

**Beronok (Meranti sea cucumber), a Meranti ethnic food culture in Indonesia**

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Received: 9 August 2022

Received in revised form: 10 October 2022

Accepted: 1 June 2023

Available Online: 29

December 2023

**Keywords:**Beronok,  
Food culture,  
Foodways,  
Indonesian food,  
Traditional food practices**DOI:**[https://doi.org/10.26656/fr.2017.7\(6\).416](https://doi.org/10.26656/fr.2017.7(6).416)**Abstract**

Meranti, whose capital is Selatpanjang, is one of the island areas surrounded by large rivers and is directly adjacent to the sea, which means the water is salty. Meranti is designated as a national food security development area because it generates biological wealth in western Indonesia, where beronok (meranti sea cucumber) is commonly served as a side dish to various dishes. This article investigated Indonesia's meranti ethnic food culture, specifically beronok, typically consumed raw or processed. Data of this research are about beronok as a traditional food processed by the Meranti community made into a variety of food such as mpek-mpek, nuggets, meatbals, sausages and soups by using some steps of cooking and seasonings. The results of this investigation show that Beronok is one of the seafood and traditional food products that have the potential to generate additional valuable resources and generate a sustainable income for the community. Beronok is typically consumed raw, but is generally processed into wet foods such as 'mpek-mpek', 'nugget', 'bakso', 'sisis' and 'sup' or dried processed foods to be reused as flour. The research also showed that the Meranti people maintained their traditional food culture called "beronok" from the past to the present by utilizing their surrounding natural resources.

**1. Introduction**

Meranti is a national food security development priority area due to its biological diversity in western Indonesia. Located at coordinates between  $0^{\circ} 42' 30'' - 1^{\circ} 28' 0''$  North Latitude and  $102^{\circ} 12' 0'' - 103^{\circ} 10' 0''$  East Longitude with an area of 3707.84 km<sup>2</sup>, and is located on the coast East of Sumatra Island with the beach bordering a number of neighboring countries, Meranti is included in the Indonesia - Malaysia - Singapore Economic Growth Triangle (IMS-GT) area and has indirectly become the Hinterland Free Trade Zone (FTZ) area is Batam - Tj. Karimun Hall. To take advantage of the opportunities and advantages of its geographical position and encourage economic growth in the border areas with neighboring Malaysia and Singapore, the Meranti is very functioning as a Cross-Border Gate or International Gateway that connects mainland Riau with neighboring countries by sea. This is to complement the city of Dumai, which was previously designated and functions as a city center for the State's Strategic Activities, which serves as the front porch of the State, International Gateway, commerce, and industry (Figure 1).

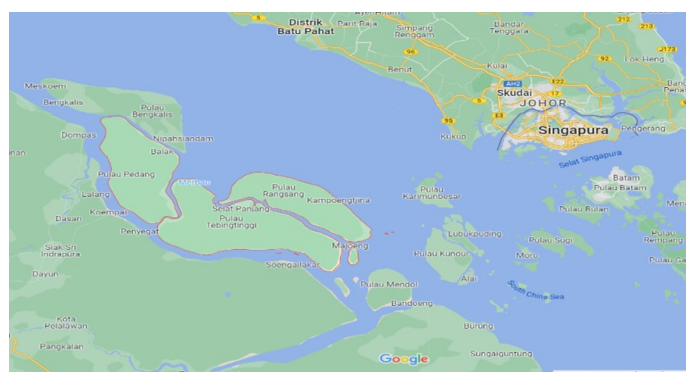


Figure 1. Meranti island.

In March 2022, Meranti's export value was US \$1.96 billion, while the import value was US \$295.78 million (Meranti, 2022). As a result, it can be concluded that the Meranti regency enjoys food stability (Mustafa, 2018). To boost it, the government is constantly promoting the use of natural products from the Meranti Regency, particularly sea cucumbers. Meranti Islands maintains and develops sea cucumbers due to its suitable geographical location and indigenous knowledge of hereditary cultivation (Sumarto *et al.*, 2021). Teripang Meranti, or the Meranti community, which refers to beronok, has been using it for a long time. Additionally,

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beronok has sufficient economic value to benefit the surrounding community when used properly and with sufficient effort.

Beronok is an original natural result of Meranti (Keriming, 2017). Therefore, it is one of the seafood and traditional food products that has the potential to generate additional valuable resources and generate a sustainable income for the community. Several significant factors contribute to the economic value of sea cucumbers in Meranti, including their potential as a source of marine biopharmaceuticals and as a health food and their use as raw materials in various industries countries (Mukti and Elida, 2018). Additionally, the legacy of the traditional food beronok continues to exist, and its eating habits have remained relatively unchanged.

Sea cucumbers are marine invertebrates with soft bodies belonging to the Holothuroidea class (Pangestuti and Arifin, 2018). It has rough skin and an oblong-shaped body with gonads that are only one-pronged (Aminin et al., 2016; Latief and Ahmad, 2018). Beronok has a high protein content. It has sodium (Na), potassium (K), calcium (Ca), phosphorus (P), and microminerals such as iron (Honey-Escandón et al., 2015). It has high protein which is useful in muscle and nerve function (Hari Adi Rahmad et al., 2021a; Hari Adi Rahmad et al., 2021b). In traditional Chinese medicine, sea cucumber is generally known to be useful for smoothing blood circulation, preventing the narrowing of blood vessels due to cholesterol, launching kidney function, improving metabolism, preventing arthritis, diabetes mellitus, hypertension, accelerating wound healing, formation, and strengthening muscle function and traditional antiseptics (Chen, 2003; Wang et al., 2009). Beronok is typically consumed raw, but traditionally beronok (Meranti sea cucumber) are generally processed into wet foods such as 'mpek-mpek' or dried processed foods to be reused as flour. Currently, natural food production accounts for a smaller portion of global food production (Alexander et al., 2011). As a result, natural resources are underutilized, and some forest and sea-based species gradually vanish from cultivation (Chong et al., 1987). People are also losing knowledge about their food as a result of non-use. Meranti's existing food culture teaches us how to look for and utilize naturally occurring resources for improved nutrition and health status; one of them is consuming beronok (meranti sea cucumber).

Scientific research has recently validated the health benefits of sea cucumbers and established the value of drugs such as wound healing, neuroprotective, antitumor, anticoagulants, antimicrobials, and antioxidants (Pangestuti and Arifin, 2018). Therefore, this functional material may be used in various food and biomedical industries. Besides its medicinal properties, sea

cucumber is an excellent way to supplement the nutritional needs of athletes who engage in excessive activity (Maughan et al., 2004; Guo et al., 2016). The energy required for athletes' muscle work is derived from carbohydrates, fats, and proteins (Hari Adi Rahmad and Rahmat, 2021c). Still, protein is the primary source of muscle strength in humans. As each job and activity requires stable nutrition, sea cucumber, with its high protein content, may be one of the options for replacing the proteins required by the body (Liu et al., 2009; Shi et al., 2013).

The public's health is heavily influenced by consuming their daily meals (Muller et al., 2009). The change in traditional food culture has occurred in tandem with the development of the human race. Geography, climate, seasonal changes, type of soil, water source, forest region, agriculture, immigrants, and working patterns of the local population all play a role in determining the change. Traditional food culture is an experiential system that evolves over generations (Kwik, 2008). Food's significance goes beyond simply satisfying hunger. But it has a broader significance and plays an important role in almost every aspect of human life, whether in family, social relationships, festivals, or religious rituals (Iwasaki, 2007). Nutritious traditional foods can help maintain and protect health while providing the best possible nutrition for the people who consume them (Saleh et al., 2013; Shukla, 2021). Non-original food in this region should not be adopted in the name of globalization because doing so is unscientific and could have an impact on one's health. Western diets are replacing traditional diets, becoming the leading cause of the rising burden of noncommunicable and lifestyle-related diseases (Abdul Rahim et al., 2014). Each traditional food culture has a long history and it is the safest food for the local populace to consume.

Though rice and sago are the Meranti people's staple foods, they consume seafood as a source of protein. Due to the abundance of natural cover in the state, the Indonesian people have developed the wisdom to meet their needs through available natural resources. This is particularly evident in Meranti's ethnic food culture. Indonesia is the world's largest archipelago, with 17,504 islands, an 81,000-kilometer-long coastline, and a sea area of approximately 5.8 million square kilometres (75% of Indonesia's total area) (Kurniawan, 2015). Stretching along the equator, it has abundant and diverse biological resources on land and sea. This biological wealth must be maximized for the benefit of the Indonesian people. For example, sea cucumber, also known as sea ginseng, is one of the marine products with significant economic value (Lawrence et al., 2010; Ochiewo et al., 2010; Anderson et al., 2011; Bordbar et

al., 2011).

Several significant factors contribute to sea cucumbers' economic value, including their potential as a biopharmaceutical source of marine products and health food and their use as raw materials in various industries in various countries. In addition, sea cucumber is a potential export commodity for the fishery subsector. However, sea cucumber consumption in Indonesia is relatively low and less popular than other fishery products. Furthermore, sea cucumbers have a low aesthetic value due to their appearance, which appears disgusting, though they contain a high protein content (Pangestuti and Arifin, 2018).

Beronok or Meranti sea cucumber is unique, interesting, and distinct from the presence of sea cucumbers in other areas because it is a type of natural wealth found in brackish water. However, traditional foods such as beronok or Meranti sea cucumber, the indigenous food of the Meranti Islands Regency area, have not been processed correctly or adequately by the local community. Additionally, it has a low economic selling power compared to other sea cucumber species. Therefore, while the processing is limited to daily necessities, it serves a significant economic function for the community and the Meranti islands regency. Additionally, given the beronok content, processed sea cucumber meranti is a good candidate for testing as processed healthy food and a supplement for athletes. So naturally, the description above paints an intriguing picture for discussion, piquant researchers' interest in peeling and conducting in-depth research on beronok or sea cucumber Meranti, as a traditional food commodity in society.

This study aimed to delve into the distinctive features of beronok or Meranti sea cucumber, as a natural resource thriving in brackish water in Meranti. Additionally, the research focused on the preservation of the Meranti people's traditional food culture, examining how they have sustained it over time through the utilization of their surrounding natural resources. This practice can also contribute significantly to Indonesia's national food security development, holding economic importance in the local community and the Meranti Islands Regency. So, it underscores, that beronok's dual role as a traditional food commodity and a promising option for healthy food processing and athlete supplementation.

## 2. Methodology

An ethnographic study was conducted between February 2021 and February 2022 to find out people's habits and see them more deeply (Rahmat et al., 2022;

Maryelliwati et al., 2022) using face-to-face fieldwork (Metro, 2014) to understand Meranti's food culture. It was conducted using face-to-face fieldwork. It used open-ended questions about the type of food preferred, how it is prepared, seasonal changes in food consumption, and food items' expected health benefits during semi-structured interviews (Rutter and Smith, 2002). Wherever there was a perceived need, specific details were elicited. Re-visits were also made as necessary. In Meranti, the 'selat panjang market' (local village market) is held in villages on a rotational basis on different days of the week. Visiting these regional markets and interacting with the local populace provided a beronok and facilitated local collection. Village officers aided in establishing connections and friendly communication with the local people. After obtaining written informed consent, eight females and seven males were interviewed. According to the circumstances, both audio recording and transcription were used. The collected data were cross-referenced to their natural source and published in scientific articles in government, media, and scientific journals.

## 3. Traditional recipe based on Beronok in Meranti

### 3.1 Mpek-mpek

Mpek-mpek (Figure 2) is a traditional Palembang - South Sumatra dish. However, because this food is already a nationwide dish, the variant takes place throughout the country, including Meranti. In Palembang, this mpek-mpek is traditionally made with fish and sago, but for some reason, in meranti, many people now make them with beronok. However, the seasoning and final product is less delectable than mpek-mpek made in Palembang fish. Mpek-mpek is a chewy textured food that is typically consumed with vinegar soup. When preparing meranti mpek-mpek, the following ingredients are used: tapioca flour, wheat flour, salt, flavoring, eggs, cooking oil, and, of course, and mashed beronok. Warm water, flour, and remaining ingredients were mixed well, boiled and add a pinch of salt and oil to prevent the mpek-mpek from sticking. Once, the mpek-mpek has formed, set it aside to cook



Figure 2. Mpek-Mpek Beronok (Source: Pairat, 2021).

and float before serving.

### 3.2 Nugget Beronok

Nuggets made of beronok (Figure 3) are nuggets formed from a snuffed-out or refined swarming piece. Besides being hassle-free, it is traditionally made in Meranti. It is very easy to make. First, mix “beronok” and the ingredients into a container. The ingredients are egg white, flour, garlic, pepper, sugar, salt, flavoring, and cooking oil. Then, stir it all and move it into a pan. Next, steam it for 30 minutes or until it is well-cooked. After that, it is lifted and cooled. When it is cool, cut the nuggets into pieces, put them into the mixed-egg, roll them into the flour, and put them into hot oil. Nugget is a highly nutritious food material, which is well-known by Indonesian people and Meranti people. It is consumed by any level of society and different ages. This creative food could increase someone’s appetite. The composition could make various nugget taste and shape and it makes people keep enjoying it. The beronok nugget can be a food business option for Meranti people. It is necessary to try because it could inspire the people as one of the livelihoods for the Meranti people.



Figure 3. Nugget Beronok (Source: Novianti, 2019).

### 3.3 Bakso Beronok

Meatballs are a ubiquitous food item in Indonesia, found almost universally in regional specialities. It is often served at family gatherings and has become a habit among Indonesians to foster a sense of community, especially to provide entertainment for guests. According to the Meranti people, the first Meranti meatballs were brought to the island by the ancestry of Chinese traders. Meatball holds a special place in the hearts of many people, including the people of Meranti. Until recently also subjected to cultural mixing or acculturation by various ethnic groups in Indonesia, not the least of which was the Meranti. It is a dish anyone can enjoy at any time and location. Even today, numerous high-quality and convenient processed meat products are available. The people of Meranti have beronok that, in addition to meatballs made from processed meat, can also make it

from processed beronok, which is a novel twist on the traditional method (Figure 4).



Figure 4. Bakso Beronok (Source: Fatoni, 2021).

Making meatball is not difficult to do. It is quite simple, although it uses beef or “beronok”. The materials and ingredients are ground beef, starch, mineral water, salt, garlic powder, pepper powder. First, mix the beronok ground beef, starch, salt, garlic, and pepper powder. Keep mixing it by adding a bit water until the dough becomes smooth. Then, heat up a bit water until it boils and knead the dough. After that, boil it for 10 minutes with a constant stirring to make the meatball look good and round.

### 3.4 Sosis Beronok

Sausages are one of the most popular meat preparations globally and are enjoyed by people worldwide. As well as being delectably delicious, It is also reasonably practical and very easy to incorporate into a variety of cuisine menus, or they can be turned into snacks that are both delicious and simple to prepare. Given its widespread availability, it will not be difficult to find a variety of processed sausages sold everywhere, from roadside stands to restaurants. However, it is rarely processed by the people of Meranti, owing to the widespread availability of sausages on the market. The fact that if sausages are to be traded, purchasing sausages from supermarkets or mini-markets is the most convenient option.

In contrast, for the people of Meranti, if they want to make sausages from Beronok, the procedure is the same as it is for making any other home sausage. The ingredients for the finished product are beronok mashed, eggs, wheat flour, kanji flour, refined shallots and whites, salt, sugar, pepper powder, and plastic ice wax (long plastic). First, combine all the ingredients in a large mixing bowl and stir until well mixed. Next, tie one end of the plastic wrap around the dough and place it in the plastic wrap. By pressing on the plastic, try not to create a cavity, and do not forget to tie the other end of the string. If the dough has been completely wrapped, bring the water to a boil in a saucepan. After the water has

boiled, turn the heat down to low and add the sausages, allowing them to float until they are done (the mark is cooked). Next, remove the sausage and place it in ice water for 1 hour. After that, it can be stored in the refrigerator or consumed immediately. Sausages made of beronok (Figure 5).



Figure 5. Sosis Beronok (Source: Wisnugroho, 2018).

### 3.5 Sup Beronok

When major events such as Chinese New Year and large events of the Tionghoa in Meranti, sop Beronok becomes one of the dishes that can be found on the menu. It is a gravy food that tastes good and savory gravy certainly makes this one food often targeted. It is usually possible to add a mixture of fish or chicken, vegetables, or other ingredients to the Beronok soup, which is made by boiling the ingredients with seasoning. The beronok must be completely soft during the process to be able to produce a delectable soup afterwards. Beronok soup is displayed with a combination of beronok and vegetables. It is served right away after it boils to the mug. There is no topping to be put on the soup. Although its display is not interesting, the presentation and the taste are always tried to be well-maintained. Because the physical form is less appealing and, in some cases, ludicrous to some, the process is optimized to the greatest extent possible.

The delicacy of the Beronok soup is found in how its basic ingredients, the Beronok and the seasoning potion, are cooked during the boiling process. Beronok is usually combined with other ingredients, such as vegetables during making soup after being boiled. The broth for soup making is typically clear and watery, and the filling for soup is a mishmash of different ingredients. The following are the raw materials used in the production of beronok sop. Choose a beronok that is ready to cook or that has been boiled, and then cut it to your desired size (recommended with small pieces). Season with salt and pepper, and cut up some complementary vegetables such as mushrooms, potatoes, shallots, and garlic. To prepare it, boil the water and then add the beronok cutlets, pieces of complementary vegetables such as mushrooms, leek slices, potatoes,

shallots, and garlic, salt, and pepper to taste, and cook until the cutlets are cooked through. After that, add the leeks and serve while it is still hot (Figure 6).



Figure 6. Sup Beronok (Source: Crishtubella, 2016).

## 4. Discussion

Traditional food is a typical food or characteristic of a region in Indonesia. Typical food is the identity of an area that can distinguish existence from other areas. The locals heavily influence the processing, and the taste aligns with the local culture. Since ancient times, traditional food has grown and developed; even every region has it. From Sabang to Merauke, each region has its uniqueness and distinctiveness in traditional food and the heritage of their respective ancestors. Traditional food is processed food that comes from a certain area, following the results of the area and according to the daily needs of the local community. Food that grows and develops in a particular area is usually taught hereditary, and recipes and tastes are taught from one generation to another. Therefore, traditional food is an invaluable heritage with uniqueness and wisdom.

Because the processing process and taste are very closely related to the people of each region, this traditional food can also be used to measure the characteristics of a particular region. Indonesians strongly believe, in general, that it is typical of various traditional foods. Traditional foods of tempeh, tofu, garlic, honey, ginger, green beans, sea fish, and land fish are all-natural, nutritious, healthy, safe, affordable, and easy to obtain. They are believed to have good nutritional value.

However, traditional processed food menus are generally not nutritionally balanced. This food is preferred because of its taste, texture, and aroma. Similarly, regional food habits are generally resistant to change, even when ethnic or community members of an area move. Traditional Indonesian food is influenced by people's eating habits and integrated into the socio-cultural systems of various ethnic groups (Megawati and Wahyuni, 2017; Tiawati *et al.*,

2022). With diverse basic ingredients, it is possible to produce a variety of traditional foods so that they become delicious and nutritionally balanced (Ottman *et al.*, 2023). Similarly, the processing methods vary, including burning/baking, fumigating, cleaning, steaming, frying, sautéing, and others.

Indonesia has rich and very diverse food, and its variety of foods is closely associated with social identity, religion, and cultural influences (Rianti *et al.*, 2018; Wijaya, 2019). There are many modern versions of food available in Meranti. Still, in addition to being considered more modern, the food available in Meranti is generally considered less preferred because people have the same general perception of traditional and modern foods, namely in terms of economics and process.

Due to the country's equatorial location, Indonesia's geographic location on the equator has resulted in abundant and diverse biological resources, both on land and in the sea (Putra *et al.*, 2021). This biological wealth must be exploited to benefit the Indonesian people and their environment to the greatest extent possible. One of the marine products with significant economic value is a sea cucumber, also known as sea cucumber, teat fish, and sea ginseng, among other names. Some important factors contribute to the economic importance of sea cucumbers, including their potential as a biopharmaceutical source of marine products and health food and their use as raw materials for various industries in various countries. In addition, sea cucumber is one of the export commodities of the fishery sub-sector, and it has a lot of potential as an export commodity. However, the consumption of sea cucumber as food in Indonesia is relatively low and less popular compared to other fishery products. This is because sea cucumber has a low aesthetic value based on their physical form of sea cucumbers, which appears disgusting. Still, sea cucumber contains a high amount of protein.

Recent scientific research has confirmed the health benefits of sea cucumbers (Pangestuti and Arifin, 2018). This research has demonstrated the value of drugs such as wound healing agents, neuroprotective agents, antitumor agents (including chemotherapy), anticoagulants (including warfarin), antimicrobials (including penicillin), and antioxidants. This functional material can potentially be used in various food and biomedical industries.

In addition to having properties in the medical field that can be used to treat various diseases, sea cucumber is also an excellent food for athletes who

engage in excessive physical activity because of its high nutritional value. The energy required for muscle work is obtained from macronutrients, including carbohydrates, fats, and proteins; however, protein is the most significant contributor to human muscle strength. In light of this statement, it can be concluded that stable nutrition is required for every job and activity; as sea cucumbers have a high protein content, they can be one of the options for possible protein sources.

The term "ethnic food culture" refers to food types, cooking methods, nutritional value, and people's cultural heritage, religious practices, and way of life. Historically, traditional foods contain knowledge passed down from generation to generation about how to prepare them so they are safe to consume. Some modifications may have been made to these foods before they were accepted into the culinary tradition (Tiawati and Maneechukate, 2021). These alterations can be found in almost every traditional food culture. The ecology and biodiversity of the various islands are reflected in the traditional foods of those islands. Modernism, urbanization, and social change pose inevitable challenges to food cultures worldwide, especially in developing countries. Unplanned urbanization has isolated a large portion of the world's population from direct food production, resulting in a shift in eating habits.

According to a new study, traditional food culture adherents are healthier than those who follow a modern diet based on processed foods, also known as "fast food". Surprisingly, people from rural areas can maintain their health despite the lack of readily available medical facilities in various situations throughout their lives. The influence of food culture on this is significant. It is evident in Meranti's food culture, and ample research data support using various animal water to prevent and manage health problems. There is a pressing need to gain a scientific understanding of the principles that underpin traditional food culture. To successfully adapt to a new type of food item that has not been traditionally consumed. It is necessary to consider the principles followed in the particular food culture. Violating the rules and blindly adopting a new food pattern may negatively affect the population's health and be detrimental to the entire traditional food system. Traditional food culture can even contribute to advancing current health science by educating people on the proper use of various herbs and food modifications when ill.

## 5. Conclusion

With its extensive water cover, the region serves as a great storage bank for various proteins, including edible wild fish and Meranti sea cucumber or Beronok, a supplementary diet for the locals and imparts a distinct flavor to their food. It can be seen that many traditional dietary ingredients are slowly being phased out of the food plate. Despite this, the ethnic Meranti people have done admirably to preserve their traditional food practices. This also suggests that the locals should stop relying on food imported from other countries and instead learn to use the natural resources that are already available. The natural world provides various safeguards, but the locals must learn to protect the environment and use its resources wisely. Protecting, reviving, and adhering to traditional food patterns can be one of the simplest and most effective ways to create a healthy society and one of the most cost-effective.

## Conflict of interest

The authors declare no conflict of interest.

## Acknowledgments

I am extremely thankful to my Supervisors, Prof. Dr. Eri Barlian, Dr. Wilda Welis, Dr. Wahyudi Rahmat and Dr. Maryeliwati, Mr. Basar and Mr. Umar, for their help in collecting information, discussing and pictures of Meranti traditional foods. Mr. Yanto and Mrs. Desi a development officers. I am also extremely grateful to the expert reviewers for their insightful suggestions.

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