The food plant ethnobotany of Ampari tribe community in Papua, Indonesia

H F Waroy¹, S Utami¹, Jumari¹
¹Deptartement Biology, Faculty of Science and Mathematics at Diponegoro University, Jl. Prof. Soedarto, SH. Tembalang Semarang Indonesia 50275

Corresponding author: jumariundip@gmail.com

Abstract. The Ampari tribe has a variety of biological diversity especially of food plant species. Our studied focus on an ethnobotanical research project conducted in the Menawi village, Kabupaten Yapen Province Papua, regarding the use of plants as a food source that has been used as food for Ampari tribe in Papua. The research was conducted from November 2017 to May 2018 in-depth structured interview, observation around the local community. Altogether, the use of 53 species from 31 families of food vegetables has been recorded. Corresponding to this research have been collected and analyzed The majority of Ampari tribe using Arecaceae, including Metroxylon spp, Areca catechu L, Cocos nucifera Land NypafruticansWurmbthose represent native species from Papua and majority Ampari tribe used Metroxylon spp as a staple food. Areca catechu, Cocos nucifera L., NypafruticansWurmbwere used as an alternative food for beverage ingredients. The consumption of these resources is still quite popular practice in this region.

1. Introduction
Papua has the highest species of plant endemic compared to other regions in Indonesia. Indonesian flora is separated by the Wallace Line, this line gives the boundary between the flora of the western and eastern parts. Based on Wallace and Weber's research that the Sahul flora includes Papua and the surrounding small islands of the Raja Ampat islands, Yapen Islands and Biak. Flora on these islands under the influence of the Australian continent [1].

Each tribe in Papua has a high level of knowledge but varies in utilizing the abundant natural resources of plants to meet the needs of daily life and this has been passed down for generations. This shows that the level of cultural knowledge is still high among the people so it needs to be maintained.

The life of the Ampari tribe is very dependent on agriculture in addition to the marine sector to meet all their daily needs. According to Hunter and Fanzo (2013), clothing, food, fuel, medicines, and shelter are important genetic resources for human life. The culture of food and social life are inseparable from a variety of genetic resources that can support health and human life [2].

Menawi has abundant natural resources that need to be kept in existence including their use as local food. According to the general guidelines of the national agriculture department, Papua has diverse natural resources in the field of food which acts as a source of carbohydrates, proteins, vitamins and
minerals contained in animal foods, tubers, fruits, grains and vegetables [3]. Based on observations of development brought about changes in lifestyle, so that people have not utilized food resources to the fullest, this illustrates that the rules of balanced nutrition have not been realized. Specific research on the use of food in the Menawi village has not been done so far, so there needs to be a follow-up to raise and discuss important natural resources used in fulfilling daily life by the Ampari tribe in the Menawi village.

2. Materials and methods
Research conducted in the inventory of food plants is carried out in lowland and sloping areas, namely Menawi Village which is located on a slope of land between 0-40% called the coastal area, the height of the coastal region ranges from 0-10 m above sea level. Yapen Island region has a very varied geological structure, this is evidenced by the type of rock that is not calcareous, some calcareous and igneous [1][4].

This research lasted for 6 months from November 2017 to May 2018, located in the Tahunisara District, Yapen Islands Regency. The method used in this research is a survey, interview, and observation. The number of informants (farmers) when observing numbered 30 people as a sample. The flow of direct interviews with farmers about the use of food, the identity of farmers, local/regional names, parts of organs used, ways of cultivation, conservation efforts and their utilization.

Identify important characteristics that are characteristic of plants, which are tuber/fruit character, stem character, leaf character, and other specific morphology. Data analysis is presented in the form of tables and analysis descriptively.

3. Results and discussion

3.1. General description of research location
The Ampari tribe in the Menawi village of DisrikAngkaisera is part of the coastal area with an average height of 3 meters above sea level. This district is bordered by YawaKukat District in the north, bordering the southern Ambai Islands District, the western part bordering the southern Yapen District and the eastern part bordering the Ampimoi District [1] [4]. This village can be reached by land by vehicle but also by sea by boat.

Menawi village consists of mostly indigenous people with moderate education and livelihoods other than civil servants, most of the people are gardening, farmers and fishermen. Menawi village has superior commodities since the Dutch colonial era namely coffee and cocoa [5]. The high diversity of plant species that exist in the yard, garden, and forest makes the village community can fulfill their daily needs besides being marketed.

| No. | Local/general name | Scientific name | Family | The part used | The benefits |
|-----|--------------------|-----------------|--------|---------------|--------------|
| Sago/taun | Metroxylon sago Robbs. | Arecaceae | Pith | Staple food |
| Banana suanggi/rando kawiang | Musa sp. | Musaceae | Fruit | |
| Banana horn | Musa Sp | Musaceae | Fruit, meat (fruit contents) | Staple food |
| Breadfruit | Artocarpusaltilis (Parkison ex F.A. Zorn) Fosberg | Moraceae | Seeds, meat | Alternative food |
| Plant Name                  | Scientific Name                      | Family       | Part Used                                      | Uses                                                                 |
|----------------------------|--------------------------------------|--------------|-----------------------------------------------|----------------------------------------------------------------------|
| Corn/kasambe /barimu       | Zea mays L.                           | Poaceae      | Fruit                                         | Alternative food                                                     |
| Coconut                    | Xanthosomaviolaceaumscott            | Araceae      | Bulbs                                         | Staple food                                                          |
| Taro/barimu /kimpul        | Cocos nucifera L.                     | Arecales     | Fruit, stove, coconut water                   | Fruits, seasonings, beverage ingredients                             |
| Taro/bete                  | Colocasiaesculenta (L.) Schott        | Araceae      | Bulbs                                         | Alternative food, Vegetables                                          |
| Cassava/timur              | Manihotutilissima L.                  | Euphorbiaceae| Bulbs                                         | Staple food, Vegetables                                              |
| Konunum                    | Canna edulis L.                        | Cannaceae    | Leaves, tubers                                | Alternative food                                                     |
| Sweet Potato               | Ipomoea batatas L.                    | Solanaceae   | Leaves, tubers                                | Staple food, Vegetables                                              |
| Bamboo Shoots              | Gigantochloa sp.                      | Poaceae      | Bulbs, leaves                                 | Vegetables                                                          |
| Gnetum                     | Gnetumgnemon L.                       | Gnetaceae    | Bulbs, leaves                                 | Vegetables                                                          |
| Eggplant Papaya            | Solanummelongena L.                  | Solanaceae   | Fruit                                         | Vegetables, fresh fruit                                              |
| Long beans                 | Vignasinensis (L.) Savi ex Hassk      | Fabaceae     | Fruit, leaves                                 | Vegetables                                                          |
| Spinach                    | Amaranthusspp                         | Amaranthaceae| Leaves, stems                                 | Vegetables and medicines increase breast milk, the blood booster     |
| Jackfruit                  | Artocarpusheterophylla Lam.           | Moraceae     | Fruit, seeds                                  | Fresh fruit                                                          |
| Nails / ferns              | Diplaziumesculentum (Retz.)Swartz     | Athyriaceae  | Leaves, stems                                 | Vegetables                                                          |
| Red fruit                  | Pandanus conoideus Lam.               | Pandanaceae  | Fruit, oil                                     | Vegetables and beverage ingredients                                |
| Yellow Fruit               | Pandanus sp.                          | Pandanaceae  | Fruit, oil                                     | Vegetables, beverage ingredients                                    |
| Raumbewa/ge di             | Abelmchosusmanihot L.                 | Malvaceae    | Leaves, stems                                 | Vegetables, bowel medicine, breast milk enhancer                    |
| Rerami/rami                | Boehmerianivea                        | Urticaceae   | Leaf                                          | Vegetables                                                          |
| Sago Mushroom | Volvariella sp. | Pluteaceae | Stem, fruit | Vegetables and mother's milk enhancer |
| Katuk | Saurapsus androgynous (L.) Merr. | Euphorbiaceae | Leaf | Vegetables and mother's milk enhancer |
| Pumpkin Kuine mango / Water guava | Sechiumedule (Jacq.) Sw Mangiferaindica L. | Cucurbitaceae | Fruit | Vegetables and mother's milk enhancer |
| Red guava | Syzygium sp. | Myrtaceae | Fruit | Fresh fruit |
| Nona Banana | Musa acuminata | Musaceae | Fruit | Dessert fruit |
| Raja Banana | Musa nomalis | Musaceae | Fruit | The staple food, dessert fruit |
| Sorong banana | Musa paradisiaca L. | Musaceae | Fruit and flower | Staple foods, fruits and vegetables |
| Seagress | Enhalusacoroides | Hydrocharitaceae | Root and stem | Additional food |
| Matoa | Pometiapinnata J.R. Forster & J.G. Forster | Sapindaceae | Fruit | Fruit |
| Miss fruit | Annona reticulata | Annonaceae | Fruit and seeds | Fruit |
| Durian Rambutan Betel nut Betel | Duriozibethinus Nepheliumlappaceum L. Areca catechu Piper betle | Malvaceae | Fruit | Fresh fruit |
| | | | | Fruit |
| Nipah | Nypafruticans Wurmb. | Areaceae | Fruit, nira | Fruit and beverage ingredients |
| Cane | Saccharum officinarum L. | Poaceae | The stem | Raw drinks |
| Chocolate Chessy | Theobroma cacao L. Artocarpus integer | Malvaceae | Seed, fruit and seeds | Fruit |
| | | | | Fresh fruit |
| Pineapple Chili Gersen Cucumber Princess fruit Lemon cui Turmeric | Ananascomosus (L.) Merr. Capsicum annuum Muntingiacalabura L. Cucumissativus L. Passiflorafoetida L. Citrus aurantifolia Curcuma domestica | Bromeliaceae Solanaceae Elaeocarpaceae Cucurbitaceae Passifloraceae Rutaceae Zingiberaceae | Fruit | Fruit |
| | | | | Seasoning |
| | | | | Fruit |
| | | | | Fresh fruit |
| | | | | Fruit |
| | | | | Fresh fruit |
| | | | | Fruit |
| | | | | Seasoning |
| | | | | Root |
| | | | | Seasoning |
3.2. Diversity of plant species as local food

Based on the results of an inventory carried out on respondents showed very diverse food products found both those that have been cultivated or not that are sourced from the yard, garden, and forest in Menawi Village. The results of observations by farmers that planting in the garden is better than in a special house yard for alternative food such as tubers.

In the field, 53 species of plants from 31 families were used as food (Table 1). The most widely used family is the Arecaceae family which consists of 4 types of plants including sago (Metroxylon spp, areca nut (Areca catechu L.), coconut (Cocos nucifera L.) and bobo (NypafruticansWurmb.), thorny (Metroxylonrumphi, Mart.) which consists of sago kurai, sago wewa, samiamiri, widoi sago, sago anta, sago kerewarai) and non-thorny sago (Metroxylon sago Rottb.), sago Barari. This whole sago is the main or basic local food need for the coastal community of Menawi Village. The plants Areca catechu, Cocos nucifera L., NypafruticansWurmb., Areca type of fruit and refreshing drink when exhausted.

Plants that have begun to be consumed, wild and uncultivated, while alternative food can be used in addition to increasing the community's economy, including the fruits of Annona (Annona reticulate), rerami (Boehmerianivea), konunum (Canna edulis L.), suanggi banana (Musa sp.) and bête (Colocasiaesculenta (L.) Schott.). The seven types of sago above are native to the Menawi Village which still grows wild but is often treated by the local community. This type of sago Barari is sometimes taken to be used as seed and sent outside the area. According to researcher Widjono et al. (2000), based on the results of the survey there were 61 types of sago found in areas in Papua including Manokwari, Merauke, Jayapura and Sorong and there are still possibilities for additional additions [6].

The results of interviews with respondents about the existence of these types of plants are native to the local area but also have been induced by other regions. Most of the introduced plants come from fruits because of their fresh taste and have been cultivated in community plantations.

| No. | Plants       | Number of types | Number of percentages |
|-----|--------------|-----------------|-----------------------|
| 1.  | Original     | 40              | 75,5                  |
| 2.  | Introduction | 13              | 24,5                  |

According to the results of table 2 calculations, native food plants have a greater percentage of 75.5% compared to 24.5% introduced plants. Based on these observations, it was concluded that the community still retains native plant food even though they have been in contact with other tribes and also though not continuously utilizing these native plants.

Plant cultivation is mostly done in the yard and plantation area. The yard is more dominated by spices and certain vegetables and other alternative foods and vegetables are more dominant in the garden (table 1). The method of farming in the community has led to a modern system so that the possibility of receiving cultivated induction plants is even greater.

4. Conclusion

The diversity of food plants originating from the yard, garden, coast, and forest consists of 53 species of plants and 31 families. The highest utilization type of Arecaceae family with the number of plant species 4. The results of observation are based on the utilization of local foodstuffs, namely as a staple food, vegetables, fruits, alternative foods, and distinctive foods. The percentage of food plants is still...
dominated by local or native food compared to introduce food, this shows that the community still maintains existing germplasm, even though certain foodstuffs are not consumed continuously.

References
[1] Yapen Islands Regency Public Relations 2016 Hydrology http://kepyapenkb.go.id/view-view/Hydrology December 20 2017
[2] Hunter D and Fanzo J 2013 In Fanzo J D, Hunter T, Borelli F, Mattei (eds.) Biodiversity International Taylor & Francis Routledge Group pp i-13
[3] Suseto H 2004 DEPTAN http://www.google.com/aptk.ajii.or.id Accessed September 25, 2005
[4] Central Agency of Statistics Regency of Yapen Islands 2017 BPS in Yapen Islands Regency Technical implementation Unit 2016 Biak http://Sakip.Pertanian.go.id/admin/file/biak%20full.pdf
[5] Widjono A, Mokay Y, Amisnaipa H, Lakuy, A. Rouw, A. Resubun and Wihyawari P 2000 Types of Sago in Some Areas of Papua Bogor: Indonesian Center for Agriculture Socio-Economic Research
[6] Fanzo, J M, Holmes P, Junega, E, Muzingusi, I F, Smith B Ekesa, and Bergamini N 2011 Rome Italy: Biodiversity International p 78