

Ecology of The Batak Toba Medicinal Plants in Praxis Social Approach

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ABSTRACT

This study was aimed to (1) describe the treasures of the medicinal plant ecolexicon in the Toba Batak language community and (2) describe the public's understanding of the medicinal plant ecolexicon based on the parameters of interrelation, interaction, and interdependence. In describing the eco-collection of the medicinal plants, we used the dialectical theory of social praxis, namely: (1) ideological dimensions, (2) sociological dimensions, and (3) biological dimensions. This study used qualitative research methods by obtaining the data from the results of interviews and observations. The results of the analysis of the first problem showed that the Toba Batak language medicinal plant lexical consisted of 10 types of medicinal plants and it was classified into four lexical groups, namely (1) leaf lexical, (2) fruit lexical, (3) rhizome lexical, and (4) tuber lexical. The results of the analysis showed that the forms of interrelation, interaction, and interdependence of the Toba Batak community from the data on the medicinal plant lexicon of the Batak Toba language.

1. Introduction

The Toba Batak people often use plants that are efficacious as a substitute for drugs. They consider medicinal plants to be more efficacious than drugs based on chemicals, preservatives, and other ingredients that can be harmful, such as side effects from using drugs. Many medicinal plants are used to treat certain medicines. Plant species in Indonesia are estimated to number 25,000 species or more than 10% of the flora world. The plants are owned by Indonesia are very diverse, ranging from lower to higher plants. One of the groups' plants owned by Indonesia is medicinal plants or better known as herbal plants.

An example of a herbal plant is the *napuran 'sirih' plant* (Latin: *Piper betle L.*). The *napuran* is a native plant of the Toba Batak people who lived by vines. In terms of shape and category, *napuran* is a basic lexical noun category. *Napuran* has a greenish-brown stem, round, segmented, and where roots emerge. spiky, growing alternately, stemmed and emitting a distinctive odor when squeezed. It is about 5 to 8 cm long and 2 to 5 cm wide. *Napuran* has deep interrelationships and interdependencies and is a versatile and multi-functional plant for the Toba Batak people. The plant is often used by the Toba Batak people to treat nosebleeds. A nosebleed is the bleeding that occurs from the nose. *Napuran* is used as a nosebleed remedy by squeezing it and then rolling it up. After that, the *napuran* leaves are plugged into the nose to stop the bleeding.

Based on the initial observations, the Batak Toba medicinal plants have been largely forgotten, because of the many types of drugs that are already available in pharmacies or drug stores that are purchased or used immediately. This also has an impact on changes in people's attitudes and behaviors in the field of medicinal plants which has implications for the extinction of the flora lexicon and the conversion of agricultural land into residential areas on a large scale, since it has a negative impact on the survival of flora. If this condition is continued, it would have an impact on language changes, both shifting and shrinking, and will ultimately result in the loss of the lexicon from the understanding of the community of speakers. Based on the explanation above, in the flora lexicon, the medicinal plants are needed to be treated seriously, because it is not only affected the extinction of the lexicon but also affected the flora environment. The problem of the study based on this case was what are the eco-collections of medicinal plants in the Toba Batak language community in North Sumatra, Indonesia?

2. Literature Review

2.1 The Medicinal Plants

The use of medicinal plants in Indonesia has started from the time of our ancestors. Indonesia is a country that has a diversity of medicinal plants that are very efficacious. Medicinal plants are one of the most important ingredients for herbal medicinal products. Medicinal plants are materials derived from plants that are still simple, pure, unprocessed. Medicinal plants are plants or parts of plants that are used as ingredients for traditional medicines or herbal medicines, plant parts are used as starting materials for medicinal raw materials (Prawirohartono & Hidayati, 2007). The definitions of the meaning of medicinal plants, namely: (1) Plants or parts used as medicinal ingredients traditional or herbal, (2) Plants or plant parts used as starting materials for medicinal raw materials (precursors), (3) Plants or plant parts extracted and the plant extract is used as medicine (Abdiyani, 2008).

Medicinal plants are all known types of plants that have good properties in helping to maintain health and treatment of a disease. Medicinal plants are a very close relation to traditional medicine because most of the utilization of medicinal plants has not been based on clinical testing laboratory but rather based on experience usage (Wibowo et. al, 2009). Currently, public knowledge and understanding of medicinal plants are growing. The public begins to understand that the actual use of plants for medicine can parallel and complement each other with modern medicine. Often, the use of medicinal plants for various reasons, herbs are used as the first choice for treatment (Kusuma et al., 2005). Medicinal plants have a close relationship with the community, both as a source of livelihood and income for farmers around the forest as well as opportunities that promise a lot of farming options ranging from pre to post-cultivation. Plant medicinal plants are plants which in each part (leaves, stems, or root) has medicinal properties and is used as an ingredient in raw materials in the manufacture of modern medicine or traditional medicine. (Sitepu and Sutigno, 2001).

2.2 Ecology and Environment

In his writing *Language, Ecology and Environment*, Muhlhausler (2001:3) mentions, there are four possible relationships between language and the environment. They have all been different subjects of linguistic study at one time, or at another. The four relationships are (1) language stands and forms itself (Chomsky, *Cognitive Linguistics*); (2) language is constructed by nature; (3) nature is constructed by language (structuralism and poststructuralism), and (4) language is interconnected with nature-both construct each other, but rarely stand-alone (echolinguistics). According to Haugen (in Fill and Muhlhausler, 2001: 1), the language environment or language ecology is a living space, a place where languages live. Living language exists in speech communities and is actually present in verbal and written communication and interaction. Ecology is the science of the environment while linguistics is the science of language.

Ecolinguistic theory views language as a container that functionally records human knowledge about the surrounding natural environment as well as the socio-cultural environment as a sign of their relationship and interaction with nature. In line with Sapir's view (in Fill and Muhlhausler, 2001:2), rich and complete metaphorical expressions reflect and reflect the repertoire of knowledge of the speaking community about their physical, social environment, their ideas as well as the character of the environment, and the culture of the language owners. The study of ecolinguistics looks more at the link of the ecosystem which is part of the system of human life (ecology) with the language used by humans to communicate in their environment. The environment is a physical language environment that presents various languages in society. This bilingual/multilingual situation encourages language interaction. The physical environment with various social conditions greatly affects language speakers psychologically in the use of their language (Al-Gayoni, 2010:31).

The diversity of vocabulary (and the diversity of languages in an environment), even in one language, is also related to the environmental conditions of the language. The complete lexicon contained in the dictionary of a language clearly describes the treasures of ideas and concepts of the people he says about their physical and social environment. (Mbeti, 2013:23). The three ecolinguistic parameters, namely (1) the existence of interrelationships (interrelationships), interaction (interaction), and interdependence/interdependence (interdependency) (2) the existence of a certain environment (environment), and (3) the diversity (diversity) in the environment, both human as well as other creatures as natural contents in certain environments can be used as a guide in dissecting language and the environment (Muhlhausler, 2003).

According to Faridah (2014:32), the three-dimensional theory consists of:

1. The ideological dimension, namely the relationship between individual and collective mental, cognitive, and psychological systems of a person which is reflected in language, linguistic treasures with their meaning/behavior content and the existence of community ideology or ideals.
2. The sociological dimension, which is about the way a person organizes relationships between others to build, establish, and maintain harmonious individual relationships collectively.

3. The biological dimension, which is related to the natural environment and coexists with nature and all its contents, including species of flora, fauna, rocks, micro, and macro-organisms.

3. Methodology

This study used qualitative research. Qualitative research was a research that intends to understand phenomena about what was experienced by research subjects such as behavior, perception, motivation, action, etc. holistically and by way of description in the form of words and language, in a special natural context and by utilizing various scientific methods.

In this study, the types of data used were primary data and secondary data. The primary data were words obtained from the Toba Batak language-speaking guyub informants in Silahisabungan District, Dairi Regency. The data were obtained through interviews with informants. The informants were traditional medicine makers and Farmers in Silahisabungan District, Dairi District. The sample data sources at the initial stage of entering the field were selected people who have long made traditional medicines and farmed in the village and who understand the vocabulary of medicinal plants in Silahisabungan District. Secondary data were written documents such as traditional Batak Toba medicine and books related to the eco-collection of medicinal plants in the Toba Batak language.

The presentation of the results of data analysis was carried out by two methods, namely the informal method and the formal method. The first type of method was carried out with ordinary words (a natural language) although with technical terminology and the second method is carried out with signs and symbols (an artificial language).

4. Results and Discussion

The answers to the research problems were:

1. There were 10 lexicons of medicinal plants in Batak Toba speech community. The lexicon of BBT medicinal plants was apapaga 'pegagan' (centela asiatica), appirdot 'pirdot' (saurauia bracteosa), atirangga 'pacar air' (impatiens balsamina), bangun-bangun 'daun jinten' (plectranthus amboinicus), dingin-dingin 'cocor bebek' (kalanchoe pinnata), gambir 'gambir' (uncaria gambir), inggu 'inggu' (ruta angustifolia), sangge-sangge 'serai' (cymbopogon nardus), gambiri 'kemiri' (aleurites molluccana), and harambir 'kelapa' (cocos nucifera).
2. All of these lexicons were analyzed using social praxis theory, namely the biological dimension, ideological dimension, and sociological dimension. This proved that the Batak Toba still used medicinal plants for their social life until now because it had a good health benefits that were recorded verbally in the Batak Toba community's cognitive.
3. The Batak Toba community's understanding of the eco-lexicon of Batak Toba medicinal plants based on the parameters of interrelationships, interaction, interdependence proved that Batak Toba medicinal plant was still interrelated with the 31 lexicon of medicinal plants in their social life. The meaning and function of these medicinal plants were based on the knowledge and experience of Batak Toba-speaking communities which were believed to cure certain diseases. Batak Toba culture's understanding of medicinal plants was also identified as having other uses, namely in customs, traditions, certain rituals, and as a food source. Batak Toba medicine's dependence on nature and its environment causes Batak Toba people to find out what properties were contained in the plant and used it as medicine. Furthermore, it was also clear that these medicinal plants required serious care and preservation of Batak Toba people. This understanding had never been disputed by Batak Toba people as traditional medicine. The result of the interaction from the older generation to the younger generation caused medicinal plants to be known and maintained by Batak Toba people. This means that apart from the interaction between the older generation and the younger generation, there was also the interaction between humans and nature in environmental care by the Batak Toba community. The analysis was shown below:



Figure 1. Apapaga 'pegagan' (Centela asiatica)

Apapaga was a soft plant that lives all year round. Apapaga had flowers with red and white colors. Apapaga fruit was small hanging and has a flat or oval shape which smells good and was tasted bitter. Apapaga was a stemless plant but had a short rhizome that ranges from 10 to 80 cm. Apapaga leaves were characterized by single, stemmed ranging from about 5 to 15 cm, shaped like a

kidney, serrated. Then the Batak Toba people made apapaga as one of the medicinal plants which were believed to provide good efficacy for health and were recorded verbally in cognitive of Batak Toba people social life in the order of ideological dimensions and sociological dimensions. Apapaga was believed to cure measles, fever, coughing up blood, and intestinal worms. The existence of the apapaga lexicon was still known and used by the Batak Toba people for generations in the sociological dimension.



Figure 2. Appirdot 'pirdot' (*Saurauia bracteosa*)

Appirdot plants had a height of 3 to 15 m. The leaves of the appirdot were oblong in shape, 18 to 36 cm long, 8 to 18 cm wide, serrated, tapered at the tip, and rounded at the base. Batak Toba people also made it one of the efficacious medicinal plants which were recorded verbally in the cognitive on the social life of MBT in the order of ideological dimensions and sociological dimensions. As an ideological dimension and a biological dimension, appirdot was believed to be able to cure several diseases such as stomachache, gout, and malaria. Appirdot grew a lot in the Batak Toba environment. Part of the appirdot used as medicine was the leaves.



Figure 3. Atirangga 'pacar air' (*Impatiens balsamina*)

Atirangga had juicy and thick stems but woody and edges its jagged leaves were spear-shaped and green in color. The flowers of Atirangga are consist of several colors (white, red, purple, and red). Atirangga had an oval-shaped green fruit that contained seeds that were black with a very small size. In the biological dimension, atirangga were used by Batak Toba people to heal swelling due to fractures.



Figure 4. Bangun-bangun 'daun jinten' (*Plectranthus Amboinicus*)

Bangun-bangun was a plant that grows quickly. The stem of the shape was, segmented, grows upwards to reach a height of 1 meter. Characteristics of leaf shape visible at the tip and base were pointed with jagged edges, except at the base of the leaf. Part of the shape that was beneficial to the health is the leaf. In the sociological dimension, the use of bangun-bangun was to cure canker sores, fever, asthma, cough, headache, rheumatism, and increased breast milk for new mothers to give birth to. Furthermore, in the sociological dimension, Batak Toba people also use bangun-bangun as vegetables in the 'maresek-esek' tradition of 'giving birth to a child'.



Figure 5. Dingin-dingin 'cocor bebek' (*Kalanchoe pinnata*)

The edges of the leaves were wavy and oval or round in shape with rich content of water. While the tips of the leaves were blunt with a rounded base. The surface of the leaves was smooth and bald. Cold-cold leaf length ranges from 5 to 20 cm with a leaf width that reached 2.5 to 15 cm. In the ideological and biological dimensions, dingin-dingin were believed by Batak Toba people to be used as a medicine for ulcers and fever.



Figure 6. Gambir 'gambir' (*uncaria gambir*)

The characteristics of gambier leaves were single, opposite each other, oval in shape with a rounded base like a heart with a tapered tip, slightly slippery texture, green with leaf sizes of 5 to 15 cm. In the ideological and biological dimensions, gambir was believed by Batak Toba people to cure toothache and stomach pain. The gambir lexicon was still attached and was still used by Batak Toba people in the sociological dimension, namely in the 'mardemban bersirih' tradition.



Figure 7. Inggu 'Inggu' (*Ruta Angustifolia*)

Inggu was a plant that had a small stem with a height of up to 1 m. The stem of the guinea plant had few hairs accompanied by leaves that were oval in shape. The leaves were short-branched, while the flowers were bright yellow with elongated stalks. In the biological dimension, the close relationship between Batak Toba people and inggu could be seen in the understanding of the biological development of the plant, which was identified in green. In the ideological and biological dimensions, the efficacy and benefits of inggu were believed by Batak Toba people to be useful for curing fever, toothache, and bruises.



Figure 8. Sangge-sangge 'serai' (*Cymbopogon nardus*)

Sangge-sangge leaves were straight, flat, about 1 m long, about 15 mm wide, and had parallel veins. Sangge-sangge leaf edges were sharp and the leaf surface was rough. The part of sangge-sangge used as a medicinal plant was the leaf. Furthermore, in the biological dimension, sangge-sangge was used by Batak Toba people to cure coughs, colds, and rheumatism. In addition, in the sociological dimension, sangge-sangge was also used as a kitchen spice in Batak Toba community.



Figure 9. Gambiri 'kemiri' (*Aleurites molluccana*)

Gambiri was a plant that has a height of about 15 to 25 meters. Gambiri leaves were pale green. Gambiri flowers were greenish-white, fragrant, and arranged in a number of clusters. Gambiri had green to brownish fruit, oval to round in shape. These characteristics are identified in the biological dimension. In the biological and sociological dimensions, Batak Toba people used gambiri to cure dysentery, ulcers, and toothache. The parts of gambiri used as medicine are the bark, sap, and fruit. In addition, in the sociological dimension of gambiri, Batak Toba people were also used as a spice in its special foods, such as in 'nani arsik' and 'nani ura.'



Figure 10. Harambir 'kelapa' (*Cocos nucifera*)

Harambir was a tree consisting of a single trunk, fibrous roots, with a thick and woody structure, and clustered together to form a hump. The trunk of Harambir was segmented and when the tree was old the segments will decrease. Harambir leaves were single leaves with pinnate spines. Harambir fruits were generally large with a diameter of about 10-20 cm or even more. In the biological dimension, Batak Toba people used harambir to cure fever and diarrhea. In addition, in the sociological dimension, harambir was still a plant known and used by Batak Toba people for generations.

5. Conclusion

With the reason of the importance of the function of regional languages, it was necessary to conduct basic and serious research on regional languages in Indonesia. One approach in this research was an ecolinguistic approach. The advantages of treatment with using plant ingredients traditionally were the absence of side effects caused as happened in modern medicine. Interdependent Batak Toba community was shown by the use of medicinal plants other than for medicine, cooking spices or food spices, and also used for cultural facilities. This proved that Batak Toba people were interdependent with medicinal plants, so Batak Toba medicinal plants play an important role in Batak Toba community's life.

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References

- [1] Abdiyani, S. (2008). Diversity of Efficacious Lower Plants Medicine in the Dieng Plateau. *Research Institute Solo*, 5(2), 24-35.
- [2] Al-Gayoni, Y. (2012). *Ecolinguistics*. Jakarta: Pang Linge in collaboration with the Research Center for Gayo (RCfG).
- [3] Faridah. (2014). *Ecolinguistics Treasures, Environmental Changes, and Shifts in Serdang Malay Language*. Medan: Mahara Publishing.
- [4] Fill, A., & Muhlhausler, P. (2001). *The Ecolinguistics Reader Language, Ecology and Environment*. London: Continuum.
- [5] Kusuma M. (2005). *Medicinal Efficacious Wild Plants*. Jakarta: Agromedia Library.
- [6] Mbetete, A. M. (2013). *Brief Guidelines for Writing Ecolinguistic Research Proposals*. Denpasar: Vidia.
- [7] Muhlhausler, P. (2003). *Language of Environment-Environment of Language. A Course in Ecolinguistics*, London: Battlebridge.
- [8] Prawirohartono, S., & Hidayati S. (2007). *Biological Sciences 1*. Jakarta: Bumi Aksara.
- [9] Sitepu, D., & Sutigno. (2011). The Role of Medicinal Plants in Plantation Forest Development. *Research Bulletin and Forestry Development*, 2(2), 61-77.
- [10] Wibowo, E. & Tepy. (2009). Extraction and Identification of Compounds Meniran Herb Antimicrobial (*Phyllanthus niruri* L.), *Biological Medicine*, 7(2), 57-63.