



Ethnoscience Studies of The Angkola Batak Culinary in South Tapanuli Regency as An Effort to Preserve Local Cultural Values

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Abstract

This research aims to find out the types of typical food of the Batak Angkola tribe, the ingredients and processing methods for typical food of the Batak Angkola tribe, as well as explaining the original science of the typical food of the Batak Angkola tribe in an effort to develop science learning tools. This research was carried out in the South Tapanuli Regency, North Sumatra Province. This research was carried out in June-July 2023. The type of research used in this research was descriptive qualitative research. The data sources used in this research are primary data and secondary data using interview methods, direct observation of the Angkola Batak community. The results obtained in this research were various types of typical food from the Angkola Batak tribe, namely: Holat, various types of snacks including Panggelong, Lading-lading, golang-golang, Wajik and various types of processed salak fruit. The ingredients for the typical Batak Angkola regional food are obtained from the area itself. The main ingredient for making hotal is using shaved balaka plants, for making panggelong, lading-lading, golang-golang and wajik using rice flour which is produced directly in the area. Every typical Angkola Batak food production has its own science concept which is specialized in the production of each food.

Keywords: Ethnoscience, Culture, Batak Angkola, Natural Science

Introduction

The era of globalization, especially the globalization of the cultural sector, provides opportunities, especially for the Indonesian state which has a variety of ethnic groups and diverse cultures, such as traditional clothing, traditional houses, regional dances and regional cuisine. Regional culture is reflected in various aspects of people's lives in all regions in Indonesia. Each region has distinct cultural characteristics. In the national culture there is a unifying element of the Indonesian nation which is already aware of and experiencing national distribution. In it there are elements of national culture and elements of foreign culture, as well as elements of new creations or national inventions.

The rapid flow of globalization in the 21st century has caused a shift in cultural values and local wisdom. The importance of integrating culture, potential and local wisdom is strengthened by the phenomenon of diminishing community interest, in this case students, in optimizing the potential that exists in their area. The free flow of information and technology into Indonesia will erode the nation's culture if there are no efforts to prevent it. The nation's culture from the aspect of science is still not explored and socialized, even though much of the original science of the community is in the form of local traditions and wisdom that have developed in society which have been passed down from generation to generation.

Ethnoscience is an activity of transforming between the original science of society and scientific science, which is more easily observed through educational processes about everyday life developed by culture, both processes, ways and methods. In the science learning process, ethnoscience

is a strategy for creating a learning environment by integrating culture. Each region must have a local culture that can be utilized optimally as teaching materials for integrated science learning. If the local culture is used in accordance with relevant topics, it will provide various alternative activities to provide insight and knowledge for teachers and students.

South Tapanuli is a district in North Sumatra Province. The capital of South Tapanuli Regency is Sipirok. The original inhabitants of South Tapanuli are the Angkola Batak tribe, who are still closely related to the Toba Batak tribe. Apart from the Angkola Batak tribe, there are also other tribes, including the Toba Batak and Mandailing. In South Tapanuli Regency, there are many special foods that are a manifestation of the wisdom of the local community in managing and preserving regional food, such as hollat, lappet, arsik, and various other kinds of snacks.

This study aims to describe and reconstruct scientific knowledge on the various kinds of special foods from South Tapanuli, both from the type of food and also from the food processing. The original knowledge contained within the community regarding these special foods needs to be traced, explored, studied and then transformed into scientific knowledge that can be accounted for. The studies obtained will later be integrated into learning which is a form of effort to introduce students to typical foods and their processing and then be linked to scientific material and knowledge.

Learning is carried out by associating local wisdom values around students with the aim that they know the local wisdom values around them and are expected to be able to maintain and preserve these local wisdom values so that they

remain and are not displaced by outside culture and remain grounded in local cultural wisdom values. in the surrounding area as a character reinforcement so as not to lose identity. Therefore, learning science based on local wisdom is one way that can be done so that the nation's culture remains sustainable in the midst of globalization.

Research Method

The type of research used in this research is descriptive qualitative research. The data sources used in this study are primary data and secondary data using interview methods, direct observation of the Angkola Batak people. Data collection techniques are observation, semi-structural interviews. The data referred to in this study are comprehensive data regarding the unique culinary varieties found in the Angkola Batak tribe in South Tapanuli Regency. Data collection was carried out by using observation sheets, identifying the types of plants used in these various culinary types, the data collected included class, family, scientific name, local name, part of the plant used, habitus, method of processing, benefits, habitus.

Individuals who will become informants in this study are the local people of the Angkola Batak tribe in South Tapanuli Regency. Direct observations were made in the field. The main instrument in data collection is based on community knowledge as much as is obtained, with verification, reconstruction, formulation and conceptualization into scientific knowledge. After verifying the primary and secondary data, then correlating scientific studies in the processing of various typical foods of the Angkola Batak Tribe with the aim of instilling and cultivating local wisdom values. The data from the interviews were grouped based on the composition of the food ingredients used, the parts used, processing methods and techniques.

Result and Discussion

From the research that has been done, various types of typical food of the Angkola Batak tribe have been obtained, namely: various types of snacks including Panggelong, Lading-lading, golang-golang, Diamonds and various types of processed snake fruit . The research was conducted using in-depth interviews with the Angkola Batak people who live in South Tapanuli Regency. From the observations and interviews that have been conducted, information is obtained about the history of food, the ingredients used, the processing of food ingredients, and the presentation of food.

Holat

Holat is a special food served for kings in South Tapanuli in ancient times. Luckily this culinary can still be found because it has become a menu for generations of people's cuisine. Behind a plate of holat there is also a story of history, culture, politics to the traditions of the South Tapanuli people, especially Padang Bolak. Balakka, the name of the tree where the holat layer is located, is a pioneer plant in the meadows. The making of Holat uses typical materials found in North Sumatra, including the bark of the balakka plant which is usually found only in the forests of the South Tapanuli area and carp. The goldfish used in this dish is grilled/grilled first using hot coals. First of all, the inner bark of the balakka plant (*Phyllanthus emblica* L) is shaved thinly and then soaked in warm water and then squeezed several times (usually two to three times through the filter) so that a broth called 'holat' is obtained . Holat dishes also contain nutrients from the balakka plant, especially its sap which is believed by the public to contain antioxidants, although there has been no specific research on this plant and its health benefits.

The additional ingredients in making this holat are lime, ginger, chili, shallots, salt, and using carp. To add to the taste of this holat, residents of South

Tapanuli usually use roasted rice and then grind it and add it to cooking. The goldfish used in this dish is grilled/grilled first using hot coals. The energy used and the change in energy for burning fish is chemical energy, which comes from bonding compounds in the fuel (usually coal or charcoal), which is used to change to produce heat energy. When burning fish, there is a change in chemical energy, which comes from chemical bonds in the charcoal or wood that is burned into heat or heat energy.

This heat then heats the fish, causing it to cook and soften. Combustion reactions are reactions that involve oxygen. The complete combustion reaction of carbon compounds produces carbon dioxide gas and water vapor. One example of a carbon compound is glucose. If each molecule of glucose is completely burned, determine the number of oxygen molecules required for the combustion



Figure 1. Holat

Typical Sipirok snacks (Panggalong, Lading-lading, Golang-golang, Wajik, Itak Pohul)

One of the typical dishes of South Tapanuli is Panggalong. The ingredients used in making Panggalong are quite simple, namely glutinous rice flour, warm water, salt solution and brown sugar. The way to make it is first that the sticky rice is processed into sticky rice flour. In one business in South Tapanuli using a pinwheel (losung aek) to

make glutinous rice flour, it is then processed into dough with a mixture of glutinous rice flour, water and salt. Then the dough is formed flat and then fried. Then the palm sugar is melted first by heating it in the face. The fried dough will be put into the melted sugar solution.

This typical sipirok food is usually packaged using cassava leaves (*Curculigo sp.*). It has short stems, parallel leaves grow in clumps, flowers have yellow crowns, and are head-shaped, white fruit with black seeds (Sembiring, 2008). This plant can grow with little sunlight and in the shade of trees. It usually grows in dry areas and mountain slopes or valleys. Cassava leaf (*Curculigo latifolia sp.*) is a highland plant which was chosen as an alternative material for food packaging because cassava leaves have a resilient fiber and are a type of long fiber. Judging from the fiber dimension, it resembles pandanus so it is believed to be used for packing panggalong. The ingredients contained in this leaf are Curculin, gallic acid, protocatequatic acid, p-hydroxybenzoic acid, gentisic acid, chlorogenic acid, vanilla acid. Apart from being used as food packaging, this plant has several good health benefits, namely treating kidney pain, coughs, headaches, stomachaches, sore eyes, a substitute for sugar for people with diabetes, reducing fever, increasing urine.

Panggalong and golang golang food is processed and formed into a dough, then the dough is dipped in a sugar solution. the sugar is melted first by heating it in the face. Melting is a change in the form of a solid object into a liquid which also occurs in the process of making sugar, a typical sipirok food. In the manufacturing process, sugar in the form of a solid object is mixed with water and heated. The heating process will make sugar which was originally a solid object turn into a liquid object. In addition to melting, in the process of making sugar in this food there is also a change in form which is called evaporation.



Figure 2. Panggelong

Itak pohul is one of the typical foods of the South Tapanuli people which is usually consumed for traditional events and snacks on a daily basis, while the ingredients used in its manufacture are rice flour, coconut, palm sugar/brown sugar, and salt. Rice flour, which is commonly used in making itak pohul, uses flour that comes from a flour-making factory located in South Tapanuli. All of these ingredients will be mixed then formed and then steamed.

In the process of steaming itak pohul, heat transfer occurs by convection. Convection is the transfer of heat through liquids or gases. The convection process occurs in water. The water that gets hot first is the water at the bottom. Cold water has a higher density than hot water. So cold water will go down and hot water will move up. This temperature difference gives rise to convection currents. In the end, the water in the pot will be equally hot. By the time the water has boiled, the water vapor in the pot will hit the pohul itak which causes itak pohul to cook.

Rice flour, which is commonly used in making these snacks, uses flour that comes from a flour-making factory located in South Tapanuli. All of these ingredients will be mixed then formed and then steamed. Starch and amylopectin contained in glutinous rice flour make food fluffier and more filling when consumed. Not

surprisingly, processed food from glutinous rice flour is also used as a substitute for rice. Glutinous rice flour contains quite high nutrients, namely 80% carbohydrates, 4% fat, and 10% water. White glutinous rice starch contains 1% amylose and 99% amylopectin (Bellitz et al., 2008)



Figure 3. Itak Pohul

Processed salak

Salak is the raw material used in the processing of dodol, the raw material commonly used in the processing of dodol is salak whose flesh is yellowish/reddish white and the flesh tastes sweet. Separation of the zalacca flesh and seeds, this stage consists of peeling the skin using a sharp stainless knife or peeling as usual by hand while removing the water skin. Peeling and washing the skinless zalacca fruit is a process of separating the zalacca skin from the fruit flesh, in this process using a tool in the form of a paring knife and then washing it in this process to obtain clean zalacca before processing it into dodol, this process will produce clean salak that has been separated from the dirt attached to the previous salak.

Boiling the seedless zalacca flesh is done after the zalacca has been washed clean, then the salak is boiled/boiled in water using a large pot until the zalacca flesh becomes soft. Filter the soft zalacca flesh with the cooking water, after which the soft/ripe fruit is produced, then drain and cool until the zalacca flesh is without cooking water. Milling the zalacca flesh without boiling water, after the soft/cooking zalacca is produced and without residual

cooking water, it is then ground and mashed using a dodol grinding machine until it becomes smooth zalacca flesh.

Cooking, in the cooking process the first thing to do is to cook the glutinous rice flour and coconut milk, then put the ground zalacca flesh by adding granulated sugar until it becomes a dodol zalacca dough after which it is cooled. Dodol cooking takes approximately 6 hours. Printing of dodol salak dough and packaging. After the dodol salak dough has cooled, it is then printed with small pieces and packaged so that it becomes dodol salak.

In the process of making dodol salak using glutinous rice flour. The main composition of glutinous rice flour is carbohydrates, 90 percent of which is starch (Amagliani, et al., 2016). The amylose content of glutinous rice is very low, ranging from 0–2 percent (Amagliani, et al., 2016). The rest is amylopectin (>90 percent) and a small portion of protein and fat (Gao, et al., 2014). The ratio of amylose and amylopectin affects the functional properties of glutinous rice. The high content of amylopectin in glutinous rice starch gives it thickening and gelling characteristics (Imanningsih, 2012), so it is widely used in the manufacture of traditional Indonesian foods such as dodol. The concentration of glutinous rice flour used will affect the texture of the dodol. When heated to a critical temperature in the presence of excess water, the glutinous rice starch changes shape from regular to irregular. Starch granules will imbibe water, swell, and dissolve in a solution which is characterized by loss of birefringence (Chen, et al., 2017), this change is called gelatinization

At the time of making dodol salak, the sugar melting process occurs. In the process of melting the sugar, a process of physical and chemical changes occurs. Granulated sugar or sucrose is a compound with the chemical formula $C_{12}H_{22}O_{11}$. Sugar is solid at room temperature. When heated there will be a change in the form of sugar, which is a physical change. When sugar rises above $160^{\circ}C$, the solid crystals of

sugar begin to melt into a colorless syrup. Then, if the heating is continued to a temperature of $180^{\circ}C$, decomposition will occur which causes the sugar molecules to separate into smaller molecules. This reaction is a form of chemical change. The reaction for the decomposition of sugars occurs as a two-step reaction. The first simple reaction is the dehydration of sucrose into pure carbon (C) and water (H_2O), and then the second reaction is carbon oxidized to carbon dioxide (CO_2) with oxygen (O_2) from the air.

During the cooking process of dodol salak, over time the water in the cauldron will decrease, this is because when the cauldron is heated, the bottom of the cauldron will be exposed to fire. Cauldrons, which are generally made of conducting materials or materials that can conduct heat, experience conduction. the pan will be completely hot. a hot cauldron, will conduct heat to the water at the bottom of the cauldron. The water at the bottom gets hot and transfers heat by convection to all parts of the water. If it continues to be heated, the water will be hot and even boil. So, heat is transferred by conduction from the fire to the pot and heats the water at the bottom of the pot and then heat is transferred by convection throughout the water so that the water becomes hot. This causes the water to boil and over time it will run out causing the dodol to thicken



Figure 4. Packaged Dodol Salak

Salak is the raw material used in the processing of dates, the raw material commonly used in the processing of dates is salak, whose flesh is yellowish/reddish white and the flesh tastes sweet. Peeling the zalacca skin, this process is a process of separating the salak fruit skin from the fruit flesh, in this process using a tool in the form of a paring knife, then washing it to obtain clean salak before processing it into dates, through this process will produce clean zalacca which has been separated from the dirt attached to the bark before. This process is carried out in a clean bucket.

Drying the salak fruit, the drained salak fruit is then dried in the sun for about 2 days until it looks like it is wrinkled or until it becomes dates. Packaging of salak dates, after the salak dates are dry, they are packaged and ready to be marketed. In the process of making salak dates using the drying process. Drying the salak fruit, the drained salak fruit is then dried in the sun for about 2 days until it looks like it is wrinkled or until it becomes dates. Packaging of salak dates, after the salak dates are dry, they are packaged and ready to be marketed. Drying technique is the process of removing or evaporating most of the water content through the use of heat energy. The water content in the material is reduced, so that the microorganisms in it cannot grow anymore. Drying is done by drying or heating the food you want to preserve. This technique has the principle that microorganisms that cause decay really like places that are damp, wet, and have moisture content. Therefore, with the drying technique it is hoped that the food will be completely dry and the microorganisms will die, so that spoilage does not occur.

In making salak chips, it is necessary to carry out the fresh fruit selection stage, the selected zalacca fruits are tree ripe fresh fruit and not too soft, relatively the same shape, free of pests and diseases as well as other damage such as bruises or rot. Removal of inedible parts, this stage consists of: Peeling the skin using a sharp stainless knife or peeling as usual by hand while removing the water skin. Slicing,

slicing work is done with a stainless kitchen knife on a mat (wooden cutting board). The shape of the slices is as you wish, but you have to make it into an attractive shape. The size of the slices is set to finish in one to two bites. Washing, washing the sliced fruit flesh with clean running water is intended to remove any dirt that is still attached or mixed in the fruit flesh during stripping and slicing.



Figure 5. The process of drying salak

Slicing, draining is intended to remove water from the washing material attached to the material so that the frying process becomes faster. Frying, salak slices are fried until they change color until cooked. Frying these chips usually uses a vacuum fryer to make sure the salak that has been cooked is tasty. The final stage is the packaging of the salak chips. In the process of frying the zalacca chips, the salak slices are fried until they change color until they are cooked. Frying these chips usually uses a vacuum fryer to make sure the salak that has been cooked is tasty. The working principle of Vacuum Frying is to suck out the water content in vegetables and fruit at high speed so that the pores of the fruit and vegetable flesh do not close quickly, so that the water content in the fruit can be absorbed perfectly. The working principle is by adjusting the balance of temperature and vacuum pressure.

Conclusion

Based on the results and discussion above, the researcher can draw the following conclusions:

1. There are 3 types of typical food from South Tapanuli Regency which have been identified and scientifically analyzed.
2. Scientific science analyzed based on the science of biology, physics and chemistry.
3. Communities in South Tapanuli Regency process special food from typical plants that grow in South Tapanuli Regency

Parts that are utilized for use as special food are bark, leaves, rhizomes, flowers, fruit, tubers and stems.

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