



Utilization of Palm Plants (*Arecaceae*) in the Acehese Community in Gandapura District, Bireuen Regency

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Abstract: The purpose of this study was to determine the utilization of sugar palm (*Arecaceae*) plants in the Acehese community in Gandapura District, Bireuen Regency. In collecting data, this study distributed questionnaires, semi-structured and open-ended free interviews to various age groups with a total of 11 questions. The research sample in this study amounted to 153 people. The sampling method was carried out using the purposeful sampling method; namely, the population has homogeneous and stratified elements/members. Samples were taken based on age groups, namely young adults (aged 20-35) who are actively working to earn a living; middle adults (aged 36-50) who are generally married and have a permanent residence; and older people (> 50 years) who are considered village leaders/elders and have influence in the village. The results showed that 13 types of sugar palm plants were utilized. The utilization of 13 types of plants consists of 7 types as food ingredients, 7 types as craft materials, 5 types as building materials, 7 types for traditional medicine, 2 types for traditional ceremonies and 5 types of ornamental plants. To determine the utilization of plant species diversity, an analysis of the level of importance of a plant species for the community was carried out, namely by calculating the Cultural Significance Index (ICS). The highest ICS value was found in the *Cocos nucifera* plant, namely 293, followed by *Areca nut* (*Areca catechu*) and *Areca nut* (*Arenga pinnata*) with values of 113 and 111.

Keywords: Aceh community; *Arecaceae*; Use of plants

Introduction

The *Arecaceae* family is one of the most frequently used plant groups in everyday life (Hayesti et al., 2024). *Arecaceae* are generally trees or shrubs with sizes varying between 25 cm to 60 m with varying shapes of leaves, roots, inflorescences, fruits and seeds (Roswita, 2018). The diversity of *Arecaceae* plant species in a given area is determined by soil conditions, climate, competition between plant species, and external obstacles. Certain communities will form naturally, largely due to the abundance, composition, density, and predominance of specific plant species (Roswita, 2018). The abundance of *Arecaceae* family plant species encourages their use in everyday life because all parts of their body have their

respective functions (Roswita, 2018). Most palms are used for utensils and tools, construction and human food and the stem, leaf and fruit are the most utilised palm parts (Roswita, 2018). In general, the *Arecaceae* tribe has characteristics including its stems grow straight upwards and rarely branch, its stems are segmented and do not have a true cambium, its roots grow from the base of the stem and are in the form of fibrous roots, it has compound leaves, the leaf stalk has a leaf midrib that wraps around the stem, the flowers are arranged in a bouquet (mayang), the fruit is covered with a relatively thick outer layer (usually called coir), the fruit seeds are relatively liquid when they are young and become increasingly hard when mature.

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Palm growth is very high, it is spread in tropical and high temperature areas of the world and is very strongly integrated into the economy of the people who inhabit these areas. Palm trees can be used continuously because they can provide positive value to the community's economy and increase knowledge, and can provide incentive value to preserve the forest areas (Roswita, 2018).

Currently, it has been proven that many practices in the use of natural resources by traditional communities have positive value in preserving biological resources and the environment. These methods and techniques not only teach about optimizing the use of natural resources but more than that, there is a philosophy about preserving nature for future generations. This is especially common in traditional societies. According to (Hakim, 2014), stated that village forests are state forests that are managed by villages and used for welfare. Many plants live in the forest that the local community can use, and one example is the *Arecaceae* plant. One type of *Arecaceae* that is utilized by the community is the aren. Aren is a type of palm where almost all of its parts can be used from roots, stems, leaves, flowers and fruit (Witno et al., 2021).

The study of human interactions, biodiversity, and the environment is a basic tool for understanding the factors that bind society to natural resources (Basna et al., 2020). The use of palm plants in the Acehese community is very numerous, such as in every traditional ceremony, both wedding ceremonies and circumcisions of apostles and others related to traditional affairs. The people of Aceh use plant species from the *Arecaceae* in making coconut leaves, which function to mark party locations which are placed on the side of the road. It is then used to make steamed diamond-shaped rice (ketupat) on Eid, as well as grown coconuts as a gift for the groom, which is handed over to the bride. Apart from that, it is used during the forty-fourth day of the baby's descent into the ground. The coconut fruit is split over the baby and bathed in coconut water. Like betel nut for betel nut, in Acehese society, it is synonymous with 'tapak sirih' or 'cerana'. In ancient times, every Acehese house must have had a 'tapak sirih' because chewing betel leaves using areca nut was a habit that had been a tradition for a long time. Betel nut is also used in traditional ceremonies and to welcome guests (Roswita, 2018).

The community in Gandapura District is an example of a community that interacts with the natural environment around it. This can be seen in fulfilling their daily needs by using plants from the palm group found in the environment where they live. Gandapura District is a district in Bireuen Regency which has a higher diversity of *Arecaceae* plants compared to other districts in Bireuen Regency because the location of

Gandapura is between the mountains and the coastal areas which are areas where these plants grow. Based on the research results of Nuryanti et al. (2015), the people of Batu Buil Village, Belimbing District, Melawi Regency have long used *Arecaceae* (palms) in their daily lives, for example, as a source of food, drinks and medicinal plants. People cultivate many members of the *Arecaceae* family as food, oil, fiber, furniture, buildings, ornamental plants and so on. Cipanggulaan people in general, and particularly our informants, see sugar palm tree (kawung) as one, among many, important plant. The plant is considered the most versatile tree among the palm trees since almost every part of the tree such as root, trunk, hair of trunk, inner part of tree, rachis, leaf, leaflet midrib, and stalk of flowers (Roswita, 2018).

However, the existence of *Arecaceae* plant species, both plant organs and their uses, has not been well documented, and there is limited information regarding the potential of local plants, especially in Gandapura District. Knowledge of the traditional uses of *Arecaceae* plants by the community is crucial. The use of *Arecaceae* by the community is not only for economic purposes but also for cultural values (Kamga et al., 2020). Therefore, it is necessary to conduct research and provide knowledge to the community on how to improve their understanding of the use of *Arecaceae* plant species in everyday life so that conservation and natural resource management efforts can be implemented.

Method

Area Description



Figure 1. Map of research locations

Gandapura is a sub-district in Bireuen Regency (Figure 1). The area of Bireuen Regency is 179,631 hectares. The capital of this sub-district is located between the coast and the mountains. This regency has an area of approximately 3,615 hectares, and there are 40 villages with a population of 5,879 heads of families (KK) and 24,596 people (Central Statistics Agency of Bireuen

Regency, 2022). One of the reasons researchers chose Gandapura Sub-district as the research location is because its strategic location between the mountains and the coast. This area has great potential for increasing the preservation of arecaceae species and increasing public knowledge in the use of palm plants. Until now, there has been no government outreach to increase knowledge about how palms are used by the community and the lack of public knowledge to preserve arecaceae species.

The research flow is described in the chart below (Figure 2).

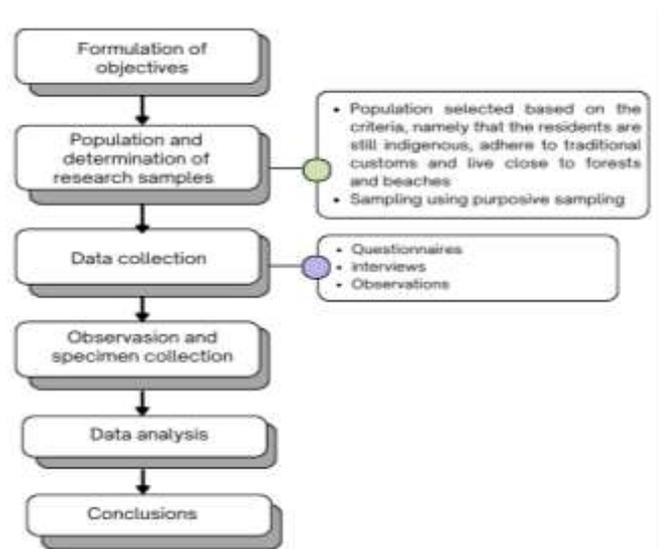


Figure 2. The research flow

Sources and Material

Tools and materials used in the study includes: questionnaires as library support tools, voice recording equipment, stationery and field books, cameras and equipment, stationery and field books, cameras and equipment for making herbariums such as newspapers, plastic bags, alcohol and others.

Population and Sample

The population in this study were people living in four villages in Gandapura District, namely Lapang Barat village, with a population of 785 people, Cot Rambat village, with a population of 228 people, Pante Sikumbong village, with a population of 338 people; and Ujong Bayu village with a population of 373 people. These four villages were selected based on the criteria, namely that the residents are still indigenous, adhere to traditional customs and live close to forests and beaches. The sampling method was carried out using the purposeful sampling method; namely, the population has homogeneous and stratified elements/members. Samples were taken based on age groups, namely young adults (aged 20-35) who are actively working to earn a living; middle adults (aged 36-50) who are generally

married and have a permanent residence; and older people (> 50 years) who are considered village leaders/elders and have influence in the village. The number of samples used as respondents was 153 people. Samples were taken from 10% of the population of each village, including community leaders, traditional elders, medicine experts and ordinary people who have knowledge about Aracaceae, both planted and wild in their natural environment.

Research Implementation

When collecting specimens of *Arecaceae* plants, researchers were assisted by someone who knew the use of these plants. These resource persons include 16 community leaders, 4 traditional elders and their apparatus, 4 traditional medicine experts (shamans, healers) and 129 ordinary people who know *Arecaceae* both planted and wild in their environment. Then, observations were made and collected. Each *Arecaceae* plant specimen whose scientific name is not yet known is taken and given a hanging label that has been given a collection number and the regional name is recorded, and then a description is carried out.

Data Collection Techniques

Questionnaire

A questionnaire is a list of questions created based on indicators of research variables to which respondents must respond. To measure public knowledge about the use of *Arecaceae* plants in everyday life, researchers used a questionnaire with 6 questions. The questionnaire used in this study was a closed questionnaire with assessment indicators including the value of the quality of the usefulness of a type of plant according to the ethnobotanical category, the intensity of use of useful plant types and the level of exclusivity or level of preference (Roswita, 2018).

Interview

Interviews were conducted using semi-structured interview techniques and free and in-depth interviews guided by a list of questions such as the local name of the plant, the part used, the method of use, and the status of the plant (wild/cultivated) with a total of 5 questions. For interviews, sources are selected who are considered to have broader or more specific knowledge of cultural customs. These resource persons include 16 community leaders, 4 traditional elders and their apparatus, 4 traditional medicine experts (shamans, healers) and 129 ordinary people who know *Arecaceae* both planted and wild in their environment.

Observation

Observation techniques were used to obtain visible (visible) empirical facts. Observations were carried out

to be able to directly see community activities and observe the use of plants in daily community activities (Amboupe et al., 2019). The method of obtaining data and participatory observation is that the researcher only comes to the location of the activity being observed but is not directly involved in the activity. Documentation techniques are carried out by using written documents, drawings, photos or other objects related to the aspects being studied. The data collected was analyzed to obtain an Index of Cultural Significance (ICS) (Turner, 1988) with data analysis as follows:

$$ICS = \sum_{i=1}^n (q_1 x_i x_{e_1}) n_1 + (q_2 x_i x_{e_2}) n_2 + \dots + (q_n x_i x_{e_n}) n_n \tag{1}$$

Description:

ICS = equation of the number of use values of a plant type from use 1 ton, where n indicates the final use of a plant type

i = intensity value, shows the value 1 ton sequentially

q = quality value

e = exclusivity value

Result and Discussion

Diversity of Plant Species

Gandapura District is an area that still has quite high plant potential. This can be seen from the large number of *Arecaceae* plants that are available and can be used to meet the living needs of the community. Based on the results of identification and interviews conducted with the Acehnese people in Gandapura District, it is known that in their lives they use as many as 13 plant species from the *Arecaceae* family (Table 1).

Judging from the acquisition of plants used by the community, they can be grouped into three groups, namely those originating from cultivation, wild and purchased at the market (Table 1). Based on the results

of this grouping, it can be concluded that there are 5 species of cultivated plants, 7 species that grow wild, and 5 species of plants purchased on the market, while there are 4 species that are wild and cultivated. Naturally, members of the *Arecaceae* family grow in forests from lowlands to highlands and are very diverse in terms of habitat, size and morphology (Adha et al., 2017). Some types of *Arecaceae* grow wild especially in tropical and subtropical areas. However, some species of *Arecaceae* are often cultivated by humans for commercial purposes such as coconut and oil palm (Figure 3).



Figure 3. *Arecaceae* cultivated for commercial

Plants that are widely used as aspects of the use of plants from the *Arecaceae* family by the community, namely the use of food/food ingredients, as medicine, as handicrafts and as building materials (Ramli et al., 2021). The types of plants used as medicinal plants are *Areca vestiaria* Giseke, *Cocos nucifera* .L, *Pinanga caesia* Blume; the types of plants used for crafts are *Cocos nucifera*, L, *Salacca zalacca* (Garten) Voss, and *Metroxylon sagu* Rottb, while the plants used as building tools are *Cocos nucifera* .L, *Metroxylon sagu* Rottb and *Caryota mitis* Lour.

Table 1. Type of *Arecaceae* Plants Used by the Acehnese people in Gandapura District

Scientific name	General name	Local name	Origin of plants
<i>Arenga pinnata</i>	Sugar palm	Bak jok	Wild
<i>Araca catechu</i>	Betel palm	Bak pineng	Cultivated/wild
<i>Borassus flabellifer</i>	Palm tree/siwalan	Bak teue	Wild
<i>Caryota no</i>	Fish-tail palm	Jok bungong	Purchased
<i>Corypha utan</i>	The cabbage palm	Bak ibo	Wild
<i>Cocos nucifera</i>	Coconut tree	Bak U	Cultivated/wild
<i>Chrysalidocarpus lutescens</i>	Clumping palm	Palem kuneng	Purchased
<i>Cyrtostachys lakka</i>	Lipstick palm	Palem merah	Buy
<i>Elaeis guineensis</i>	Palm oil	Bak sawet	Cultivated
<i>Hyophorb lagenicaulis</i>	Bottle pal,	Palem botol	Purchased
<i>Licuala grandis</i>	Ruffled fan palm	Palem kipai	Purchased
<i>Metroxylon sagu</i>	True sago palm	Bak meria	Cultivated/wild
<i>Nypa frutican</i>	Nipa palm/mangrove palm	Bak lipah	Cultivated/wild

Species that grow wild and those that are cultivated have the same uses, such as coconut, ibus, lontar palm and areca palm, the leaves are used as woven, the fruit is used as food and medicine, the stem for building materials and traditional ceremonies. Plants purchased on the market are used only for pleasure or environmental indicators. The use of plants by humans is a form of human participation in maintaining balance and harmony with the natural surroundings.



Figure 4. Woven ibus leaves as a hood and chicken cage

Use of Plants Based on Parts Used

The species used by the Gandapura people are more than one part of the plants used by them. Of the total species obtained, it can be seen that there is a comparison of the parts used, namely leaves, fruit and stems, which are the parts of the plant that are most widely used by the community for various uses, the type that is most widely used is *Cocos nucifera*, because this plant is a multi-purpose plant and almost every part can be used by the people living in Gandapura District to meet their needs.

The results of the study by Roswita et al. (2018) showed that coconut (*Cocos nucifera*) has the highest ICS value because this plant is useful and important in the lives of rural communities such as food and board, for rituals and traditional ceremonies, medicines, animal feed, crafts, food packaging, hair care, and firewood. Coconut trees have many benefits because all of their organs can be utilized by the community from the leaves to the roots (Silvia, 2017). In addition, coconuts are widely found in the research location because they are widely cultivated by the community both in their yards and in gardens. *Cocos nucifera* is one of the types of *Arecaceae* family that is most widely utilized in everyday life such as its fruit is used as coconut milk for food, young coconuts for energy boosters, its trunk is used as a bridge and building material, its shell is used as a raw material for crafts, its young leaves are usually for ketupat (Rambey et al., 2021). In socio-cultural activities such as weddings, its young leaves can be used for traditional ceremonies (Figure 5).



Figure 5. Coconuts, areca nuts, and coconut leaves as ingredients for traditional ceremonies

Table 2. Parts of Plants Utilization

Scientific name	Utilization part
<i>Arenga pinnata</i>	Fruit, marks, coir, stems, palm fiber
<i>Araca catechu</i>	Fruit, leaves, stems, roots, areca nut flower, midribs skin
<i>Borassus flabellifer</i>	Fruit, leaves, stems, seeds, midribs.
<i>Caryota no</i>	Leaves, stems, fruit
<i>Corypha utan</i>	Stems, leaves, midribs, seeds
<i>Cocos nucifera</i>	Fruit, leaves, stems, shells, sticks, husks, midribs water, bunches, shells, sheaths
<i>Chrysalidocarpus lutescens</i>	Leaves, stems, fruit.
<i>Cyrtostachys lakka</i>	Leaves, stems, fruit.
<i>Elaeis guineensis</i>	Fruit, leaves, shoots, shells, sticks, seeds.
<i>Hyophorb lagenicauli</i>	Leaves, stems, fruit.
<i>Licuala grandis</i>	Leaves, stems, fruit.
<i>Metroxylon sag</i>	Fruit, leaves, stems, midribs, skin fronds.
<i>Nypa fruticans</i>	Fruit, leaves, midribs, palm fiber

The plants with the fewest parts used were *Caryota no*, *Chrysalidocarpus lutescens*, *Cyrtostachys lakka*, *Hyophorb lagenicaulis*, *Licuala grandis* because they do not use these plants to meet their needs, but only for

pleasure or environmental indicators. Coconut can be used as a vegetable ingredient and as a raw material for oil (Rodiya, 2021). For one type of plant, more than one

part is used for the Nipa plant species (*Nypa fruticans*); the leaves can be used for hand-rolling cigarettes, the fruit for coconut palms, and the fronds for medicines. The use of medicinal plants of the *Arecaceae* type by the people of Aceh in Gandapura District is still widely used (Roswita, 2018). This is because the public's trust in medicinal plants of the *Arecaceae* type is so certain that these plants have benefits. The use of this part of the plant is a tradition from the ancestors and is still used today to meet their needs, and day by day, there is an increase in processing.

A study conducted by Ramli et al. (2021) shows that the people of Saluki Hamlet, Tuwa Village, Gumbasa District, Sigi Regency. Making great use of palm plants in everyday life, the people of Tuwa Village use plants as food, medicinal ingredients, building construction materials, and so on. Aren (*Arenga pinnata*) is a type of palm where almost all of its parts can be utilized, starting from the roots, stems, leaves, flowers, and fruit (Roswita, 2018). *Arenga pinnata* Merr is one type of palm that has the potential of high ecological and economic value (Febrianti et al., 2017). The parts of plants used by the community in Gandapura District are shown in Table 2.

Plant Utilization Based on Use Groups

Plants have several kinds of uses, so that the species found in the lives of Acehnese people in Gandapura District are grouped into 6 groups of uses, namely the number of plants and parts used and how they are used, namely there are 7 types of palms used by the community as food, namely: *Arenga pinnata*, *Areca catechu*, *Borassus flabellifer*, *Cocos nucifera*, *Elaeis guineensis*, *Metroxylon sagu* and *Nypa fruticans*. The parts of the palm that are used as food are 7 types of fruit, 1 type of bunch, 1 type of leaf, 1 type of shoot, 1 type of shell, and 1 type of stem. The way to use palm species as food is still done in a simple way. This can be divided into uses that are directly consumed (food mixtures) and must go through processing by cooking (baking, boiling); some are grated, and then the starch is taken, and some are savoured. Apart from granulated sugar, natural sweeteners that can be used in making food include sugar alcohol (sorbitol), corn sugar, brown sugar and ant sugar (Listyaningrum et al., 2018). Ant sugar is the name for palm sugar, and palm sugar can be a substitute for using granulated sugar sucrose in making low-calorie snack bars.

There are 7 types of plants as craft materials, namely, *Arenga pinnata*, *Areca catechu*, *Borassus flabellifer*, *Corypha utan*, *Cocos nucifera*, *Nypa fruticans* and *Metroxylon sagu*. The parts of the palm that are used as craft materials are 2 types of husk, 1 type of fruit, 6 types of leaves, 1 type of palm, 3 types of stem, 1 type of stick, 1 type of shoot, 1 type of shell, 1 type of frond. It is

utilized in the form of plaits, *Nypa fruticans* leaves and *Metroxylon sagu*. The way to use it is that the leaves are sewn with rattan rope. After sewing, they are dried in the sun so they last longer. Seulimum District uses many parts of coconut tree organs for building materials and rattan handicrafts for household crafts (Silvia et al., 2017). There are 5 types of plants used for building materials, namely: *Areca catechu*, *Arenga pinnata*, *Cocos nucifera*, *Metroxylon sagu*, and *Nypa fruticans*. The parts of the palm used as building materials are 4 types of stem, 2 types of leaves, and 1 type of midrib. The way to use it is that the stem is split and then trimmed according to the size of the floor or wall material of the house. In the Denpasar and Badung areas, 14% of the people of Denpasar and Badung use coconut stems as building materials (Pratiwi et al., 2013). Coconut trunks can be used to make house-making battens.

Plants for medicines such as, *Arenga pinnata*, *Areca catechu*, *Borassus flabellifer*, *Corypha utan*, *Cocos nucifera*, *Metroxylon sagu*, and *Nypa fruticans*. The parts of the palm used are 2 types of young fruit, 3 types of old fruit, 1 type of fruit skin, 1 type of root, 2 types of palm juice, 3 types of midrib, 3 types of leaves, 1 type of stick, 1 type of shoot. Plants for medicines such as *Arenga pinnata*, *Areca catechu*, *Borassus flabellifer*, *Corypha utan*, *Cocos nucifera*, *Metroxylon sagu*, and *Nypa fruticans*. *Arenga pinnata* plant is one of the plants that is very well known by the people of Indonesia. In the Sibolangit community in North Sumatra and the Minahasa community in North Sulawesi, they have long used the water part of the *Arenga pinnata* plant as an ingredient to make a traditional drink known as tuakor sager (Roswita, 2018). The use of medicinal plants of the *Arecaceae* type by the Acehnese people in Gandapura District is still widely used, and this is because people's trust in medicinal plants of the *Arecaceae* type is so certain that these plants have healing properties. Traditional medicinal plants are natural ingredients that have traditionally been used for treatment based on experience, and the diversity of medicinal plants can support the availability of traditional medicines that are ready to use (Jumiarni et al., 2017). Plants for traditional ceremonies, namely, *Areca catechu* and *Cocos nucifera*. The parts of the palm that are used are the fruit and leaves. *Areca catechu* (betel nut) fruit is used for betel nut, a culture that the people of Aceh cannot separate. At every party or kenduri event, they present betel tread as a symbol of honor to the guests present. The fruit (Ulason and U timoh) is used in wedding ceremonies as a brought by lintobaro (groom) to darabaro (bride) house, leaves for making coconut leaves. People in Tarakan City use areca nut as a source of refreshing ingredients (for example, areca nut as an ingredient for betel nut), the Dayak Randu' community uses betel nut fruit for betel nut or betel nut (Kurniawan et al., 2020). Nginang

is a mixture of betel leaves, seeds, tobacco and gambier (Nuryanti et al., 2015).

Plants as ornamental plants or environmental indicators such as *Caryota no*, *Chrysalidocarpus lutescens*, *Cyrtostachys lakka*, *Hyophorb lagenicaulis*, *Licuala grandis*. The parts used are stems, leaves and fruit. The benefits are only for beauty or environmental indicators. The palm plant (*Chrysalidocarpus lutescens*) in the Seulum District is used as an ornamental plant (Silvia et al., 2017). The parts of the organs that are most widely used by the community are the stems, leaves and fruit.

From the utility group, it can be seen that the use of plant species is higher for food, crafts and medicine, and the use of plants for building, traditional ceremonies and ornamental purposes is lower. Princess palm tree (*Veitchia merilii*) is a palm plant that is widely distributed in Indonesia and belongs to the *Arecaceae* family

(Triastiari et al., 2019). This plant is generally used as an ornamental plant and as a road divider because it has small red fruits which are considered beautiful as decoration. The genus *Areca* and *Calamus* found 2 species. Meanwhile, the genus that found the least is genus *Phoenix*, *Cyrtostachys*, *Rhapis*, *Wodyetia*, *Salacca*, *Elaeis*, *Dypsis*, *Saribus*, *Livistona*, *Arenga*, *Hyophorbe*, *Licuala*.

Index of Cultural Significance (ICS) is the result of quantitative ethnobotanical analysis, which shows the importance of each type of useful plant based on community needs, where the ICS number shows the level of importance of each type of useful plant by the community (Purba, 2011). To determine the level of importance of each type of plant, the ICS (Index of Cultural Significance) is used for each age group. It can be seen in Table 3.

Table 3. Index of Cultural Significance (ICS) in Gandapura District

Types of plants	ICS aged 20-35 years	ICS aged 36-50	Aged >50 years
<i>Arenga pinnata</i>	111	101	94
<i>Areca catachu</i>	113	91	89
<i>Borassus flabellifer</i>	30	30	18
<i>Caryota</i>	8	8	8
<i>Corypha utan</i>	79	63	59
<i>Cocos nucifera</i>	293	272	192
<i>Chrysalidocarpus lutescens</i>	6	6	6
<i>Cyrtoschys lakka</i>	6	6	6
<i>Elaeis guineensis</i>	93	62	50
<i>Elaeis guineensis</i>	6	6	6
<i>Licuala grandis</i>	6	6	6
<i>Metroxylon sagu</i>	34	34	36
<i>Nipa frutica</i>	53	37	47

Cocos nucifera has the highest Cultural Significance Index (ICS) among other plants in this study, indicating that the *C. nucifera* plant has many benefits in the daily lives of the Gandapura community. The high ICS value indicates that *C. nucifera* is widely used and has high value for the local community (especially Gandapura), both as a food source, building material, and role in traditional ceremonies. *C. nucifera* (coconut) is always used as a raw material in the form of coconut milk to make food dishes such as curry, rendang, and various local cakes. In addition, to improve the economy, people sell fresh coconut water that can be consumed directly. In terms of construction, coconut trunk wood is used as a material for building houses, bridges, and furniture. Coconut leaves are also used as raw materials for weaving, which functions as roofs for traditional houses, various handicrafts, and as raw materials for ketupat. Ketupat is a traditional Indonesian dish made from rice cooked in woven palm leaves. It is typically served during festive occasions like Eid al-Fitr and Eid al-Adha (important events in the Muslim). The rice is wrapped in a diamond-shaped palm leaf casing and boiled until it is

firm. In addition to these uses, *C. nucifera* has spiritual and cultural values, especially its leaves, which are used for wedding janur, and its fruit as a wedding party accompaniment.

The limitations of this study focus on the scope of *Arecaceae* plants, so abiotic factors in Gandapura were not measured. However, the growth and development of a plant cannot be separated from soil quality, rainfall levels, and temperature. The favorable environmental conditions in Gandapura ensure that this plant can not only grow well but also produce high-quality products, this is in accordance with the statement of (2024) showed that the interaction between soil and climate plays a major role in determining the yield and quality of coconut fruit (*C. nucifera*).

Conclusion

Based on the results, it can be concluded that the greatest use of *Arecaceae* plants is for food crafts and medicinal materials. The utilization of 13 types of plants consists of 7 types as food ingredients, 7 types as craft materials, 5

types as building materials, 7 types for traditional medicine, 2 types for traditional ceremonies and 5 types of ornamental plants. The number of Arecaceae plants used were 13 types, namely, *Arenga pinnata*, *Areca catechu*, *Borassus flabellifer*, *Caryota*, *Corypha utan*, *Cocos nucifera*, *Chrysalidocarpus lutescens*, *Cyrtostachys lakka*, *Elaeis guenensis*, *Hyophorb lagenicaulis*, *Licuala grandis*, *Metroxylon sago*, *Nypa fruticans*. *Cocos nucifera* is a type of plant that has the highest Index of Cultural Significance (ICS) value, namely 293.

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Author Contributions

Designed the research, collected, analyzed the data and wrote the initial draft of the article manuscript, C. R.; wrote the article manuscript and reviewed the results, E. H.; reviewed the results, A. A. and N. A.; editing, S. S. and R.

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Conflicts of Interest

The authors declare that they have no conflict of interest related to this research.

References

- Adha, N., Munir, A., & Darlian, L. (2017). Identifikasi Tumbuhan Palem Di Kawasan Hutan Lindung Wolasi Kabupaten Konawe Selatan. *Jurnal Ampibi*, 2(1), 42–42. Retrieved from <https://online-journal.unja.ac.id/biospecies/article/view/46909/23230>
- Amboupe, D. S., Hartana, A., & Purwanto, Y. (2019). Kajian Etnobotani Tumbuhan Pangan Masyarakat Suku Bentong Di Kabupaten Barru Sulawesi Selatan-Indonesia. *Media Konservasi*, 24(3), 278–286. Retrieved from <https://shorturl.at/dUw3o>
- Basna, M. M., Maturbons, R. A., & Ungirwalu, A. (2020). Etnoteknokonservasi Pemanfaatan Palem Sebagai Bahan Pembuatan Bubur Tradisional Suku Maybrat. *Jurnal Kehutanan Papuaasia*, 6(1), 71–85. <https://doi.org/10.46703/jurnalpapuasia.vol6.iss1.199>
- Hakim., L. (2014). *Etnobotani dan Manajemen Kebun-Pekarangan Rumah: Etnobotani dan Manajemen Kebun-Pekarangan Rumah: Ketahanan Pangan, Kesehatan dan Agrowisata*. Selaras Media.
- Hayesti, F. H., Sada, M., & Leto, K. T. (2024). Kajian Etnobotani Famili Arecaceae oleh Masyarakat Lokal Desa Kopong Kecamatan Kewapante Kabupaten Sikka. *Seminar Nasional Teknologi, Kearifan Lokal Dan Pendidikan Transformatif (SNTEKAD)*, 1(2), 308–318. <https://doi.org/10.12928/sntekad.v1i2.15804>
- Jumiarni, W. O., & Komalasari, O. (2017). Inventory of Medicines Plant As Utilized By Muna Tribe in Kota Wuna Settlement. *Majalah Obat Tradisional*, 22(1), 45. <https://doi.org/10.22146/tradmedj.24314>
- Kamga, S. M., Brokamp, G., Cosiaux, A., Awono, A., Fürniss, S., Barfod, A. S., Muafor, F. J., Le Gall, P., Sonké, B., & Couvreur, T. L. P. (2020). Use and Cultural Significance of Raphia Palms. *Economic Botany*, 74(2), 207–225. <https://doi.org/10.1007/s12231-020-09487-z>
- Kurniawan, Y. N., Nuraini, N., Kamelia, K., Mantang, R., Zulfadli, Z., & Rupa, D. (2020). Etnobotani Tumbuhan Family Arecaceae Di Kota Tarakan. *Borneo Journal of Biology Education*, 2(1), 16–23. <https://doi.org/10.52222/bjbe.v2i1.1736>
- Listyaningrum, C. E., Affandi, D. R., & Zaman, M. Z. (2018). Pengaruh Palm Sugar Sebagai Pengganti Sukrosa Terhadap Karakteristik Snack Bar Tepung Komposit (Ubi Ungu, Jagung Kuning Dan Kacang Tunggak) Sebagai Snack Rendah Kalori. *Jurnal Teknologi Hasil Pertanian*, 11(1), 53. <https://doi.org/10.20961/jthp.v11i1.29096>
- Nuryanti, S., Linda, R., & Lovadi, I. (2015). Pemanfaatan tumbuhan Arecaceae (palem-palem) oleh masyarakat Dayak Randu di Desa Batu Buil, Kecamatan Belimbing, Kabupaten Melawi. *Jurnal Protobiont*, 4(1), 128–135. Retrieved from <https://jurnal.untan.ac.id/index.php/jprb/article/view/9662/9449>
- Pratiwi, F. M., & Sutara, P. K. (2013). Etnobotani Kelapa (*Cocos nucifera* L.) di Wilayah Denpasar Dan Badung (Etnobotany Of Cocunut (*Cocos nucifera* L.) at Denpasar and Bandung). *Jurnal Simbiosis*, 1(2), 102–111. Retrieved from <https://ojs.unud.ac.id/index.php/simbiosis/article/download/7713/5802>
- Purba, M. R. B. (2011). *Kajian Pemanfaatan Tumbuhan Obat pada Masyarakat Karo di Kecamatan Tigabinanga Kabupaten Karo*. Retrieved from <https://repositori.usu.ac.id/handle/123456789/37886>
- Rambey, R., Tambunan, W. A., Hasibuan, M., Siregar, F. A., Prayogo, B., Silalahi, C., Hasibuan, D., & Syahputra, N. (2021). Ethnobotany of the Arecaceae family in Torgamba District, South Labuhanbatu, North Sumatra. *IOP Conference Series: Earth and Environmental Science*, 782(3), 032022. <https://doi.org/10.1088/1755-1315/782/3/032022>
- Ramli, L. A., M. Suleman, S., & Ramadanil. (2021). Ethnobotany of the Mountain Regions of Southeast Asia. In *Biocelbes* (Vol. 13, Issue 2, pp. 162–173). Springer International Publishing.

- <https://doi.org/10.1007/978-3-030-38389-3>
- Rodiyah. (2021). *Kajian Etnobotani Famili Arecaceae Oleh Masyarakat Desa Pejambon Kecamatan Negeri Katon Kabupaten Pesawaran*. Universitas Islam Negeri Raden Intan Lampung.
- Roswita, C. (2018). Pemanfaatan Tumbuhan Palem “Paleman (Arecaceae) Sebagai Obat Tradisional Oleh Masyarakat Aceh Di Kecamatan Gandapura Kabupaten Bireuen. *Jurnal Biosains*, 4(1), 32–38. <https://doi.org/10.24114/jbio.v4i1.9378>
- Silvia, Y. (2017). Etnobotani Tumbuhan Anggota Arecaceae Di Kecamatan Seulimum. *Jurnal Ilmiah Mahasiswa Fakultas Keguruan Dan Ilmu Pendidikan Unsyiah*, 2(2), 30–43. Retrieved from <https://jim.usk.ac.id/pendidikan-biologi/article/view/2738>
- Triastiari, A., & Harijono, H. (2019). Pengaruh Pengeringan Dan Lama Maserasi Dengan Pelarut Ganda Etanol Dan Heksana Terhadap Senyawa Bioaktif Daging Biji Palem Putri (*Veitchia Merillii*). *Jurnal Pangan Dan Agroindustri*, 7(2), 13–23. <https://doi.org/10.21776/ub.jpa.2019.007.02.2>
- Turner, N. J. (1988). “The Importance of a Rose”: Evaluating the Cultural Significance of Plants in Thompson and Lillooet Interior Salish. *American Anthropologist*, 90(2), 272–290. <https://doi.org/10.1525/aa.1988.90.2.02a00020>
- Witno, W., Karim, H. A., & Megawati, M. (2021). Pola Sebaran Populasi Aren (*Arenga pinnata*) Berdasarkan Kelas Pertumbuhan DI Desa Sangtandung Kecamatan Walenrang Utara Kabupaten Luwu. *Jurnal Penelitian Kehutanan Bonita*, 3(2), 12–22. <https://doi.org/10.55285/bonita.v3i2.960>