (2004) the largest part of gembili tubers is the starch content of 27-37%. Besides being used as food, gembili tubers can also be made into flour and processed into snacks (Prameswari and Estiasih 2013).



Figure 3. Gembil sweet potato plant

4. Taro / *Colocasia esculenta*

Taro (*Colocasia esculenta* L) is one type of plant that belongs to the *Araceae* family. Taro tubers have stems that stand upright, round and hollow, variegated green and dull red, located in the soil, with buds in the leaf axils. The leaves are heart-shaped with long leaflets and stems up to 20-50 cm long. The stem is variegated light green in color, the stem is thickly filled but has hollows so that the plant can acclimatise to stagnant water. Taro tubers fill swamps to good lands at an altitude of 1,300 meters above sea level with wet soil and little water. As stated by Latifah and Prahardini (2020) Taro requires full light during its development period with a temperature of 25-30 with a high level of stickiness. Taro has a round, oval and tubular shape and is found in the tuber, the skin of the tuber is light brown to dull brown, the color of the tissue is white.

The nutritional content in taro tubers is very high. The content in taro tubers includes starch (18.02%), sugar (1.42%), minerals such as calcium (0.028%, and phosphorus (0.061%).

Starch is the highest nutrient content found in taro tubers (Yuliatmoko and Satyatama, 2012).



Figure 4. Taro Potato plants

5. Cassava / *Canna discolor*

Canyong tubers (*Canna noda*) belong to the Cannaceae family. Ganja is a plant that has leaves with a width of 7-20 cm and an elongated circular shape with a tight base and a variation of reddish green color at the edge of the leaves. False stems are coated with wax consisting of leaf midribs arranged to form stems and have different colors, namely light green, dark green, and purple according to the leaf midrib. As per Vu and Le (2019) Ganyong is a plant that can populate swamps and good countries. Ganyong can be a preferred source of starch for the community because it contains carbohydrates and food ingredients that are very good for the body. According to Harmayani, E., Murdati A., Griyaningsih, (2011) The total starch in ganyong tubers reaches 93.79% dry weight. The nutritional content per 100 grams of ganyong tubers consists of 79.9 g water, 77 kcal energy, 0.6 g protein, 0.2 g fat, 18.4 g carbohydrate, 0.8 g fibre, 0.9 g dirt, 15 mg calcium, 67 mg phosphorus, 1.0 mg iron.



Figure 5. Sweet potato plants

CONCLUSION

The types of tubers found consist of 5 families, namely: The Euphorbiaceae family consists of 1 species, namely *Manihot esculenta* Crantz (Cassava) with 2 color variants, namely: white color and yellow color. The Convolvulaceae family consists of 1 species, namely *Ipomoea*

batatas L (Sweet potato) with 3 color variants, namely: purple color, white color, purple color. The Dioscoreaceae family consists of 1 species *Dioscorea esculenta* (Gembili). The Aracea family consists of 1 species of *Colocasia esculenta* (Taro) and the Cannaceae family consists of 1 species of *Canna discolor* (Ganyong).

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