

Processing and Utilization of Sago palm in Central Moluccas

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Abstract

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Indigenous people in Moluccas consumed sago flour as a main food. It is extracted from the pith of the sago palm (*Metroxylon* sp) by traditional and modern processing. Sago flour can be processed into various local food products which are local wisdom of the Moluccan. These products are produced by a very diverse community. In addition, stalks and leaves of sago tree can also be used for building construction. This study aims to describe the processing techniques and utilization of sago palm in Central Moluccas. This research was descriptive qualitative. Data was collected from direct observations and documentation from volunteers in several villages only in Central Moluccas, i.e. Hila village (Ambon), Tuhaha and Ouw villages (Saparua), Kamarian and Iha-Luhu villages (West Ceram), and several villages in Geser and Gorom islands (East Ceram). The results showed that sago processing in Central Moluccas was done manually (traditional) or machinery. The processing technique these plants was relatively the same but the processed sago products vary greatly in each village. Sago processed products such as papeda, sago lempeng, sago tumbuk, serut, sago buksona, sago lakar and sago fitrah. Besides it flour used as food, stalks and leaves of sago tree are used to build traditional houses, baileo and worship houses. This research was expected to conserve of the pukul sago tradition and sago processed products to support the tourism in Central Moluccas.

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1. INTRODUCTION

Sago plant (*Metroxylon* sp) has been known as the identity of people in eastern Indonesia, especially Moluccas. These plants generally have thorny stems, but store white flour. These characteristics reflect the character of Moluccan who are hard-tempered, but have a kind heart. The philosophy of life "like sago tree" influences people's behavior in this area. The flour contained in the sago stem is usually extracted to get pure sago flour. The

processing takes place manually called *pukul sagu* (sago beating) which is one of the local wisdoms in Moluccas.

Sago plants have been linked in socio-cultural life of community. Sago flour has been used as a main food and it's processed into various products by the indigenous people. One of the famous processed sago products is *sagu lempeng*. The relationship between the Moluccan with sago is also stated in taking "*sagu salempeng patah dua*" (a piece of sago is divided into two pieces). This statement is used as a symbol of brotherhood in society, especially in *pela* and *gandong* relations. *Pela* is a union between two or more villages in another region based on brotherly relations in Central Moluccas. This relationship also represents local wisdom which is conserved from one generation to the next.

Pukul sagu is a tradition of processing sago together which has been done since the ancestor time. This tradition contains the values of togetherness in society that need to be conserved to the next generation. The people of Gorom (East Ceram) recognize the tradition of *pukul sagu* with the term "*Bo ulan tawei suat*" which means sago beating during the fasting month. In this tradition the people extract sago flour from one family to another in rotation during the fasting month. Sago has a very important in the life of the Gorom community. The white flour of sago is considered as a princess of the mountain which she always provides food, so that they can survive (Rumatiga, Pattinama, et al. 2017).

Sago contains high carbohydrates, so that it can be used as a basic material for processing various food products. Sago processing into various local food products was often done by the community. This is also a local wisdom that must be to be conserved. Local wisdom is the ways and practices developed continuously by a group of people in the form of traditions that are often done and eventually become a local habits (Devika, Prajawati et al. 2020). One form of local wisdom is the management and conservation of natural resources (Mawaddahni 2017). The processing of sago products can support the food diversification program that has been proposed by the government. Other parts of the sago tree, such as the stalks and leaves can also use to construct the house. This study aims to describe the processing and utilization of sago palm in several villages in Central Moluccas. The conservation of *pukul sagu* tradition and sago processed products is expected to support the tourism in Central Moluccas.

2. LITERATURE REVIEW

Terminology of Sago Palm

The term sago is derived from Javanese which means pith contains starch. In Malay this plant is called *rumbia* or *rumbija*. The scientific name for sago is *metroxylon*. This name comes from Latin, i.e. *metra* which means pith and *xylon*, which means xylem (vascular tissue) (Singhal, Kennedy, et al. 2008). This plant was originally found in the South Pacific Islands and then spread to Indonesia, including the Moluccas Islands. The highest density of sago tree in Moluccas, especially in Ceram Island (Karim, Tie, et al. 2008). The Moluccan have always known and called these plants with various terms (*Table 1*).

Table 1. The Local names of *sago* in Moluccas

Districts	Location	Local name	References
Ternate City	Ternate	<i>Huda</i>	Houten and Greshoff 1907
Buru	Kayeli (Buru)	<i>Ampia</i>	Ludeking 1868
Ambon City	Ambon	<i>Lepia</i>	van Hoevell 1877
Central Moluccas	Haruku	<i>Lapia</i>	van Hoevell 1877
Central Moluccas	Saparua	<i>Lepial</i>	Van Ekris 1864

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Central Moluccas	Nusalaut	<i>Ripial</i>	Van Ekris 1864
Central Moluccas	Amahai (Ceram)	<i>Ripia</i>	Ludeking 1868
East Ceram	Gorom	<i>Suat</i>	Houten and Greshoff 1907
Southeast Moluccas	Kei	<i>Mangaa</i>	Houten and Greshoff 1907
Aru Islands	Aru	<i>Rabia</i>	Houten and Greshoff 1907
Southwest Moluccas	Wetar	<i>Kamriu</i>	Houten and Greshoff 1907
Southwest Moluccas	Kisar	<i>Pleone</i>	Houten and Greshoff 1907

Sago Palm in Moluccas

Sago plants belong to the Palmae tribe and the genus *Metroxylon*. This plant is spread outside in the lowlands of South-East Asia and Melanesia. In the Moluccas region, sago plants spread from North Moluccas to the Aru and Kei Islands in the south (Ulijaszek 1983). Sago plants that grow in Moluccas consist of seven types (Ludeking 1868), but according to Deinum and Setijoso (1932) only a few types are generally utilized by the community, i.e:

1. *Sagu tuni* (*Metroxylon rumphii* Martius): produces a lot of flour and it has a good taste to eat, so it has a high economic value compared to other types. This species is commonly found in Moluccas.
2. *Sagu ihur* (*Metroxylon sylvester* Martius): produces a lot of flour but it has not good taste to eat. This type is a wild plant.
3. *Sagu molat* (*Metroxylon sagus* Rottbol): produces a little flour, but it has a good taste to eat. This sago plant does not have thorns, so it is called *sagu perempuan* (female sago). This type is commonly found on Ceram Island (Flach 1997)
4. *Sagu merah* (*Metroxylon longispinum* Martius): produces the least amount of flour and it less tasty to eat. This type is also called *makanaro* or *maharunu*. This species is commonly found in Ambon and North Moluccas (Flach 1997).

Processing of Sago Starch

Processing of sago flour in Moluccas is called *pukul sago*. The technique used in this process is the extraction of flour from the sago pith. Sago trees that have reached the age of 10-18 years were cut down before releasing flowers. Sago stems that have been cut down were then split longitudinally, so that the flour can be extracted. Sago flour processing consists of seven main stages, i.e cutting sago stems, extracting flour from pith (excavating), pounding, pressing, filtering with water, sedimentation of flour, and drying of flour (draining) (Elen 2004). Sago processing manually using many traditional tools (*Figure 1*).

The destruction of the pith uses a tool called *nani*. *Nani* is generally made from wood and bamboo sticks. Crude fibers produced from the crushing process were then added to water and filtered using a filter made from a midrib thin layer (Locally named *runut*) of coconut. The filtering results are placed in a container (locally named *goti*) and left until the sago flour settles, while the pulp (unfiltered part) is used as feed for pigs or poultry (de Stuers 1846). Flour that has settled is called *sagu mantah* means unprocessed sago (Soetrisno 1944). The *sagu mantah* was then packed in a cylindrical basket from sago leaves called *tumang*.

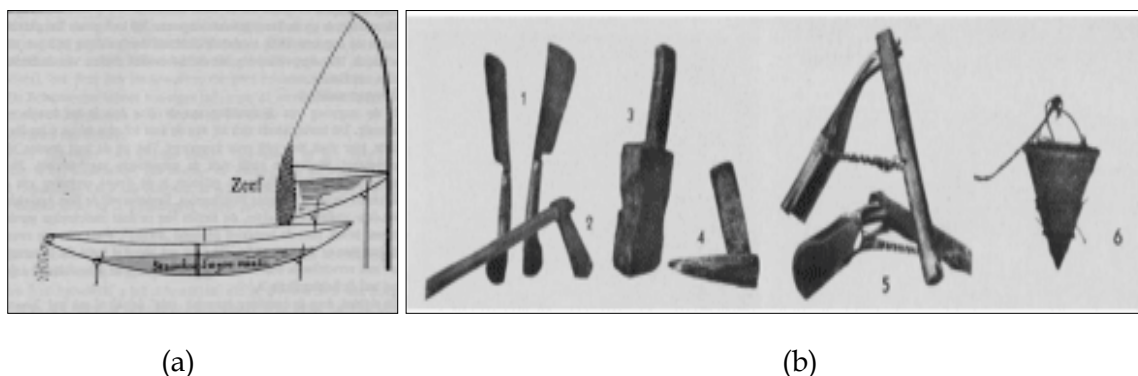


Figure 1. Processing of sago in Moluccas. Scheme of sago flour extraction (a) (Soetrisno 1944). Sago processing tools (b), machete (1), grass-chopper for cutting weeds (2), wooden mallet (.3), wedges (4), beater (5), and water bucket (6) (Deinum and Setijoso 1932).

In ecological aspects, sago processing is prioritizing sustainability of environmental, especially waste management. Sago processing on a small scale traditionally does not have an impact on environmental problems, but the processing of sago which is carried out by large-scale companies produces waste that pollutes the environment. Sago processing waste includes solid waste (sago stem bark and sago dregs) and liquid waste. Generally, sago processing plants are established near rivers because sago starch extraction requires a large supply of water. Uncontrolled disposal of sago processing waste can pollute rivers and disrupt community activities.

Sago processing waste control has been carried out by community groups in Moluccas. The sago stem bark is processed into charcoal, sago pulp is used as a medium for edible mushrooms, while liquid waste is used as a source of biogas or bioethanol. The last waste handling has not been carried out optimally due to limited human resources and equipment. The government must regulate sago processing waste in Moluccas.

Using of Sago Palm

Sago palm is a multifunctional plant. The flour produced by this plant contains high carbohydrate content, so that it is used as a main food for indigenous people in Moluccas (van Eden 1875). According to Greshoff (1903), as a main food, sago flour can be processed into various products, such as *papeda*, *sagu gulung*, *sagu lempeng*, *sagu asar*, *tutupola*, *sagu biji*, *sanoli*, *uha*, *uha rabe*, *bagea*, *salamina*, and *pakusona*. These products are processed in various ways and they are commonly found in Central Moluccas (Table 2).

Table 2. Traditional products of *sago* in Central Moluccas

Name	Description	References
<i>Papeda</i>	Sago flour is added boiling water to form a gel	Greshoff 1903
<i>Sagu lempeng</i>	Sago flour is baked in ceramic oven (locally named <i>forna</i>) as a template.	Greshoff 1903
<i>Sagu asar</i>	Mixture of sago flour, coconut milk and sugar than roasted	van Burg 1904
<i>Sagu buruwa</i>	A type of small sago	de Stuers 1846
<i>Sagu buksona</i> (<i>pakusona</i>)	Sago flour is added coconut milk, sugar, salt, pepper, and cinnamon then wrapped in sago or young banana leaves and put in boiling water	de Stuers 1846
<i>Sagu paluku</i>	Hand-shaped sago flour roasted	van Burg 1904
<i>Sagu babunga</i>	Baked sago uses a flower or animal models as template	van Burg 1904
<i>Sagu tutupola</i>	Roasted sago uses bamboo as template then slices into	Greshoff 1903

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	cylindrical shape	
<i>Sagu plos</i>	Roasted sago is added salt	van Burg 1904
<i>Sagu biji</i>	Pearl sago, wet sago flour which is filtered to form small grains	Greshoff 1903
<i>Bubur nee</i>	Pearl sago is cooked with coconut milk and palm sugar	Greshoff 1903
<i>Sanoli</i>	Mixture of sago flour, grated coconut and salt is then heated using a frying pan	Greshoff 1903
<i>Uha</i>	Roasted sago in fresh sago leaves	Greshoff 1903
<i>Uha rabe</i>	Sago flour is added grated coconut and palm sugar in sago leaves	Greshoff 1903
<i>Bagea bulat</i>	Round-shaped <i>bagea</i>	Deinum and Setijoso 1932
<i>Bagea panjang</i>	<i>Bagea Ternate</i> , long <i>bagea</i>	Deinum and Setijoso 1932
<i>Bagea gula</i>	Sagu flour is added sugar then roasted	van Burg 1904
<i>Bagea Suli</i>	Long <i>bagea</i> is wrapped in sago leaf.	Deinum and Setijoso 1932
<i>Salamina</i>	A kind of short-size <i>bagea</i>	van Burg 1904
<i>Sarut</i>	Mixture of sago flour, grated cocnut, and palm sugar then roasted	Timisela 2006
<i>Sagu tumbuk</i>	A mixture of dry sago flour, walnuts and palm sugar (<i>gula Jawa</i>) that is pounded until release the oil and then wrapped using kite paper	Adriani 1906

Papeda is usually made in a container called *sempe*. After adding boiling water, sago flour was stirred using *aru-aru* until form a gel. Some people add vinegar, so that it is more tense and has a brighter color. This food is served with *gata-gata* (as a spoon) made from two slices of bamboo stems (Deinum and Setijoso 1932). *Papeda* is usually consumed with *ikan kuah kuning* (yellow fish broth). It is a fish cooked with several seasonings, such as chili, ginger and turmeric. This food is commonly known as a culinary from Moluccas (Houten and Greshoff 1907)

Sagu lempeng is processed by many people in Saparua island and Piru (West Ceram) (Timisela 2006). This product is often added grated coconut and palm sugar on one side, so it is called *sagu gula* (sugar sago). Europeans preferred this product as a breakfast meal than bread during the colonial period in Ambon (de Stuers 1846). Other processed products that very popular are *bagea*, *serut* and *sagu tumbuk*. These three processed products are often used as souvenirs brought when traveling outside Moluccas regions. *Bagea* has a very diverse shape and composition (Figure 2) *Bagea*, *serut* and *sagu tumbuk* are produced by the people in Ihamahu village (Saparua island) (Timisela 2006).

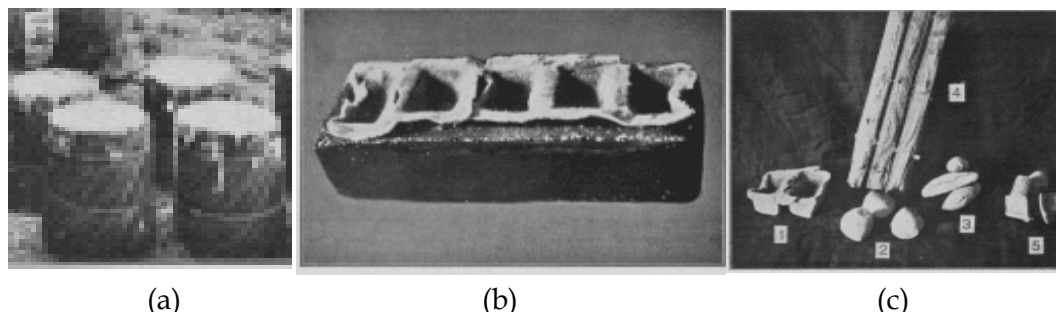


Figure 2. Sago processed products in Central Moluccas. *Sagu mantah* (a), *sagu lempeng with forna* (b), various sago processed products (3), *sagu lempeng* (1), *bagea bundar* (2), *bagea panjang* (3), *bagea Suli* (4), and *tutupola* (5) (Deinum and Setijoso 1932).

Beside it flour is used to make various food products, stalk and leaves of sago trees are also used to construct baileo (meeting house) and traditional houses. Stalks of sago tree that have been cut and dried (locally named gaba-gaba) can be used as walls and various furniture in the house. Generally, all types of sago leaf stalks can be made gaba-gaba to build a house, except sago molat (Soetrisno 1944). According to Kopstein (1926), the Ambonese traditional house consists of three types, i.e. (1) rumah atap (roof house) (all parts of the house use sago leaves), (2) rumah sosi (wall from gaba-gaba and roof from sago leaves), and (3) rumah sasak (wall from bamboo and roof from sago leaves) (Figure 3). Rumah atap is the most primitive house in Ambon (Figure 3). The best of gaba-gaba house usually uses wood as a cantilever (Dutch: rigchel). This house can be inhabited for up to 15 years (de Stuers 1846).

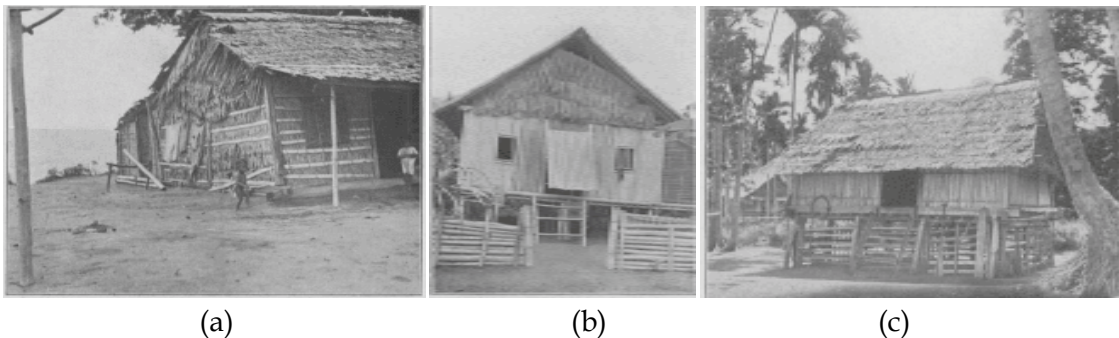


Figure 3. Traditional houses in Central Moluccas. *Rumah atap* (a), *rumah sosi* (b), *rumah sasak* (Kopstein 1926)

3. METHOD

This study used the descriptive qualitative research design to describe the processing and using of sago in Moluccas. Data was collected from direct observations and documentation from volunteers in several villages only in Central Moluccas, i.e Hila Village (Ambon Island), Tuhaha and Ouw Villages (Saparua Island), and Kamarian and Iha-Luhu Villages (West Ceram), and Geser and Gorom islands (East Ceram) (Figure 4). The information was also collected from elders and volunteers in other areas. The results were analyzed based on geographical and cultural differences of each regions and supported by a literature review.

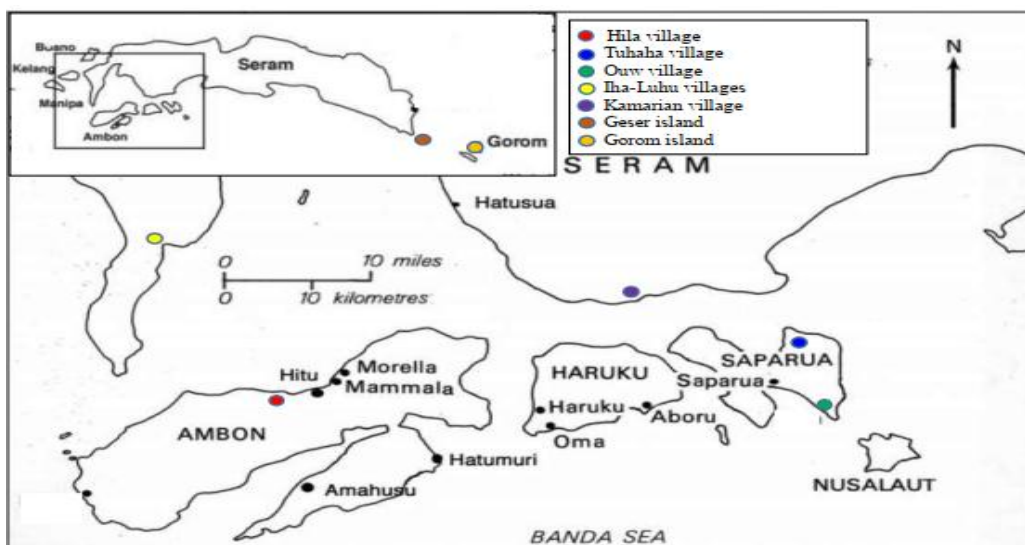


Figure 4. Location of research

4. RESULTS AND DISCUSSION

Sago Palm in Ambon Island

The highest distribution of sago trees is found in Leihitu District, Ambon Island. Generally, processing of sago in Ambon Island has used a machine, but in Leihitu villages the tradition of *pukul sago* was still conserved. In Hila village, the tradition of *pukul sago* (locally named *paanani lapia*) is carried out independently or together. Beside it has economic benefit, *pukul sago* has also socio-cultural values to help one another in community. This tradition is usually done when people die in the village called "*paanani lapia enan mansia mamatat*" (sago beating for a dead person). Sago flour that has been extracted given to the mourning family.

Sago flour that has been extracted from the sago palm was packaged in a cylindrical basket from sago leaves called *lepia tumane* or *sago tumang*. This sago flour can be processed into *sago lempeng* (locally named *paputi*) (van Hoevell 1877), *uha* and *sagu buksona*. *Uha* is a mixture of sago flour, grated coconut and fish wrapped in sago leaves then roasted (Figure 5a and 5b), while *sagu buksona* (*baksono*) is sago flour mixed with grated coconut then heated and added palm sugar (Figure 5c). *Uha* is usually consumed with cooked fish using nutmeg slices called *ikan kuah pala* (nutmeg fish soup). In Mamala village (another village in the Leihitu District), the processing of *uha* is often added coconut and banana slices to increase the flavor of this product. The addition of these ingredients also to attract consumers when the product was sold. In addition, *uha* is also often mixed with sago caterpillars. Sago caterpillars are red coconut beetle larvae (*Rhynchophorus ferrugineus*) which are usually found on decomposed sago tree trunks. The addition of sago caterpillars to *uha* to increase nutritional value because these animals have high protein and fat contents.

Beside it flour is used as basic material to process various products, the Hila people also uses stalks and leaves of sago tree to build traditional houses, *baileo*, and worship houses. The leaf stalk is used as a *gaba-gaba* (*upae*), while the sago leaf is used as the roof of the house (locally named *atee*) (van Hoevell, 1877). In this village can found two worship houses which are famous destination of cultural tourism in the Leihitu Peninsula, i.e. Mapauwe mosque (Figure 5d) and the Immanuel old church (Figure 5e). Both of these buildings still use roofs from sago leaves.

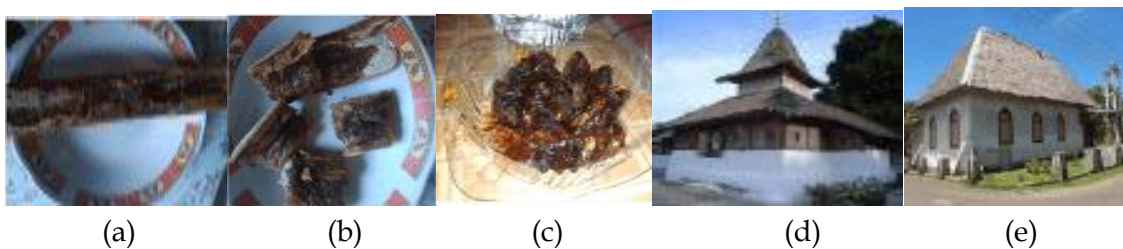


Figure 5. Using of sago palm in Hila village, Ambon Islands. *Uha* (a), *Uha* that has been opened (b), *sagu buksona* (c), Mepauwe mosque (d), and Immanuel Church (e).

Sago Palm in Saparua Island

Generally, indigenous people who inhabit in Saparua island consider sago (locally named *lepial*) as main food, such as rice for Javanese. One of the sago processing center in this island is located in Hatawano Peninsula. Traditional sago processing in the peninsula is not different from other villages in central Moluccas. The tool used to beat the sago pith is

made from wood and bamboo called *lemek*, while the container used to hold the crude sago is made from midrib of sago tree (locally named *sahani*). The crude sago was then filtered using a midrib thin layer (*runut*) of coconut. After the filtration process, sago was collected in a container called *ipoul* (some people called *goti*). *Ipoul* is made from a half of sago stems that has been cut longitudinally (van Ekris 1864). The most of terms in sago processing have been rarely used in community.

One of the village in the Hatawano peninsula that processes sago as food is Tuhaha. The most type of sago that is widely grown in this village is short spiny sago with white flour. The sago processing using traditional tools has rarely been done in the Tuhaha village. The old sago tree was cut down using a sawing machine and the flour was extracted using a modified grated coconut machine. The device for filtering flour of sago is a mosquito net, while the precipitate of sago is collected in a container from a half of sago stem which is covered with tarp (Figure 6a). Unfiltered sago fiber (locally named *ela*) is used to coat sago flour in *tumang*. *Tumang* is made from 10-15 sago leaves. *Ela* is a good medium for the growth of mushroom (*Volvariella* sp). The high nutritional content of this fungus causes it is often consumed by the people. Generally, processing of sago in the Tuhaha village involves only people in a family. This is due that processing using machines requires less workers. The *pukul sagu* tradition that involves many people is generally no longer found in this village.

The extracted sago flour can be processed into various food products in Saparua. These products are generally used as snacks, such as *sagu lempeng*, *sarut*, *bagea*, and *sagu tumbuk* which are widely marketed in Ambon. *Sagu lempeng* produced by the people of Hatawano Peninsula, including Tuhaha and Ihamahu villages are small size (Figure 6b). Ihamahu is a center of sago products processing, including *sagu lempeng*. *Sagu tumbuk* is dried sago flour which is crushed together with walnuts and palm sugar until releases oil (Figure 6c), while *serut* is a mixture of roasted sago flour, palm sugar and grated coconut. The materials used to make *serut* can be roasted in a pan into another product called *karkaru* (Figure 6d). The palm sugar that is used to make these products comes from palm juice, so it is also called *gula aren*.

Stalks and leaves of sago tree are also used to build houses and *baileo*. Generally, *baileo* in Saparua island uses a roof from sago leaves. Dried leaf stalks are called *upalo* (van Ekris 1864) but some people called *gaba-gaba*. *Gaba-gaba* can be arranged into a wall of a house called the *gaba-gaba* house (like *rumah sosi* in Ambon). This house is a traditional house of indigenous people who live in Saparua island (Figure 6e). The walls of *gaba-gaba* are usually painted white to make it look brighter (Schroder 1888). The construction change into concrete house cause the function of *gaba-gaba* houses is only as a *walang*, a bivouac to maintain the harvest in the forest.

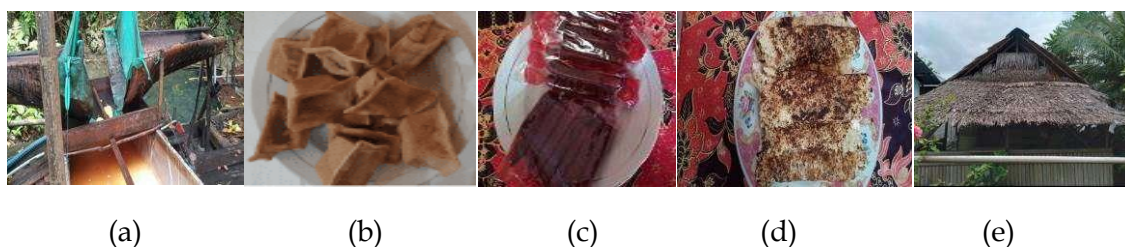


Figure 6. Processing and using sago palm in Tuhaha village, Uliaser Islands. Filtration of sago starch in *goti* (a), *sagu lempeng* (b), *sagu tumbuk* (c), *Karkaru* (d), and *gaba-gaba* house (e).

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The use of sago as main food is also found in the southeastern peninsula of Saparua Island (Sirisori, Ullath and Ouw villages). Although most people in this region have used machines to grate sago, some people still use *nani* as a beater. *Nani* is made from a piece of wood that is connected with bamboo to form a right angle. Between wood and bamboo tied with a rope, so that bamboo does not separate (Figure 7a). Ouw village is ceramics production center in central Moluccas that is often called "village of *sempe* (a type of ceramic). Various ceramics are made from a mixture a clay and forest sand, including various *forna* and *sempe*. *Forna* (ceramic oven) is a template that is used to make *sagu lempeng* (Figure 7b), while *sempe* is a container used to serve *papeda* (Figure 7c). *Forna* is usually a simple rectangular block with 5 or 6 slots. This oven is distributed widely in Ambon and Uliaser Islands (Haruku, Saparua, and Nusalaut) (Elen and Latinis 2012). The *sagu lempeng* produced by the Ouw community is larger than *sagu lempeng* from Hatawano peninsula community (Figure 7d). Beside it can own consumption, these products are usually sold in Saparua village on certain days (locally named *hari pasar*), i.e Monday, Wednesday and Saturday. *Baileo* of Ouw village also still uses a roof from sago leaves (Figure 7e).



(a) (b) (c) (d) (e)
Figure 7. Processing and utilization sago palm in Southeast Saparua. Sago beater (*nani*) from Sirisori village (a), ceramic oven (b), *sempe* (c), *Sagu lempeng* (d), and *baileo* of Ouw village (e).

Sago Palm in West Ceram

The highest density of sago trees is found in Moluccas, especially Ceram Island (Karim, Tie, et al. 2008). One of the sago processing regions in western Ceram is Kamarian village. The types of sago trees in this village are dominated by *sagu tuni* (*M. rumphii* Mart) and *sagu ihur* (*M. sylvester* Mart). These trees grow in tidal areas, marshy to dry plains. Traditional sago processing in the village is not different from other villages in Central Moluccas. The watering process was requiring water taken using *gona-gona* (cone-shaped water bucket), while the basket to store unfiltered fiber (*ela*) from the skin of a young leaf stalk called *timbil*. The tradition of *pukul sago* has been rarely found in Kamarian village because sago processing uses more machinery. Sago flour that has been extracted is usually packaged in sago stem bark while the unfiltered fiber is usually used as organic fertilizer by farmer groups to grow crops. The packed sago flour is called *sagu mantah* or *sagu tumang*.

Sagu Tumang can be processed into various food products for consumption. The simplest product that is always consumed is *papeda*. *Papeda* is sago flour which is added boiling water, so that it expands to form a gel. Other processed sago products that are often made by the people are *uha* and *bagea panjang*. *Uha* is sago flour wrapped in sago leaves and then roasted. If the sago flour added coconut milk and palm sugar is called *uha rabe*. *Uha* that has been wrapped is usually tied using a rope from slices of young sago leaf stalks. *Bagea panjang* (in another village called *bagea Suli*) is sago flour which is added grated coconut and cinnamon then wrapped in elongated shape using sago leaves and roasted. *Uha* usually stabbed using sticks from coconut leaf bone, so that it not separated from the

sago leaves. (Figure 8a). *Uha* is only produced in sago processing places and is rarely sold in the village, while *bagea panjang* is still produced by the people. *Bagea panjang* is usually sold in the village as a meal with tea in the afternoon. Beside it processed into various sago products, the people also sell sago flour to the market to increase family income. The people of West Ceram also use stalks and leaves of sago tree to build traditional houses and *baileo* (Figure 8b). In addition, sago leaf stalks that have dried (*gaba-gaba*) are also used to make chairs, beds, and *tapalang* (a casual seating to relax outside the house).

Other villages in Western Ceram that still process sago are Iha and Luhu in Hoamual peninsula. The dominant type of sago in this area is *sagu tuni* (*M. rumphii* Mart). According to Jansen (1939), sago trees in this area originated from Ukuhener (Airlouw) on Ambon Island. In these villages the people still process sago manually. *Sagu tumang* that is produced from sago processing is usually sold to the market or processed into *sagu lempeng*. This sago is usually soaked in boiling water then added coconut milk, palm sugar, and cinnamon, so it's easy to consume. This product is called *bubur sagu* (Figure 8c) which is a special food of the people in this region. When served, *bubur sagu* is often sprinkled with walnuts to increase delicacy of this food. Other processed products of sago in this area are *sanoli* and *bubur nee*. *Sanoli* is a mixture of sago flour, grated coconut and palm sugar then roasted in a pan, while *bubur nee* is *sagu mutiara* (pearl sago) cooked with coconut milk and palm sugar. The latter product is very popular for children.

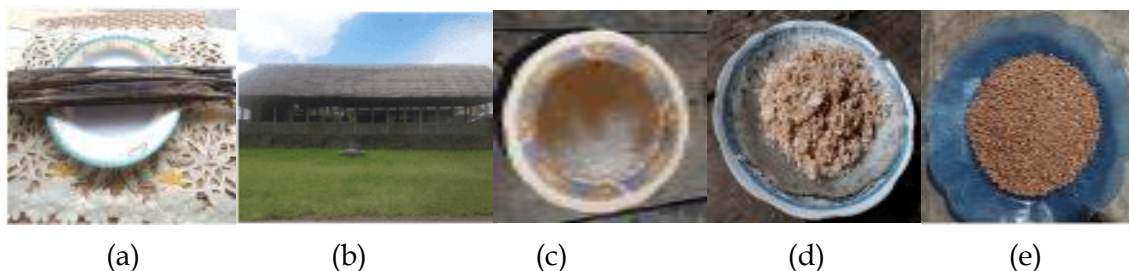


Figure 8. Using sago palm in West Ceram. *Bagea panjang* (a), *baileo* of Kamarian village (b) *bubur sagu* (c), *sanoli*, and (d). pearl sago (e).

Sago Palm in East Ceram

The processing and utilization of sago palm in Eastern Ceram is still traditional and has a lot of local wisdom. The local wisdom in this region is mostly related to religious traditions. The majority of the population of Eastern Ceram is Muslim. In Werinama village, the people still maintain the tradition of *pukul sagu* together. If a family will do the Hajj trip (pilgrimage), the people process their sago together. *Pukul sagu* as a local wisdom is conserved in this area. The tradition is also found in Gorom island. Some village in this island (such as Mida village) still maintain the tradition of *pukul sagu* together during the fasting month called "*Bo ulan tawei suat*" (Rumatiga, Pattinama, et al. 2017). The Gorom community also processes round jagged sago called *sagu bau-bau* (Figure 9a). This sago is made by mixing sago flour with walnuts and then frying it. This sago is usually made during the celebration of Prophet Muhammad SAW birthday. This product is similar to *halua sagu* (Figure 9b) made by the people in Geser island. *Halua sagu* is a mixture of sago flour and coconut milk then fried. This product is usually made when special celebration or as food souvenirs from Geser Island.

In Geser island, sago products were found to be very diverse, such as *sagu lakar* (Figure 9c), *sagu tutupola* (Figure 9d), *sagu iris* and *sagu fitrah*. *Sagu lakar* is made using a special ceramic oven as template, so it is thinner than the *sagu lempeng*. The oven is a simple rectangular block with 20 slots (Elen and Latinis 2012). This sago is usually tied 20 pieces using a rope (locally named *tali lakar*). Generally, *sagu lakar* is processed to be sold in the

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market. *Sagu tutupola* is sago flour that is processed using bamboo as a template, while *sagu fitrah* (Figure 9e) is a large and block-shaped which is given as nature (rice substitute) in the fasting month. *Sagu fitrah* is usually made the day before Eid al-Fitr celebration and is distributed during the holiday. The size of *sagu fitrah* is usually determined based on the amount of zakat that must be given by Muslims. The large size causes the sago is often sliced into small pieces called *sagu iris* and dried in the sun, so that it can be consumed for a long time.

Sagu fitrah is also known in Gorom island and Tengah-tengah village (Ambon Island). In Gorom, some people make *sagu fitrah* rather small, so that it is given to more than one to poor person. The people of Eastern Ceram also still use stalks and leaves of sago tree to build traditional houses and *baileo*. The houses that use walls from *gaba-gaba* and roofs from sago leaves are called *rumah alabaa*.



(a) (b) (c) (d) (e)
Figure 9. Using sago palm in East Ceram. *Sagu bau-bau* (a), *halua sagu* (b), *sagu lakar* (c), *sagu tutupola* (d), and *sagu fitrah* (e).

5. CONCLUSION

Sago is identity of the people of Moluccas. Processing of this plant is done manually or using a machine. Traditional sago processing is done together called *pukul sagu*. This tradition is a local wisdom passed down from generation to next generation by ancestors. *Pukul sagu* has been rarely found in villages in Central Moluccas, so it must be conserved. Sago flour can be processed into a various food product, such as *papeda*, *sagu lempeng*, *sagu tumbuk*, *serut*, *sagu buksona*, *sagu lakar*, *sagu fitrah* and various types of *bagea*. Besides it flour can used as food, stalks and leaves of sago tree are used to build traditional houses, *baileo* and worship houses.

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