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## LOCAL WISDOM BATAK TOBA AND NIAS RELATED TO CHEMICAL CONTENT

*Akezia Royani Br. Simanjuntak<sup>1</sup>, Astri Intan Artauli Br. Sihombing<sup>2</sup>, Libertina Halawa<sup>3</sup>, dan Inelda Yulita<sup>4</sup>*

*<sup>1</sup>Universitas Maritim Raja Ali Haji  
E-mail: [inelda\\_chem@umrah.ac.id](mailto:inelda_chem@umrah.ac.id)*

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### ABSTRACT

This article talks about the local wisdom of the Batak Toba and Nias with the subject of chemistry. This article uses a qualitative method. The data collection techniques used are interview techniques and documentation, where the resource persons in this research are Selamat Sihombing (Batak Toba) And Gatina Halawa (Nias). The relationship between Toba Nias Batak culture and Chemistry shows that there is a tight relationship between culture and Chemistry. So every culture has good chemical elements in its manufacture, mixing, and so on., the results studies obtained conclusions of chemistry are all around us and also in the local wisdom of the Batak Toba and Nias.

**Keywords:** Local wisdom, culture, chemistry based on local wisdom

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## 1. INTRODUCTION

Education can be associated with the existing culture of the community for example Customs and art that should be a role model to find alternatives to various existing problems .. In the world of education, there is often a mismatch between the education system and the existing culture, so the system of education becomes difficult from the local culture so that it focuses on existing results. Parts of culture should be a means and guide for the implementation of any activity, including in the world of Education. Therefore, it is necessary to reorient efforts in the world of education so that every application of learning activities still uses elements of culture, both local culture that is traditional and global culture that is contemporary, because education is a matter of culture to culture

Ethno pedagogy is an educational program that expresses a plan based on culture, also called local wisdom. According to, "alwasilah et al (2009)" explains that local wisdom is an ability that must be given a new interpretation to be reflexible so that it can face the renewal of the increasingly modern era.

The rapid flow of globalization or technological advances can make the receding values of Indonesian culture. This can lead to changes (fading) in the value of Indonesian culture and local wisdom. Ethnoscience is a form of assessment that is useful and requires students to learn and do or "learn by doing" (Alvonco (2014)). Learning by doing can allow learners to be able to combine learning materials with the context of everyday culture. The application of learning based on ethnoscience can make learning activities more useful and aligned with the achievement of teaching and learning activities.

Hence the a need to improve ethnoscience in every learning. Ethnoscience itself is divided into several parts among them are Ethnobiology, ethnochemistry, ethnophysics, and ethnomathematics. and so on, but this article will discuss mechanochemistry where Chemistry learning can be associated with local wisdom, especially the local wisdom of Batak Toba and Nias culture.

## 2. RESEARCH METHODS.

The method in this article is qualitative. this qualitative research is based on social situations and living environments. techniques in making this article using online interview techniques, documentation, and observation. These stages are carried out simultaneously to obtain accurate data based on the formulation of writing and its purpose so that it can provide answers to questions from researchers. then conclude from the results of interviewing both sources.

### 3. RESULT AND DISCUSSION

#### Planning




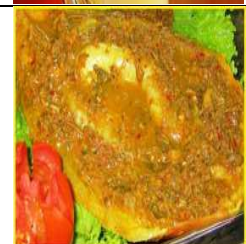
The planning that will be done by our group is:







1. Determining local wisdom Batak Toba and Nias
2. Find local wisdom literature Batak Toba and Nias related to chemical content.
3. Linking local wisdom Batak Toba and Nias with chemical content
4. Conduct Interviews
5. Make a report on the results of local Batak Toba Keraifan with chemical content.

#### Relevant Source Review Results

In this study, the researchers used relevant sources from articles, journals, other internet sources, and interviews with speakers (experts in Batak Toba and Nias Customs).

**Table 1.** Ethnochemical table of Batak Toba and Nias

No	Etnosains	Image	Chemical Content
1	Toba Batak Traditional Wedding Traditions		Ionic bond (handover between both parties)
2	Making Ulos		Complex compounds, mixtures, and solutions
3	Tuak (typical drink batak toba)		Permentation, Filtration
4	Naniura Carp		Fermentation, Protein

No	Etnosains	Image	Chemical Content
5	Making Gomak Noodles		Colloidal, Mixed
6	Gowirio fufu		ionic compounds, proteins
7	Ni'owuru		Pickling, ionic compounds
8	Kofu-Kofu		Ionic Compounds, Mixtures
9	Nias wedding traditions		Ionic bonding
10	Jewelry from Nias		Chemical elements and metal compounds

## A. The Cultur of Batak

### 1. Custom Wedding

The Toba Batak tribe is spread in most cities in the province of North Sumatra (Medan). Traditional batak toba traditions are still practiced. One of them is traditional wedding rituals. At a toba batak wedding, the men give cinnamon and the women receive cinnamon, then there is a loan ujuk or traditional party.

The process of the traditional Batak Toba wedding ceremony is to adhere to the law of exogamy or marriage outside the tribal group. The stages in the wedding Batak Toba are *mengaririt*, *mangalehon* sign, *marhusip*, *marhata sinamot*, *martupol*, *martonggo raja*, *manjalo vases parbagason*, *marunjuk / aloan show* (traditional party). (S. Sihombing, 2022).

## 2. Ulos Fabric Making

Ulos fabric was once only used for scarves/ sarongs. Batak tribe considers it not just local wisdom, but a form of parental love for children. Today ulos cloth is used by King Parhata (tribal chief) in traditional events of the Batak people, this is where the ulos cloth is used as a typical known now (S. Sihombing, 2022). Many stages must be passed in the manufacture of ulos fabric, including the following:

The first stage is the manufacture of yarn and yarn dyed by fermentation process with natural materials, after the coloring process is done graphics (*tip*), followed by weaving, yarn that has been structured and then woven to become a piece of cloth ulos.

## 3. Tuak (Typical Drink Batak Toba)

Tuak is a typical North Tapanuli drink served for childbirth, marriage, death, deliberation, and also as medicine. Tuak is interpreted as a way of familiarity, an expression of gratitude, or a brotherhood drink (S. Sihombing, 2022).

The main components of wine are water, carbohydrates, proteins, fats, and minerals, namely calcium and phosphorus. The Tuak collected in the morning is collected, after trying the taste, *paragat* puts it in a tub of tuak and gives the bark called *raru* to make it taste better.

## 4. Naniura Carp

Carp *naniura* is also typical of Batak Toba, where the fish is not cooked but eaten raw using spices and acids. In Japan, *sashimi* is called *naniura*. *Dengke naniura* uses goldfish found in Lake Toba, but can also use *mujahir* fish (S. Sihombing, 2022).

*Naniura* in meaning the process of cooking fish without fire, but very tasty when eaten. The process of maturation by fermentation of the main seasoning is the *sira*, or *Asam jungga*, or *kecombrang*. Cooked fish will taste fresh without a fishy smell. It will be more delicious when added *andaliman* and typical spices. Spices that have been ground together and then put until the fish is covered. The ripening process of *naniura* takes  $\pm 5$  hours.

## 5. Making Gomak Noodles

*Mie kuah* typical of North Sumatra, is usually served in coconut milk sauce with a touch of *andaliman*. The word *mie gomak* in the Toba language means grasped. In the past,

when processed, these thick noodles were grasped and then cooked (Informant2022). How to make this gomak noodle is very easy, namely First the noodle soup, heat the oil, saute the spices, lemongrass, and lime leaves until fragrant. Add the chicken meat, cook while stirring until it changes color, and then, pour in low-fat milk, and cook until the meat is tender. Add Royco beef broth, coconut milk, kecombrang, boil. Add coconut milk, kecombrang, and andaliman. Cook until boiling. Add leeks and tomatoes. Stir well, remove from heat. For the noodles, just boil until cooked (mushy). Arrange the noodles in bowls, and drizzle them with the broth.

## B. The Culture of Nias

Nias culture has a race that is often named Ono Niha which means Ono-child and Niha-man named "TAN6 NIHA". In nias races called fondak6 usually in Nias cultural life used to use the size of the stone.

The term group of relatives in South nias is called mbambató or in other words, relatives which are derived from the word gagambató commonly called in Indonesian, families. It is in this group of relatives is divided into two namely the first mbambató ba zimatu (male party relatives) and mbambató ba zi alawe (female). The equality of the male and female relatives is visible at the time of the party where when the husband and wife are old in other words the hostess will hold a party already good or invite family members or their relatives from both parties. If there is a patio going with the meaning of pembina food will be distributed back to relatives or family members of the male and female relatives secaraslang alternately. In the system of food distribution, there must be such a thing as justice for both parties, for example, the head of the pig(meat) will be given to the relatives of the male party, then the jaw will be given to the relatives of the female party, if the right leg is given to the relatives of the male party, then the left leg will be given to the relatives of the female party and so on.

The term kinship in Nias is quite a lot of kinship in the same generation, for example, half-siblings and Cousins will be addressed with the same term. This pattern can also be applied to generations, equivalent to parents and siblings where and their cousins or can be said to be the generation along with children or grandchildren or the generation with ancestors or feet along with siblings or said to be cousins of them.

Two general terms that are also usually associated with the terminology of saható ith the term family and fasumangeta" respect " A person will not be arbitrary where to use the term kinship especially to show a sense of kinship and respect for someone, but only specifically against a few people or arguably a group of owners or so-called family or a sense of kinship through interaction in the family or community well if you hear the news or that someone died

then someone will get up from his seat immediately if he knew that the dead was his mother's cousin or grandfather's brother or arguably family. ..

Nias culture has a custom where the male family will pick up from the married woman's House. Women's families must prepare to welcome guests including *sekampungnya*. Nias marriage is governed by very strict laws. The guest is usually an entire male family called *sowat*<sup>6</sup> which unites two large families that are related by marriage.

Marriage is one pair of marriages that will form a family consisting of a husband, wife, and children. This has a type of kinship such as the welcome of the stone handle or the *batih* family the Nias family is a family that has its sore period which means that the history of the family's underprivileged, now has been free from the masses.

### Traditional Ceremonies

The ceremony is very important in the life of the people of Nias in its implementation is adjusted to the prevailing customary provisions, this ceremony is each carried out by the NIAS tribe and is rarely done: a marriage ceremony.

Nias marriage is done by customary rules that have been established by involving the entire community at the ceremony. at this wedding celebration, Nias people usually named *falówa*. in this marriage is a way of formalizing that they have legally become husband and wife and can form a family.

This custom is strictly guarded so as not to be violated because breaking this system means incest. However, incest was common and without exception for the nobility a nobleman could freely marry any woman he liked except his grandmother his mother his stepmother's aunt's siblings, or stepsisters and nephews the custom of this exclusion was closely related to his religious background.

Talking about marriage needs to start from the level of engagement. The idea of marriage is based on the parents of the boy. After the parents make a decision they need to develop a close relationship with one of the relatives or a particular family member. Then the easiest way is to propose that the boy is betrothed to a girl from these relatives. This means that an engagement is not primarily the business of a boy or a girl but of the parents on both sides.

When the *papat Tulsa* ceremony is held, the parents of the men will hand over the form of gold to the parents of the women's family called *manó-manó* meaning nail words. The gold in the engagement also varies greatly for the nobility and most people. The nobility usually demanded about 6 to 12 gold stones while for the people as much as only about between 1 to 3 gold stones. Starting from the day of the engagement so that the

prospective son-in-law is free from visiting or working at the prospective father-in-law's house so that all his energy is needed. WhatsApp fiancé is a trial period to adjust each other between the two parties where the parents are men with female parents. Boys or girls are not allowed to communicate with each other walking or sitting side by side unless under the supervision of parents or other family members. It is possible to dissolve the engagement with the condition: if the male party dissolves the middle then the gold that has been given at the time of the ceremony "famatusa" will not be returned to them with the Gold will be considered as a fine.

### Custom Jewelry Nias

Head cover (saembu) named laeru. The Saembu worn by ordinary rakyat men and the lower classes is made of a piece of cloth that forms an isosceles triangle that is reminded on the head. The color of the fabric used is usually blue-brown. How to use it saembu by putting a triangular bud of fabric on the back of the nape of the neck.

A Machete made of iron called 'gari balatu' serves as a shield. At the end of the Hornbill beak-shaped is called 'delogu'. Machete mace made of hardwood engraved with the motif of the head of Ni'olasara/ God of war with other carvings that resemble leaf veins.

Raso (rencong) is made of iron or brass. The shape is straight with a length of approximately 30 cm. Gaga rasó is made of hardwood and wears a sarong just like the gala balatu gari.

Ear jewelry which means ear weights, made of silver shaped like the number 3 which has a hook to be inserted into the earlobe hole.

- Bracelets made of silver worn on the left and right wrist both ends of the bracelet are made at odds with the base of the bracelet. The base of the snake head bracelet is a symbol of tenacity that serves aesthetically. Empress and elderly women from among the nobility wear a wristband called Telangana worn on the right wrist with a shape resembling a plate made curved like a circle with a length of approximately 16-18 cm and
- a width is 8-10 cm. With slab thickness ranging from 1.5-2 mm
- A necklace called "Aya" is made of white stones or wooden acorns that are woven using thread
- An anklet called ' gala gahe' which is shaped like a spiral or round made of silver or copper galagahe is worn on the left foot or right foot.

A wristband called tógasa, made of silver, is made of silver or white stones of round shape and is worn on the left wrist. The circumference of the bracelet measures 28.5 cm with a diameter of 6 cm.

## Typical Food Nias

### 1. Kofo-kofo

Kofo - kofo as the food of the Nias people is taken from fresh fish meat with a fried process first and then mashed in a pounded manner but the cooking method takes a long time and is complicated.

### 2. Harinake

This food is often used at traditional parties or as a dish of food for guests. It is made from the flesh of a small animal. The meat is thinly sliced or diced and then cooked with other spices.

### 3. Gowi nifufu

This food is often used as a substitute for rice and as an appetizer before meals. From natural ingredients the yam in the processing process with cooked first and then crushed and mixed with coconut lung.



Mrs. Gatina Halawa



Mr. Selamat Sihombing

## 4. CONCLUSION

Based on the results of interviews and searches from other sources, it was concluded that Indonesian local wisdom is very much and interesting. Local wisdom itself can be related to science, especially ethnochemistry. Ethnochemistry itself is the study of chemistry that can be associated with culture.

Toba Batak tribe is the largest tribe spread in most cities in the province of North Sumatra (Medan). Traditional batak toba traditions are still practiced today. based on HASL interviews and other sources found a lot of local culture batak toba that can be associated with the chemical content, not only Batak Toba like batak Toba weddings, typical food, to typical drinks, it turns out Nias also has local wisdom that is not far less interesting that we can kitten with chemical content ranging from wedding customs, food specialties to gold.

Therefore, as a young generation, we must maintain and preserve our culture. Do not let the culture that has existed since the first lost extinct with the development of the present.

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