

## THE DIVERSITY OF VEGETABLE DISHES IN MANDAILING CULINARY

Esi Emilia<sup>1</sup>, Onggal Sihite<sup>2</sup>, Adikahriani<sup>1</sup>, Nila Reswari Haryana<sup>1</sup>, Siti Sutanti<sup>3</sup>,  
Risti Rosmiati<sup>1</sup>, Subuh Ardiansyah<sup>3</sup>, Hardi Firmansyah<sup>1</sup>

<sup>1</sup> Study Program of Nutrition, State University of Medan

<sup>2</sup> Study Program of Antropology, State University of Medan

<sup>3</sup> Study Program of Education, State University of Medan

North Sumatera, 20221, Indonesia

Email: esi.emilia@gmail.com

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### Abstract

Culinary is one of the cultural products of various ethnicities in Indonesia. One of the famous culinary in North Sumatra is culinary of the Batak Mandailing. This study aims to identify vegetable dishes in Mandailing Culinary and processing techniques. The research was conducted from April -November 2021 in Mandailing Natal Regency. The data was collected qualitatively by conducting FGD and in-depth interviews method. The Location of Mandailing Natal Regency is in the southernmost and western part of the province of North Sumatra so that the taste of Mandailing cuisine is influenced by cuisine from Minangkabau. The availability of food, in terms of vegetables, spices, and coconut, is abundantly reflected in the various types of vegetables in daily meals of the Mandailing Natal people. Mandailing's vegetable dishes dominantly have a spicy taste and uses a lot of coconut or coconut milk and also wet and dry spices. The study results found that 53 types of vegetable dishes were dominated by curry dishes using many spices. Mashed cassava leaves curry is one of the popular vegetable dishes. Most of the Mandailing cuisine uses high-temperature processing technology, especially the boiling method.

**Keywords:** *mandailing culinary, vegetable dishes, food technology processing*

### Abstrak

Kuliner merupakan salah satu produk budaya dari berbagai suku bangsa di Indonesia. Salah satu kuliner yang terkenal di Sumatera Utara adalah kuliner Batak Mandailing. Penelitian ini bertujuan untuk mengidentifikasi masakan sayur pada Kuliner Mandailing dan teknik pengolahannya. Penelitian dilaksanakan pada bulan April-November 2021 di Kabupaten Mandailing Natal. Pengumpulan data dilakukan secara kualitatif dengan metode FGD dan wawancara mendalam. Letak Kabupaten Mandailing Natal berada di bagian paling selatan dan barat provinsi Sumatera Utara sehingga cita rasa masakan Mandailing dipengaruhi oleh masakan dari Minangkabau. Ketersediaan pangan, baik sayur-sayuran, bumbu-bumbuan, dan kelapa, sangat tercermin dari beragamnya jenis sayur-sayuran dalam makanan sehari-hari masyarakat Mandailing Natal. Masakan sayur Mandailing dominan memiliki rasa pedas dan banyak menggunakan santan atau santan serta bumbu basah dan kering. Hasil penelitian menemukan bahwa 53 jenis masakan sayur didominasi masakan kari yang banyak menggunakan bumbu. Kari daun singkong tumbuk adalah salah satu masakan sayuran yang populer. Sebagian besar masakan Mandailing menggunakan teknologi pengolahan suhu tinggi, terutama metode perebusan.

**Kata kunci:** *kulinerMandailing, makanan sayuran, proses teknologi pangan*



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## Introduction

Culinary reflects the long history of forming a society that has become a culture and tradition for generations. Culinary is a reflection of the relationship of a community group with others and their environment. Culinary can be used as a medium to introduce the culture to the world. The diversity of human culinary needs is changing, not only to fulfill biological needs but at this time culinary also shows the position of one's economic status (Wijaya, 2019).

North Sumatra is one of the provinces inhabited by various tribes and ethnicities. The Mandailing tribe is one of the indigenous tribes that is famous for its culinary. Many Mandailing people migrate and sell Mandailing cuisine in the place where they live. The use of many spices with variations in spicy, salty, and sour flavors in every dish makes Mandailing cuisine always sought after and liked. Spices and herbs such as *andaliman*, *Batak onions*, *kecombrang (honje)*, *asam Cekala* (Cekala tamarind), takokak, curry leaves, roasted coconut, and other spices make Mandailing cuisine unique and different from other dishes. Some types of cuisine are well known to the Indonesian people, including *Ikan Mas Arsik* (Carp Arsik), *Gulai Daun Ubi Tumbuk / Gule Bulung Gadung* (Mashed Cassava Leaves), *Ikan Sale* (Fish with Smoking Processing Technique), *Belut Rendang* (Eel Rendang), *Sambal Tuk Tuk* (Tuk Tuk Chili Sauce), *Pangkat / Pusuk Ni Otang* (Tip of Rattan Stem), *Toge Panyabungan* (Sweet Dessert with Ice Cube), *Itak Poul-Poul* (Sweet Snack from Coconut and Brown), *Kipang* (Sweet snack from nuts and brown sugar) and others (Batubara, 2015).

Mandailing cuisine has experienced many changes, including renewing ingredients, cooking utensils, cooking processes, serving tools, and the presentation procession (Batubara, 2015). Until now, local food products have not replaced rice and wheat flour, which dominate food in Indonesia. One of the causes is the low level of technological innovation for local food products.

The development of food and digital technology has caused a shift in Indonesian cuisine, including the Mandailing culinary, which is currently not an option, especially for the next generation. Moreover, processing techniques have shifted from the use of traditional to modern tools. It has an impact on food processing techniques and the original taste of the cuisine itself. On the other hand, foreign culinary restaurants, such as Western, Chinese, Japanese, Thai, and others, are snowballing. It can be seen that people are more familiar with and interested in consuming foreign culinary or fusion compared to traditional culinary. They have been sold to areas including the Mandailing Natal district. Gradually traditional culinary becomes displaced if it is not preserved, documented, and introduced to the younger generation.

Vegetables are a source of vitamins and minerals that are needed by the body. Although vegetables and fruits have many benefits, many people still do not consume sufficient vegetables and fruits. Sinaga et al., (2019) conducted a qualitative study that showed informants preferred fatty foods and cooking using coconut milk but did not like vegetables and fruit. Moreover, they will add coconut milk to dishes from vegetables. Because without coconut milk, the vegetables are tasteless, and coconut milk is a form of flavoring. For generations, informants have done this, so it has become a habit that is difficult to change.

Mandailing Natal Regency has a variety of local plants as a source of food rich in various nutrients. Moreover, they are part of the culture and heritage of the community. Food diversity makes people process various vegetable dishes to meet family needs. However, in reality, there are still many children who consume fewer vegetables. The research by Maisyaroh, (2018) found that the vegetable consumption of elementary school students in Mandailing Natal was 38%. Thus, it is necessary to study the diversity of vegetables from Mandailing district.

Introduction is written in without sub-heading. It consists of background of the problem (not compulsory), state of the art (at least 5 literatures/journals as primary source) to show novelty, gap analysis, review (if any) purpose of the research.

Pendahuluan (tanpa anak judul) berisi latar belakang (jika ada), kebaruan penelitian (paling sedikit dirujuk 5 referensi jurnal sebagai rujukan primer), analisis gap, tinjauan pustaka (jika diperlukan), dan tujuan. Pendahuluan diakhiri dengan penekanan dengan hal yang akan dibahas. Bagian ini menggunakan fontasi Times new roman dengan ukuran 11 pt.

## Method

This research is an analytic observational research with qualitative method. The research was conducted in April until November 2021 in Mandailing Natal Regency. There are two types of data taken, namely secondary and primary data. The secondary data was collected by reviewing the literature in the form of previous research. The primary data was collected qualitatively by conducting Focus Group Discussions and In-depth Interviews on the original Mandailing families and the community leaders who have the best understood about the customs. In-depth interviews were also conducted on the owner of Mandailing restaurant that serves Mandailing culinary.

To identify Mandailing Culinary used quantitative and qualitative approaches. Quantitative approach to identify Mandailing Culinary by direct interview using an instrument questionnaire. The purpose of using this technique was to explore information related to culinary that is generally consumed by the public (familiar). It was the culinary still exist because the production and the availability of ingredients were easy to do and to obtain. Identification of Mandailing culinary was done by interviewing some sources from the Mandailing Tribe who live in Mandailing Natal and in Medan City. Interviews were conducted in depth with the informants. Analysing and processing data was done by qualitative descriptive to provide a more in-depth explanation of Mandailing culinary, especially vegetable dishes.

## Result and Discussion

Mandailing Natal regency has an area of  $\pm 6,620.70$  km<sup>2</sup> (662,069.00 Ha) or 9.24% of the entire territory of North Sumatra Province and their capital city is Panyabungan (Profile of Mandailing Natal Regency, 2020). Generally, Mandailing Natal Regency is from the Mandailing tribe, almost 90% of the Mandailing ethnic community lives in Mandailing Natal Regency. The cultures of the Mandailing tribe are still taught there, and until now it continues to grow. The majority of the Mandailing community is Moslem. Most of the population works as farmers, both rice/palawija farmers, horticulture and plantations

Mandailing Natal Regency is a buffer area between two communities with different kinship systems, namely Toba in North Tapanuli which adheres to the Patrilineal system and Minangkabau which adheres to the Matrilineal system. The Mandailing tribe as a community that supports two cultures, the Mandailing people experience a process of acculturating the cultural values of the two communities through intensive cultural contact. They can enrich their character, including a personality that emphasizes the straightforwardness and toughness of the north and the intelligence of the south.

Mandailing Natal is often to be called "Madina", which is a district in North Sumatra. Bordering on West Sumatra, Mandailing cuisine mixes a lot with Minang cuisine or in other words Mandailing cuisine is a blend of Minang cuisine with Batak cuisine (Nasution, 2014). Mandailing is located in the highlands, so that coconut is one of their agricultural products and it influences Mandailing cuisine. This can be seen in the use of coconut milk in most dishes, both side dishes and vegetables. The vegetables which



used come from vegetables were grown by farmers, besides that wild vegetables are also commonly consumed by the Mandailing people such as Tanggaung leaves (*daun tanggaung*), Bulu Soma bamboo shoots (*rebung bulu soma*), Bulu sorik bamboo shoots (*rebung bulu sorik*), Kalihi branch mushrooms (*jamur dahan kalihi*).

### ***Mandailing Culinary Identification***

The results of interviews with several sources found various uniqueness of Mandailing cuisine. The uniqueness and characteristics of Mandailing cuisine as follows:

1. Mandailing is an agricultural area that causes the availability of various local food ingredients and the creation of various kinds of vegetable dishes. There are many variations of local food ingredients, both from animals and plants (vegetables). Various types of vegetables and spices, which are natural products of Mandailing, are used in Mandailing cuisine. Types of vegetables widely used in Mandailing dishes include cassava leaves, papaya fern flowers, *pira nitobu*, bamboo shoots, *tekokak*, petai, jengkol, abo, and others.
2. The primary flavors of Mandailing cuisine are savory, spicy, and sour. Although the sour taste is not dominant, the combination of spices such as red chili, cayenne pepper, onion, cekala tamarind, lime, andaliman, sliced tamarind, candlenut, and other spices give off a distinctive taste and aroma.



Figure 1. Spices of Mandailing Culinary

3. The use of many spices is a characteristic of Mandailing cuisine. The Mandailing people believe that spices play an essential role in producing great tasty dishes. Moreover, coconut milk complements the savory taste of Mandailing cuisine. The use of a lot of coconut milk makes the dish more savory and delicious.

The results of interviews with several sources found that 53 types of vegetable dishes were processed and served daily by the Mandailing community. Based on the processing method, 62% of vegetable dishes are boiled using coconut milk, known as gulai. The rest is processed by frying, boiling, steaming, and grilled (Table 1.).

**Table 1** Identification of Vegetables Dishes in Mandailing Culinary

No	Method of Cooking	Number of Dishes	%
1	Steaming	4	7,55
2	Grilling	2	3,77
3	Stir Frying	7	13,21
4	Boiling with water	8	15,09
5	Boiling with coconut milk or curry ( <i>gulai</i> )	32	60,38
Total		53	100

Boiling is one of the processing techniques by cooking in boiling water. In Mandailing cuisine, water and coconut milk are used as liquids to boil vegetables. Table 1 showed that boiling with water or the stew is the second most processed product after gulai.

Indonesians use coconut milk for a vegetable dish known as gulai. The most famous gulai in Mandailing is mashed cassava curry (*Gule Bulung Gadung*). It is believed to increase appetite, so the dish is often available in every Mandailing family. The ingredients consist of cassava leaves, tekokak or rimbang, shallots, kecombrang, and coconut milk. Small shrimp or ikan sale (smoked fish) is usually added to give the fishy aroma. Cassava leaves and rimbang are roughly mashed, then added sliced shallots and boiled with coconut milk.



Figure 2. Ingredients and Mashed Cassava Leaves Curry

Besides mashed sweet potato curry, pira nitobu curry is one of the curry favored by the Mandailing community. The processing of pira nitobu curry uses complete spices for curry such as chili, ginger, turmeric, galangal, shallots and garlic and coconut milk. In addition, it is known that Mandailing cuisine recognizes sweet curry with sliced red shallots, coconut milk, salt and vegetables. Commonly included vegetables such as cabbage, bamboo shoots, bean sprouts, yardlong beans, chayote (*labu siam*), water clover, spinach and others.



Boiled Vegetables are usually served in several types in one plate. Vegetables that are usually boiled are cassava leaves, sweet leaves (daun katuk), papaya flowers, green papaya, turkey berry (*rimbang*), yardlong beans (*kacang panjang*). The processing is very simple, by boiling water with added salt and chopped onions, the vegetables are boiled until tender and served with a little water. This vegetable stew is high demand in the public as a compliment to the tuk-tuk chili sauce (*Sambal Tuk Tuk*). In addition to these vegetables, tip of chayote leaf (daun pucuk labu siam) and chayote (*Labu siam*) are also often processed with stew.

### ***Food Technology Processing***

Wet heat cooking technique is a cooking process using liquid/water media, where food ingredients are mixed with hot liquid/water or steam. This technique is divided into several methods, such as boiling, simmering, blanching, stewing, steaming, and others (Ronitawati, 2020). Mandailing culinary mostly uses wet heat cooking techniques and more than half of the vegetable dishes from Mandailing Culinary use the method of boiling with coconut milk. This technique is commonly referred to cooking curry by the Mandailing people (Pawera et al., 2019).

This food processing method uses a liquid as a heat conductor or commonly referred to as the cooking method with water convection. Food is cooked in water or other liquids such as broth, coconut milk or boiling milk. When a liquid is heated to a boiling point (100<sup>0</sup> C), the liquid vaporizes rapidly. Boiling occurs in three stages, they are nucleate, transition and film boiling according to the boiling temperature which is graded from low heat to high heat (Mulyatiningsih, 2007).

Nucleate boiling is a characteristic of boiling that has just started and water bubbles start to appear on the surface. The number of nucleated bubbles can be increased by increasing the boiling temperature. Film boiling characteristic occurs during the boiling process is undergoing evaporation, then the heat source is stopped suddenly. The fumes layer above the liquid surface is called film boiling. Transition boiling is unstable boiling, this occurs because the boiling temperature varies between the maximum (nucleation) and minimum temperatures (film boiling) (Mulyatiningsih, 2007).

### ***Nutritient Content***

Vegetable dishes in Mandailing culinary were identical using coconut milk. Based on research by Sinaga et al., (2019), that almost all vegetables dishes were processed using coconut milk, such as chinnese cabbage (*sawi putih*), choy sum (*sawi hijau*), eggplant, spinach, cassava leaves, yardlong beans (*kacang panjang*), and others. The use of coconut milk that has been heated will changed in the nutritional content, especially in protein and fat, surely.

### ***Protein Content***

The higher heating temperature in coconut milk processing, it has tendency decreasing in protein content. Protein content in not heated coconut milk was 2.76 percent, while after heating the protein content was in the range of 1.17-2.76 percent. (Sukasih & Prabawati, 2018). Based study by Ames & T.F.Hofmann, (2001) decreased protein levels causes by protein denaturation which causes the relationship between amino acids is broke. The broken bonds then react with bonds in carbohydrates to form melanoidin compounds which cause the coconut milk color to become slightly browning. Therefore, the browner of coconut milk, the more protein denaturation will made decreasing protein content.

### ***Fat Content***

As well as protein content, fat content will be decrease because of heating. Kadar lemak pada santan yang belum dipanaskan adalah sebesar 13,05 persen. Fat content in

coconut milk that has not heated yet is 13.05 percent. After heating, the fat content is in the range of 12.32-12.93 percent (Sukasih & Prabawati, 2018). Fat is hydrolyzed to be free fatty acids causes a reduction in fat content in coconut milk after heating (Waisundara et al., 2007). Acid number and free fatty acid (FFA) are one of the quality parameters of oil and fat. Study by Sukasih & Prabawati, (2018) showed that there were increasing of acid number and FFA after heating. The increasing of it caused by hydrolysis process of fat, furthermore it is unravel to be fatty acid and glycerol.

All types of vegetables used in vegetable dishes Mandailing Culinary has several advantages in terms of nutrient content. Table 2. showing types of vegetables which were used by Mandailing people to make vegetable dishes and their nutrient content Table 2. showing types of vegetables which were used by Mandailing people to make vegetable dishes and their nutrient content.

**Table 2** Vegetables as Base Ingredient and Main Nutrient

Name of Vegetables	Main Nutrient Content		Amount of Main Nutrient Content (per 100 g)	
Cassava leaf	Vitamin A	Vitamin C	561 mcg	103 mg
Parkia Speciosa ( <i>Petai</i> )	Protein	Vitamin C	9.4 g	35 mg
Bamboo shoots ( <i>Rebung</i> )	Carbohydrate	Calsium	5.3 g	3 mg
Beanssprouts	Protein	Calsium	4.4 g	50 mg
Papaya leaf	Calsium	Vitamin C	353 mg	140 mg
Sweet leaf ( <i>Daun Katuk</i> )	Vitamin A	Vitamin C	485 mcg	182 mg
Durian	Protein	Vitamin C	2.5 g	53 mg
yardlong beans ( <i>Kacang panjang</i> )	Calsium	Vitamin C	60 mg	46 mg
Fern ( <i>Pakis</i> )	Vitamin A	Calsium	273 mcg	136 mg
Spinach	Vitamin A	Calsium	320 mcg	166 mg
Dogfruit ( <i>Jengkol</i> )	Carbohydrate	Protein	40.7 g	5.4 g
Tip of rattan ( <i>Pucuk rotan</i> )	Calsium	Vitamin C	89 mg	9 g
Eggplant	Protein	Calsium	1.1 g	15 mg
Pumpkin ( <i>Labu Kuning</i> )	Vitamin A	Calsium	131 mcg	40 mg
Wax gourd ( <i>Labu Kundur</i> )	Carbohydrate	Vitamin C	4.7 g	1 mg
Yellow velvetleaf ( <i>Genjer</i> )	Vitamin A	Vitamin C	158 mcg	54 mg
Banan blossom ( <i>Jantung pisang</i> )	Protein	Calsium	1.2 g	30 mg
Oyster mushroom	Prrotein	Folate	2.8 g	18 mcg
Stem of taro leaf ( <i>Batang daun talas</i> )	Vitamin A	Calsium	557 mg	236 mg
Water clover ( <i>Semanggi</i> )	Vitamin A	Iron	146 mcg	7 mcg
Winged bean ( <i>Kecipir</i> )	Vitamin A	Kalsium	46.5 mcg	63 mg

(Pawera et al., 2019)

Mashed cassava leaves is the most famous vegetable dishes of Mandailing Culinary. This dish uses cassava leaves and coconut milk as the basic ingredients. As a dark green leafy vegetable, cassava leaves contain  $\beta$ -carotene or provitamin A which plays a role in the function of vision, cell differentiation, body immunity and development and reproduction (Almatsier, 2001).  $\beta$ -carotene content in cassava leaf which processed with coconut milk was decrease compare than raw cassava leaf, boiling cassava leaf or stir-fried processing cassava leaf with oil.  $\beta$ -carotene in raw cassava leaf was  $43,530 \pm 11,062 \mu\text{g/g}$ , boiled with salted water was  $79,534 \pm 5,784 \mu\text{g/g}$ , boiled then stir fried with oli was  $65,926 \pm 6,244 \mu\text{g/g}$ , and boiled with water then with coconut milk was  $19,022 \pm 3,509 \mu\text{g/g}$  (Meiliana et al., 2014).

Decreasing of  $\beta$ -carotene content happen because of processing medium. Coconut milk has acid pH, acid can cause isomerization of  $\beta$ -carotene from form trans- to form



cis- form, that impair  $\beta$ -carotene. While, water existed in coconut milk can impair  $\beta$ -carotene because make coconut milk to be easier to peroxidation and rancidity. Cassava leaf which treated with boiling Cassava leaves which are processed by boiling with water and then boiled with coconut milk are only able to meet 53% and 63% of vitamin A needs in adult men and women when compared to the Indonesia RDA of 2013 (Meiliana et al., 2014).

### Conclusion

Mandailing's vegetable dishes are very diverse. There are 53 types of vegetable dishes that are processed and served daily by the Mandailing people. Based on the processing method, 62% of vegetable dishes are processed by boiling using coconut milk, known as gulai. The rest is processed by frying, boiling, steaming, and grilled.

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Esi Emilia<sup>1</sup>, Onggal Sihite<sup>2</sup>, Adikahriani<sup>3</sup>, Nila Reswari Haryana<sup>4</sup>, Siti Sutanti<sup>5</sup>, Risti Rosmiati<sup>6</sup>, Subuh Ardiansyah<sup>7</sup>, Hardi Firmansyah<sup>8</sup>

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