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Dodol Ulame, a Mandailing's Ethnic Food: History and Culture, Packaging, and It's Challenge on Globalization

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***Abstract*— Mandailing Ethnic was famous with its social system and strong customs which is reflected in all aspects of life including in making *dodol ulame*. How *dodol ulame* able to survive in globalization era without losing its cultural identity is very interesting to learn even more there are still limited information about traditional and ethnicity. This study used qualitative phenomenological methods using primary and secondary data. *Dodol ulame* was first introduced by Mandailing ethnic and it was a symbol of the existence of Mandailing ethnics that was still maintained today which thrives on mutual help and kindship. The uniqueness of *dodol ulame* lies in the traditional manufacturing process using local ingredients i.e. glutinous rice flour, coconut milk, and palm sugar. All ingredients were cooked for the long time so that it produces a distinctive taste and texture. In addition, the unique and traditional packaging system by using *Pandanus* leaf and hung it in a para-para was believed to be able to extend shelf life. On the globalization era, modifications and technologies need to be considered in order to overcome weaknesses in the long cooking process, low nutritional value, product standardization and environmental preservation of *dodol ulame*. Overall this study tries to highlight information about traditional and ethnic dodolulame to preserve its existence which is full of traditions and mandailing ethnic culture in the era of globalization.**

Keywords—component; traditional, ethnic, Indonesia food; packaging; Mandailing.

I. INTRODUCTION

Food is often used as a cultural measure of a commodity that symbolizes cultural identity handed down from generation to generation. Because of a sense of shared ownership, food serves to create a sustainable history and unite cultures. A food is called traditional food because of the very thick cultural aspects of the preparation process to be a finished product. Traditional food is a part of a culture that has been preserved from generation to generation as a direct reflection of heritage, history, civilization, and

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the culture of people in a particular region/community [1]. A particular is considered as a legacy which is a global asset and local resources in the effort to build historical narratives in social, environmental, economic, and political aspects [2].

The Mandailing ethnic is one of the oldest ethnics in North Sumatra Province, Indonesia besides Malay, Simalungun, Toba, Pakpak, Karo, and Nias (host ethnic) [3]. The existence of the Mandailing community as an ethnic group is marked and confirmed by the fact that the Mandailing people have their own culture, so they can be distinguished from other ethnic groups. Kinship culture includes tribal relations, affection on the basis of blood relations, harmony, *Dalihan Na Tolu* and all relationships related to relationships due to marriage, *Marga* (clan) solidarity and others. Religious culture including religious life, both Islam and other religions also regulate relations with the Creator and their relationship with humans and their environment that are highly respected by the Mandailing people and are maintained until now. These cultural principles are rooted and implemented in almost every line of life of the Mandailing community including its culinary.

Dodol ulame is a traditional food identic with the Mandailing ethnic. *Dodol ulame* is quite famous not only in its original area but also inside and outside the province of North Sumatra. Different from other types of *dodol*from other regions in Indonesia, the popularity of *dodol ulame* is more due to the traditional manufacturing process using local ingredients so that it produces a distinctive taste and texture that is different from other *dodol*. It is also because of its unique and traditional packaging system, by utilizing the natural resource wealth of South Tapanuli that is processed in such a way as to be used as packaging. The process of making *dodol ulame* is inseparable from the norms and culture of the Mandailing tribe. The tradition is descended downward so that it becomes a part of the local lore and culture of the Mandailing ethnics. The unique cuisines come from a great combination of the geographical and cultural diversity [1].

There are concerns about the existence of *dodolulame* which is full of traditions and Mandailing ethnic culture in the era of globalization. Globalization is characterized by the absence of spatial boundaries between countries and regions causing a shift in the consumption patterns of society. Imported and manufactured or ready-to-eat foods have sprung up to replace the traditional food. The issue of commodification of traditional food that also leads to commercialization and modernization [4] is an opportunity and also challenge for *dodol ulame* to continue to exist. Culinary culture must be preserved because it is an element of national identity [5]. Therefore, this research was conducted to learn about *dodol ulame* history, philopsophy and culture, ethnicity on processing and packaging, and also its challenge as a part of Mandailing ethnic local wisdom on the globalization. This research was of great interest, since information about *dodol ulame* still limited..

II. Material and Methods

This research used a phenomenal approach. The phenomenal approach was chosen because it is able to better describe the concept or phenomena. Through this approach, people involved in this phenomenon to explore human life experiences to find the essence of the meaning of that experience. The sampling technique was using purposive sampling method refers to [1] where representative research subjects were selected based on available information and datasubject. Subject respondents were producers, assistant counselors, communities, religious leaders, traditional leaders, and government elements.

This study used two types of data, i.e. primary data and secondary data as supporting data. The primary data was directly obtained by researchers from primary sources (original data). The primary data were collected by documentary, depth interviews, and observationtechniques. The documentary was used to document the process of making *dodol ulame* and the process of making traditional packaging. Observations were carried out with the aim of creating an original description of the field conditions in the cultural heritage of *Dodol ulame*. We made observations on *dodol ulame*, starting from the history, preparation, ingredients, and packaging. Interviews were conducted to subject respondents to get a comprehensive picture of *dodol ulame* ethnicity and its sustainability.The secondary data were first collected and reported by people or agencies outside of the researchers themselves, even though what was actually collected was original data. The secondary data in this research was collected from journal, articles, and similar researches that discuss Mandailing ethnic culture and culinary.

Information from these respondents were collected. Data analysis conducted through descriptive-qualitative approach. The literature review method was conducted to complete the data analysis

III. RESULT AND DISCUSSION

1.1 Mandailing Ethnic

The Mandailing ethnic was an ethnic that already settled in North Sumatra far away before the period of colonialism (1511) [3]. The Mandailing ethnic inhabits a part of the south of North Sumatra Province.However, some Mandailing people also spread to the province of West Sumatra, such as in Pasaman and West Pasaman districts for a long time even before the existence of the Paderi in West Sumatra In 1803 [6].The name Mandailing is derived from the word *Mandehilang* (Minangkabau language, meaning missing mother), the word *Mundahilang*, the word *Mandalay* (the name of the city in Burma), the word *Mandala Holing* (the name of the kingdom in Portibi, GunungTua), and the word *Munda* (the name of a nation in North India, which withdrew to the South in 1500 BC due to the insistence of the Aryans). Most of the *Munda* people entered Sumatra through the port of Barus on the West Coast of Sumatra [7][8]. Mandailing history is recorded in the Kakawin Negarakertagama (Nagara Kretagama) or Desawarnana book written by Poet Majapahit Mpu Prapanca (Rakawi Prapanca). In the book, the Mandahiling words are found in the 13th verse. The poem explained that in 1287 Saka (1365 AD) Majapahit soldiers mentioned an area called Mandahiling [7].

Mandailing has two meanings. First, as a cultural entity, Mandailing is the name of an ethnic group. Second, as a regional unit in North Sumatra Province [7]. Before 1992, Mandailing area was located in South Tapanuli District. To the north, South Tapanuli is bordered by the Angkola District (Simarongit, Sihepeng Village) and Padang Bolak (RudangSinabur), to the west is the Natal region (LinggaBayu), and to the south is PasamanDistrict, West Sumatra Province and Mandailing Natal District. However, Since 2007 South Tapanuli District has been divided into five districts i.e. South Tapanuli District, Sidempuan City District, Padang Lawas District, and North Padang Lawas District, and Mandailing Natal District [9]. Based on the areas that are occupied, Mandailing consists of two regions i.e. Mandailing Godang and Mandailing Julu. Mandailing Godang is located in the northern part covers Siabu and Panyabungan sub-districts which are lowlands areas with paddy fields. Mandailing Julu located in the southern part covers Kotanopan, Muara Sipongi and Batang Natal sub-districts which are mountains and have only a few lowland areas [10]. Both of Mandailing Godang and Mandailing Julu still have the same culture [8]. The map of Mandailing ethnic distribution in North Sumatra is shown in Fig. 1.

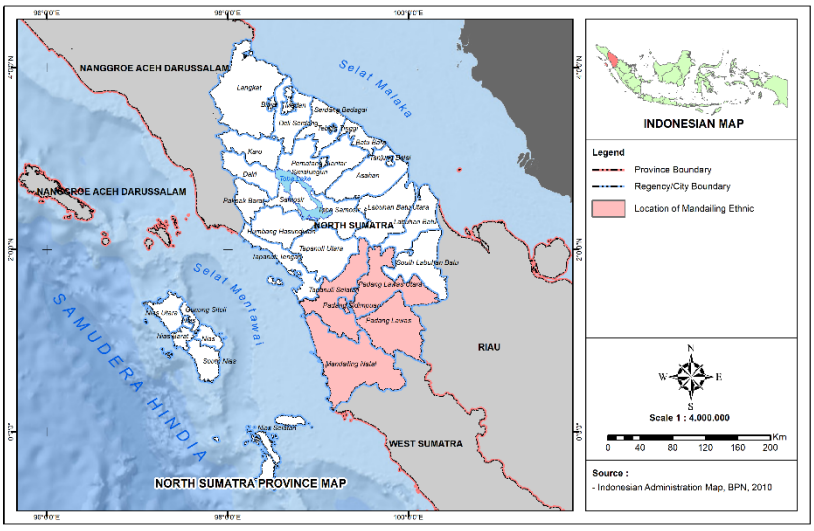

Fig 1. A map of North Sumatra Province

Mandailing ethnic groups are recognized from the cultural units. Ethnic groups can be recognized as cultural units and social order. As cultural units, ethnic groups are observed from the continuity of cultural units, and factors that influence the formation of cultural units. On the other hand, as a social order, ethnic groups show the unique characteristics of a given group that can be estimated from their background [11]. The Mandailing group is under influence the *Kaum Padri* who ruled the Minangkabauof Tanah Datar. As a result, the Mandailing was influenced by Muslim culture and converted to Islam. This influence is clearly observed in the language, characters, social systems, arts, customs, food and its preparation. For Mandailing ethnic, food is not just a physical need but also plays a role in a broad cultural context, so Mandiling ethnic also exhibits the ethnic

characteristic in their food i.e shape, appearance, taste and packaging. Processing raw materials to be eaten, the food presentation and ways to consume is an embodiment that is always related to social-cultural aspects of the community [12]. The food selection in people's habits is often related to religious beliefs or ethnic behavior [13]. *Dodol ulame/alame* is one of the local wisdom that is still maintained by ethnic Mandailing until now [7].

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1.2 History, Philosophy and Culture of Dodol Ulame.

Dodol ulame/alame is one of the cultures that was brought and first introduced by the Mandailing ethnic. *Ulame/Alame*is taken from Mandailing Language means coconut, and coconut milk is one of the main raw materials for making *dodolulame*. The manufacturing activity of *dodolulame*, called *mengulame*, is an inherited tradition completed in a group of people. It was a necessity for households in the Mandailing community to make *dodol ulame* when *Eid al-fitr* arrives. *Dodolulame* exactly made one week before the holiday of *IdulFitri* or *lebaran* (Indonesian names for *Eid al-Fitr*). A Tapanuli proverb speaks to this timing: "*Indatolado hot lebarananggoindapodomangulame*" (*lebaran* should not come if *dodol*has not yet been made). In ancient times, the activity of *mengulame*used to be an occasion for young people to socialize and gather together. They would play guitar and sing as they make *dodol*. This tradition passed down from generation to generation and became a part of local lore and culture in the Tapanuli communities.

*Dodol*has a philosophical value among the Mandailing ethnics. The glutinous rice element was a symbol of the ancient Mandailing community who are still agrarian. Sweet and sticky *dodol* is a symbol of the close togetherness and the establishment of friendship. Therefore, *dodol* served as a special dish during *lebaran*.In addition to being eaten together, *dodol*is also given as gifts symbolizing close relationships. The making process of *dodolulame* was also has a philosophical value. This is due to the essence of compassion (*holong*) and unity (*domu*) in the cultural treasures of the Mandailing community that is embedded in the Mandailing community. Affection and unity (*holong* and *domu*) are the implementation of the *Dalian Na Tolu* (three or three runways) custom, which is incarnated in the three-dimensional network of *Kahanggi*, *Mora* and *AnakBoru*[7] [12]. The social system of *Dalian Na Tolu* leads the Mandailing community to always have a sense of mutual assistance and cooperation in solving a problem that concerns a common life. This principle is seen in the process of cooking *dodol ulame* which shows the compassion and unity possessed by Mandailing ethnic.

The tradition of making *dodol* is missed and waited by nomads. Because it is a moment to be able to reunite with all family members and only possible at Eid and it also evokes experiences of the past. A traditional foods give rise to strong emotions, experiences, and sensations so that these individuals are united in the feeling of sharing with collective experiences combined with their past experiences [14]. Now, making *dodol* has the reputation of taking time, being laborious, and lacking practicality (because stirring continuously and long cooking process). Unfortunately the youth are showing less enthusiasm as time goes on. However, the tradition was still maintained. In the present time*dodol ulame*is generally made by older women, and the real skill is only exhibited by the elderly.

As demand increasing, *dodolulame* become commercially produced. There is home industry that makes *dodolulame* for sale. One of the craftsmen that is quite famous in the area is *Nenek Mora*. *Nenek Mora* is a quite well known in the Padang Sidempuan. *Nenek Mora* does not have a shop, but people come directly to buy *dodol ulame* and some of them sell it in traditional markets around the South Tapanuli. This practice is leading to modifications of the packaging size. At one point, *dodol ulame* was distributed

in large packages (2 kg), but now it is found in smaller packages (0.25–1 kg). The purpose of this is to make it easier to divide it for gifting purposes.

1.3 A Traditional Preparation of Dodol Ulame

The ingredients i.e.glutinous rice (*Oryza sativa var.glutinous)* flour, coconut (*Cocosnucifera L*) milk, and palm (*Arengapinnata*) sugar was taking from local sources (Fig 2.). The food becomes local wisdom that is specially made and uses ingredients that are only available on the area itself which is so indigenous food and has a distinctive and different taste with other foods [18]. The glutinous rice used local variety called *Sibujing.* Thisvarietywas traditionally only planted in South Tapanuli for generations.To change rice into flour, first it must be ground. In ancient times, this was done by pounding, using *alu*, but currently, rice is milled by machine. The palm sugar derived from Sipirok is famous for its authenticity and comes from palm trees that are left to grow themselves so that they are free from chemicals such as pesticides. The palm sugar obtained by vaporizing sap in a large open pan on a wood-burning stove to produce a paste. The coconut takes from local mature coconuts. The coconut meat is extracted to obtain the coconut milk, a milky white water–oil emulsion, obtained from grated coconut meat with or without the addition of water. In ancient times, the coconut would be grated by hand and then squeezed and filtered. Extraction is now done with a coconut shredder and squeezer machine. In the extraction process, the addition of water is carried out with a ratio of coconut and water, which is 1: 2.

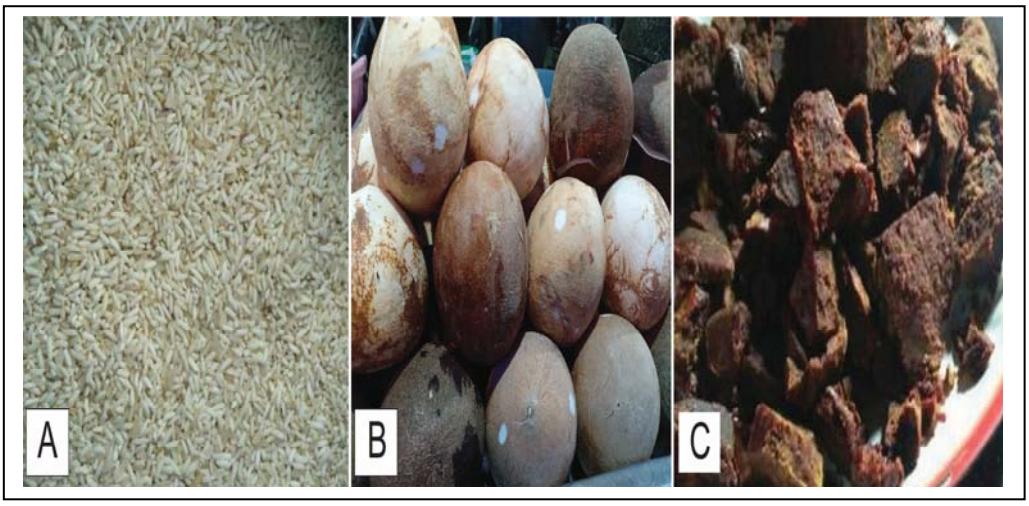

Fig 2. Dodol ulame Ingredients. (**A)**The local glutinous rice (var. *Sibujing*) was milled and sifted using a 60 mesh sieve to get a glutinous rice flour. (**B)** Amature coconut meat was extracted to obtain coconut milk. (**C)**Palm sugar from palm tree (*Arenga pinnata L.*) was cut into small pieces.

All ingredient has impacted the *dodol* quality and shelf life. Quality *dodol* should be made using fresh glutinous rice flour, mature coconuts, and a good quality of palm sugar. Mature coconuts have high-protein and high-fat milk, and the chemical composition of the milk is also affected. The protein, fat, and carbohydrate contents are increased, and the water content is decreased as coconut reaches its maturity [19]. Palm sugar provides the aroma and sweetness to the *dodol*, acts as a preservative, and forms a hard coating. Increased amounts of sugar increase the consistency and strength of the final gel [17].

Dodolulame retains its traditional and distinctive taste and uniqueness. The traditional long cooking process of *dodolulame* gives it a blackish-brown color, distinctive, sweet taste, a soft and sticky texture and also a longer shelf life [15][16] (Fig 3.). These indicate that texture is the desired functional characteristic of *dodol* which is related to the structural properties of processed food products.

Fig 3. *Dodol ulame. Dodolulame* has a blackish-brown color, distinctive, sweet taste, a soft and sticky texture.

It was packed in Pandanus leaf making a shape like a bottle with no neck and a tassel on its upper fringe, called *baul-baul.*

The traditional process of making *dodol ulame*is as follows (Fig 4.): First, the glutinous rice flour and the coconut milk are mixed together to form a batter. This mixing facilitates cooking and prevents the dough from clumping and becoming uneven. The mixing is performed directly in the cooking container, a large wok. After mixing, the batter is cooked while being stirred at a temperature of about 65–75°C until it gelatinizes (± 1 hours). The first stage is completed when the batter begins to resemble thick dough, smooth, glossy, and thick, although when it is tasted, it does not seem raw[17]. Second, the palm sugar isadded to the batter and the cooking process is carried out to high heat. While it is being prepared, the dough is continuously stirred with a wooden implement to flatten the dough and heat it evenly during cooking, which is intended to prevent charring and air pockets at the bottom of the pan. It takes approximately 7–8 hours to cook *dodol*from first heating to the thickening of the dough, depending on the number of ingredients. The texture of the *dodol* becomes softer and more cohesive as it is cooked at low temperatures and for long periods of time. The process of cooking stops after the texture thickens and before it becomes sticky. *Dodolulame*is packed in hot conditions and then stored at room temperature overnight until the dough has solidified. This is intended to solidified the batter, so that it is easier to cut.

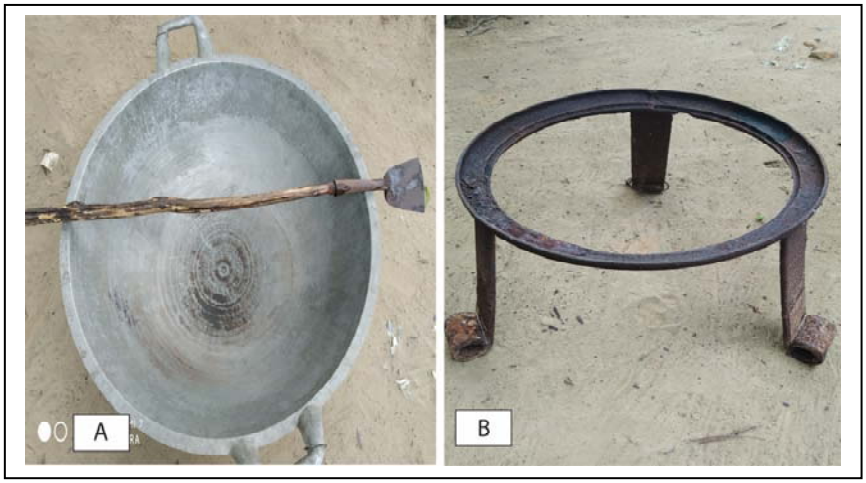

Fig 4. A traditional equipment used for cooking *dodolulame.*
(A)*Dodol ulame*wascooking by using a large pan made of iron/aluminum. While the stirred using an iron stirrer which is given a handle made of wood with a size of 1-1.5 meters. **(B)**Wood stoves used made of potting soil, complete with fire holes and firewood containers.

Traditional methods for the preparation of *dodolulame* still use traditional equipment (Fig 5.). *Dodol ulame* was made by using a large pan made of iron/aluminum. While the stirred using an iron stirrer which is given a handle made of woodwith a size of 1-1.5 meters. Wood stoves used made of potting soil, complete with fire holes and firewood containers. Contemporary developments, however, have led some to prefer an iron stove, with a round top and equipped with three leg stands. Nonetheless, firewood is still predominant today in *dodolulame*preparation. In addition to being economical, it is also believed to produce a better *dodol*. The use of firewood in traditional food preparations makes the dish taste more delicious [18].

Fig 5. *Dodol ulame* traditional making process: (**A)** Mixing glutinous rice flour and coconut milk into a batter.(**B)** Stirring until the batter is well mixed, sometimes they use hands to stirring it.(**C)** Boiling the batter, people still used firewood from the surrounding forests of Padang Lawas area. **(D)** Adding chunks of palm sugar. **(E)**Stirring continuously. **(F)**Resulting in ripe dough, characterized by a thickened, not sticky texture.

1.4 The Authenticity of Traditional Dodol Ulame Packaging

Mandailing ethnic packed *dodol ulame* with a very unique packaging as a part of the culture of Mandailing. *Dodolulame* was packed in a traditional packaging made from woven pandanus (*Pandanaceae* sp.) leaf, making a shape like a bottle with no neck and a tassel on its upper fringe, called *baul-baul.*The pandanus-pandanus (*Pandanaceae* sp.) was a plant that grow a lot in South Tapanuli. Besides its use in packaging, Mandailingethnic is also commonly used the pandanus leaf to roof houses and to make mats and other household tools or containers.The weaving of pandanus leaf for Mandailing ethnic was a culture that refers to human authority. This is a tradition for Mandailing ethnic, that only older people generally perform the pandanus craftwork. The results of the plait will be sold and the money will be used to support their daily needs, so they will not depend on their children. Because of this tradition, there are no young people who work in the weaving process.

Pandanus packaging is made as follows (Fig. 6): young pandanus leaves, 1 m or longer, are taken for wicker material. The tip and base of the leaf are cut into 80–100 cm strips. A tool called *panyucuk* is used to remove the spines on the edges of the leaves, which are then split lengthwise with the *panyoak* into four stripes called *aray*. The sap or mucus in the aray is removed with *pamaut* so that it becomes more flexible and easier to weave. After it is sun-dried for about 2–3 hours, it is folded into four parts and boiled for 6 hours. To remove the remnants of the mucus that are still stuck to the striped leaves, the boiled pandanus stripes are cooled by soaking in cold water for 2 hours. Then, the *aray* is sun-dried for 2 days, and the final result is called *arayputihan* or *araybodas* (*bodas* means white). Before it is woven, the *arayputihan*is softly beaten in a process called *dipaut*to loosen it, which gives it a smooth surface. The process of weaving is called *ngelabang* because the shape of the strips resembles a centipede's legs. *Ngaput*denotesthe last stages of the weaving, where the edges of the webbing are closed [20]. The webbing for the *dodol* packaging is made into a sack.

Fig 7. Traditional preparation of *dodol ulame* packaging: **(A)**Pandanus plant (Pandanaceae sp.), **(B)**A dried stripes of pandanus leaf (array). **(C)**Batching and stripping the dry leaves using bamboo blades. (D) A fine and smooth leaves ready to be woven.**(E)**The weaving process. **(F)** A dry woven pandanus leaves for packaging of *dodol*. The pandanus craftwork generally performed by old people. The process took a long time about 4-6 days.

Most *dodol*has approximately a 1-month shelf life, but *dodol ulame*can be kept from one month to even one year. During storage, *dodol* also undergoes changes, such a hardening of surface texture, rancidity, and microbial growth, especially mold and yeast. These changes affect shelf life. Woven dry pandanus leaves are believed to inhibit spoilage in *dodolulame*. Analysis using 2,2-diphenyl-1-picrylhydrazyl assay showed that pandanus spines have an antioxidant effect. The IC50 values of the methanol extract, n-hexane fraction, ethyl acetate fraction, and n-butanol fraction were 305.11 ppm, 398.29 ppm, 178.78 ppm, and 118.47 ppm, respectively [21]. The bioactive components of alkaloids and tannins in pandanus ethanol extract have an inhibitory effect on *Candida albicans*, and thus pandanus is an anti-fungal. These results are still preliminary [22], but they show the potential of pandanus leaves for prolonging the life of *dodolulame* and preventing spoilage.

The Mandailing ethnic in Padang Lawas has a unique way to store *dodol ulame*. They tied it using ropes and hung it in a *para-para*. Para-para is a type of bamboo or bamboo woven placed above the kitchen and is usually used to place kitchen utensils, food, etc. This method was believed can reduce the water content and prolong the shelf life. In these storage conditions, it has a shelf life of up to one year.

1.5 Dodol Ulame as Local Wisdom of Mandailing Ethnic:The Challenge on Processing, nutrition and environmental sustainability

As previously discussed, *dodol ulame* is very closely related to the Mandailing ethnic and is one of the strongest handling of the local wisdom of the Mandailing ethnic group. Local wisdom is a unique identity in a particular region or place, which becomes a special force in maintaining the values embodied in it [23]. The values of local wisdom handed down from generation to generation are currently threatened by the development of the times and modern lifestyles of people who prefer things that are practical. Tradition and culture are so dynamic and always influenced by social conditions, especially in the era of globalization, people want to live more practical and efficient. As mentioned earlier, it is proven by the reality of a lack of interest of the younger generation to continue the tradition of *mengulame* because it is considered a waste of time and impractical. In addition, globalization also requires traditional products to be able to adapt and improvise which can push *dodol ulame* into a calculated trade commodity. However, the value of this sacred culture has now become a trading commodity as a result of the commodification in the era of the global market linking these changes and shifts as a modification [5]. In this regard, traditional food can break away from culture and are elaborated and commercialized through a different economic system [24]. This is a challenge in itself, because the adaptation and modification made should not cause *dodol ulame* to lose its identity as one of Mandailing ethnic wisdoms.

The main challenge of *dodol ulame* is the cooking process which requires a long time so it requires quite a large cost. The cooking process is an important part in forming the texture and distinctive taste of *dodol ulame*. During the cooking process, there are changes to the ingredient to produce the desired product. These changes include gelatinization, and caramelization which involves the mailard reaction. Glutinous rice flour contains starch in sufficient quantities. During heating, at certain critical temperatures, in the presence of excess water, the glutinous rice starch changes forms. The starch granules absorb water, swell, and dissolve in a solution characterized by a loss of birefringence [25][26]. This change is called gelatinization which affects the viscosity and texture of *dodol ulame* [27]. Therefore it is necessary to apply an appropriate processing modification to be able to speed up the processing process while maintaining the texture and taste of *dodol ulame*. Modification of the process without substituting the raw material was also previously investigated by steaming glutinous rice flour prior to mixing [haryadi] and with the addition of multigenic amylase enzymes [28]. Both of these ways were reported to successfully maintain the good texture and flavor of the *dodol* yet shorten the processing time and extend the shelf life. It is mportant to be concern that the implemetation of new tecnology must be efective and no modification is needed in the intrinsic characteristics of the traditional product [24].

Another important issue is the nutrition fact. *Dodol ulame* made from glutinous rice flour, coconut milk and palm sugar which is very low in nutritional content. Chuah (2007) mentioned that a traditional *dodol* contains 19.2 percent water, 0.2 gram protein, 6.4 gram fat, 73.8 gram carbohydrate, 0.31 gram ash, and 0.1 gram insoluble fiber [27]. Observation of proximate analysis of*dodol ulame* showed that *dodol ulame* contains carbohydrates of 59.77% sugar and 17.03% fat, while protein content is only 5.05%. These data indicate that ulame *dodol* contains large amounts of sugar and fat. With the growing public awareness of healthy lifestyles by reducing sugar intake, there will be concerns that excessive consumption of *dodol* will increase blood sugar [29]. In order to become an emergency food product, *dodol*should have a minimum of 700 kcal obtained from fat, protein and carbohydrates in the amount of 48.16%, 11.28% and 40.56% [30]. Therefore, fortification and substitution with ingredients that are high in vitamin content, antioxidants are needed to increase the nutritional value of *dodol ulame*.

Environmental issues also attract attention because most people in South Tapanuli use firewood in making *dodol ulame*. The use of firewood taken from the surrounding forests of Padang Lawas area is also not recommended because it threatens the forest sustainability, in addition to causing pollution due to the resulting carbon dioxide adversely affecting the environment [31]. Therefore, it is necessary to discover some low-cost raw materials of alternative energy in Padang Lawas such as coal briquettes made from oil palm bunches.

Each Mandailing ethnics in five districts in North Sumatra Province has a different composition of *dodol* raw materials. For example, the Mandailing ethnic in South Tapanuli district uses more palm sugar while the Mandailing ethnic in Padang Lawas uses the greater proportion of coconut milk compared to other ingredients. This has caused the unequal quality of *dodol ulame*. In addition, the *dodol ulame* making process is still conducted in the yard where the sanitation is not guaranteed. Furthermore, it is necessary to create a standardization of *dodol ulame*starting from raw materials, processing, and product including the sanitationstandard. Sanitary is a challenge for traditional food. This is because traditional products are produced on a small scale, which has the tendency to have difficulty in managing its own quality system [24].

Apart from all these challenges, *dodol ulame* still needs to be preserved, not only because of the symbol of the existence of Mandailing ethnic but also due to the culture and philosophy of Mandailing ethnic which are very thick in this food. Arguing that globalization constitutes an opportunity to reaffirm local cultural identity in order to be better known in the multifaceted world, the draw of the strength of local culture is now being of greater importance amid the monotonous homogeneity of society's life due to globalization. The local values can inspire local culture, which emerges from life values, which in turn will give meaning to life.

IV. Conslusion

Dodol ulame is a traditional food is closely tied to the *Mandailing* people and is part of an inherited traditional culture, which thrives on mutual help and kindship, and implies affection and friendship. *Dodolulame*is made from a mixture of glutinous rice flour, coconut milk, and palm sugar, in a ratio of 1:2:1. *Dodolulame*making is still carried out traditionally by cooking it over a wood stove for a long time. It is commonly packaged traditionally in a sack made of woven dry pandanus leaves. The ingredients, processing, packaging, and storage are still carried out traditionally as a part of Mandailing's ethnic cultural heritage. In the era of globalization and commodification, *dodol ulame* has a challenge such as a long cooking process, low nutrient content, standardization and hygiene, as well as environmental sustainability. This must be responded wisely so that *dodol*ulame can a calculated trade commoditybut not lose the identity as one of Mandailing ethnic wisdom.

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REFERENCES

[1] Harmayani E, Anal AK, Wichienchot S, Bhat R,Gardjito M,Santoso U, Siripongvutikorn S, Puripaatanavong J, Payyappallimana U. "Healthy food traditions of Asia: exploratory case studies from Indonesia, Thailand, Malaysia, and Nepal". J Ethn Foods. Vol 6(1). pp: 1-18. 2018. https://doi.org/10.1186/s42779-019-0002-x.

[2] Aykan B. "The politics of intangible heritage and food fights in Western Asia". Int J Herit Stud.Vol.22(10). pp:799–810. 2016. https://doi.org/10.1080/13527258.2016.1218910.

[3] Anderson J. Mission to the Eascost of Sumatra in 1832. London, New York: Oxford University Press. 1971.

[4] Rianti A, Novenia AE, Christopher A, Lestari D, Parassih EK. "Ketupat as the traditional food of Indonesian culture". J Ethn. Foods.Vol. 5(1). pp:4–9. 2018. https://doi.org/10.1016/j.jef.2018.01.001.

[5] Mardatillah SJ, Raharja B, Hermanto T, Herawaty. "Riau Malay food culture in Pekanbaru, Riau Indonesia: commodification, authenticity, and sustainability in a global business era". J Ethn Foods. Vol 6(1). pp: 2-10. 2019. https://doi.org/10.1186/s42779-019-0005-7.

[6] Matondang IA, Udan Potir. "Simbolik ekologis Gordang Sambilan dan lingkungan alam". Jurnal Kajian Sastra dan Budaya. Vol. 1 (2). pp: 34-48. 2018. Available in: http://journal.unair.ac.id/download-fullpapers-mksb13dd930b61full.pdf.

[7] Pusat Informasi dan Dokumentasi Mandailing (PIDM). Revitalisasi sejarah dan kebudayaan Mandailing (kelompok humaniora-pokmas mandiri). 2019. Available in: https://banuamandailing.blogspot.com/. Cited on 12 Agustus 2019.

[8] Siregar E. "Sejarah dan motif budaya Mandiling Natal". Jurnal Education and Development; Vol. 6(3). 2018. Available in: http://journal.ipts.ac.id/index.php/ED/article/view/732.

[9] Siregar RA. "Penanaman dan kesantunan masyarakat Angkola-Mandailing: Tinjauan antropolinguistik". Telangkai Bahasa dan Sastra; Vol. 8(2). pp:143-152. 2014. Available in: http://repository.usu.ac.id/handle/123456789/51072.

[10] Luthan PLA. The values of culture and architecture typology of Mandailing traditional house. IOP Conf. Ser. Mater. Sci. Eng. 2016; 128(1). https://doi:10.1088/1757-899X/128/1/012016.

[11] Barth F. Ethnic groups and boundaries: The social organization of culture difference. Boston: Little Brown. 1969.

[12] Harviana. "Kuliner Mandailing". Buletin SUWA. 2010.

[13] Kittler PG, Sucher KP, Nelms M. Food and culture. 6th ed. Boston: Cengage Learning; 2012.

[14] Di Giovine MA. The everyday as extraordinary: revitalization, religion, and the elevation of Cucina Casareccia to heritage cuisine in Pietrelcina, Italy. In: Edible identities: food as cultural heritage: Ashgate; 2014. Available in: https://www.academia.edu/12647867/The_Everyday_as_Extraordinary_Revitalization_Religion_and_the_Elevation_of_Cucina_Casareccia_to_Heritage_Cuisine_in_Pietrelcina_Italy.

[15] Nasaruddin F, Chin NL, Yusof YA. " Effect of processing on instrumental textural properties of traditional *dodol* using back extrusion". Int. J. Food Prop. Vol. 5(3). pp: 495–506. 2012. https://doi.org/10.1080/10942912.2010.491932.

[16] Lukito MS, Giyarto, Jayus. "Sifatfisik, kimia dan organoleptik *dodol* hasil variasi rasio tomat dan tepung rumput laut". Jurnal Agroteknologi. Vol. 11(1). 2017; Available in: https://jurnal.unej.ac.id/index.php/JAGT/article/view/5450

[17] M. Astawan, S. Koswara, F. Herdiani. "The utilization of seaweed (*Eucheuma cottonii*) to increase iodine and dietary fiber contents of jam and *dodo"l. J. Teknol. dan Ind. Pangan*, Vol. 15(1):61–69. 2004. Available in: http://repository.ipb.ac.id/handle/123456789/29853.

[18] Hasairin. "Variasi, keunikan dan ragam makanan adat etnis Batak Toba suatu kajian prospek etnobotani". Jurnal Pengabdian Kepada Masyarakat; 20(75). 2014. https://doi.org/10.24114/jpkm.v20i75.4801.

[19] Peamprasart T, Chiewchan N. "Effect of fat content and preheat treatment on the apparent viscosity of coconut milk after homogenization". J. Food Eng., Vol. 77(3).pp:653–658. 2006. https://doi.org/10.1016/j.jfoodeng.2005.07.024.

[20] Rahayu M, Sunarti S, Keim AP. "The etnobotanical study of screwpine (*Pandanus odoratissimus L*): Usage and importance in supporting the domestic economy of the local people in Ujung Kulon, Banten". Biodiversity, Vol. 9(4). pp:310–314. 2008. Available in: https://biodiversitas.mipa.uns.ac.id/D/D0904/D090415.pdf

[21] Ulfadha S, Mirhansyah A, Rusli R. " Aktivitas antioksidan ekstrak dan fraksi dari daun Pandan Duri (*Pandanus tectorius*)". Procedding of 5th Mulawarman Pharmaceuticals conference. pp:23–24. 2017. https://doi.org/10.25026/mpc.v5i1.239

[22] Rahayu S, Handayani S, Noverita, Jalip IS. "Antifungal and preliminary phytochemical screenign of leaf extract of Pandanus". Proceeding International Conference The 4th Green Technology Faculty of Science and Technology Islamic of University State Maulana Malik Ibrahim Malang. 2018.

[23] Utari U, Degeng INS, Akbar S. "Pembelajaran tematik berbasis kearifanlokaldi sekolah dasar dalam menghadapi masyarakat ekonomi asean (MEA)". Jurnal Teori dan Praktek Pembelajaran IPS. Vol. 1 (1).pp: 39-44. 2016. Available in: http://journal.um.ac.id/index.php/jtppips/article/view/5861/2413 [diakses 29 April 2018].

[24] Jordana J. 2000. "Traditional foods: challenges facing the European food industry". Food Research International. *Vol.33(3-4. pp):147–152. 2000.* https://10.1016/S0963-9969(00)00028-4

[25] Chen X, Du X, Chen P, Guo L, Xu Y, Zhou X. "Morphologies and gelatinization behaviours of high-amylose maize starches during heat treatment". Carbohydr. Polym. Vol. 157. pp:637–642. 2017. https://doi.org/10.1016/j.carbpol.2016.10.024.

[26] Xie F, Halley PJ, Avérous L. "Rheology to understand and optimize processibility, structures and properties of starch polymeric materials". Prog. Polym. Sci. Vol. 37(4). pp :595–623. 2012. https://doi.org/10.1016/j.progpolymsci.2011.07.002.

[27] Chuah TG, Nisah HH, Choong SYT, Chin NL, Sheikh AHN. " Effects of temperature on viscosity of *dodol* (concoction)". J. Food Eng. Vol. 80(2). Pp::423–430.2017. https://doi.org/10.1016/j.jfoodeng.2006.04.051

[28] Hamzah A, Mustafa MM, Hussain A. "Algorithms development in detection of the gelatinization process during enzymatic '*Dodol*' processing". *ITB J. ICT*. Vol. 1(2): 99-116. 2007;Available in: http://journals.itb.ac.id/index.php/jictra/article/view/170.

[29] Setiavani G, Sugiyono, Ahaza AB, Suyatma NE. " Teknologi pengolahan dan peningkatan nilai gizi *dodo"l*. Jurnal Pangan. Vol. 27(3). pp:225-234. 2018. https://doi.org/10.33964/jp.v27i3.388.

[30] Syamsir E, Sitanggang PDL." Pengembangan *dodol* sebagai produk pangan darurat". Jurnal Ilmu dan Teknologi Pangan. Vol. 9. pp: 65-76. 2011. Available in: http://repository.ipb.ac.id/handle/123456789/64315.

[31] Yunianto B, Nazarudin S, Ramanda SAK. "Pengembangan disain tungku bahan bakar kayu rendah polusi dengan menggunakan dinding beton semen". Journal of Rotation. Available in: http://ejournal.undip.ac.id/index.php/rotasi.