



Universitas Kristen Indonesia

Fakultas Keguruan dan Ilmu Pendidikan

SURAT TUGAS

No. 0633.A/UKI.F1.D/PPM.2.2/2021

Dekan Fakultas Keguruan dan Ilmu Pendidikan Universitas Kristen Indonesia.

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sebagai peserta dan aktif berperan pada kegiatan Webinar Internasional “The 3 rd International Conference on Education and Science: Theme research and Education Sustainable Post Covid 19 in Asian Context” Universitas Kristen Indonesia”. Kegiatan akan dilaksanakan pada tanggal 17-18 November 2021.

Demikianlah surat penugasan diberikan kepada yang bersangkutan untuk dilaksanakan dengan penuh tanggung jawab.

Jakarta, 12 November 2021

Dekan,



Dr. Sunarto, M.Hum.



CERTIFICATE OF RECOGNITION

0639/UKI.F1.D/PPM.2.2/2021

THIS CERTIFICATE IS PROUDLY PRESENTED TO

Prof. Dr. Marina Silalahi, M.Si.

has participated as **INVITED SPEAKER**

THE 3RD INTERNATIONAL CONFERENCE ON EDUCATION AND SCIENCE

THEME: RESEARCH AND EDUCATION SUSTAINABILITY POST COVID-19 IN ASIAN CONTEXT

UNIVERSITAS KRISTEN INDONESIA, JAKARTA-INDONESIA
NOVEMBER 17-18, 2021


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Indonesian Ethnomedicine and Its Research Methods

Marina Silalahi

The 3rd International Conference of Education and Science (ICES) 2021
Jakarta, November 17-18, 2021

ETHNOMEDICINE

- ❖ Etymologically, ethnomedicine comes from the words ethno (ethnic) and medicine (drug), therefore it is related to two things, namely ethnicity and medicine.
- ❖ It is scientifically stated that ethnomedicine is a perception and conception of ethnicity (local community) in understanding health or the study of traditional ethnic medical systems (Daval 2009).
- ❖ An ethnomedicine study was conducted to understand health culture from the community's point of view (emic), then scientifically proven (etic) (Walujo 2009).

- ❖ Initially, ethnomedicine research was part of health anthropology, but later it was one of the studies of Biological Sciences, especially bioconservation (figure 1).

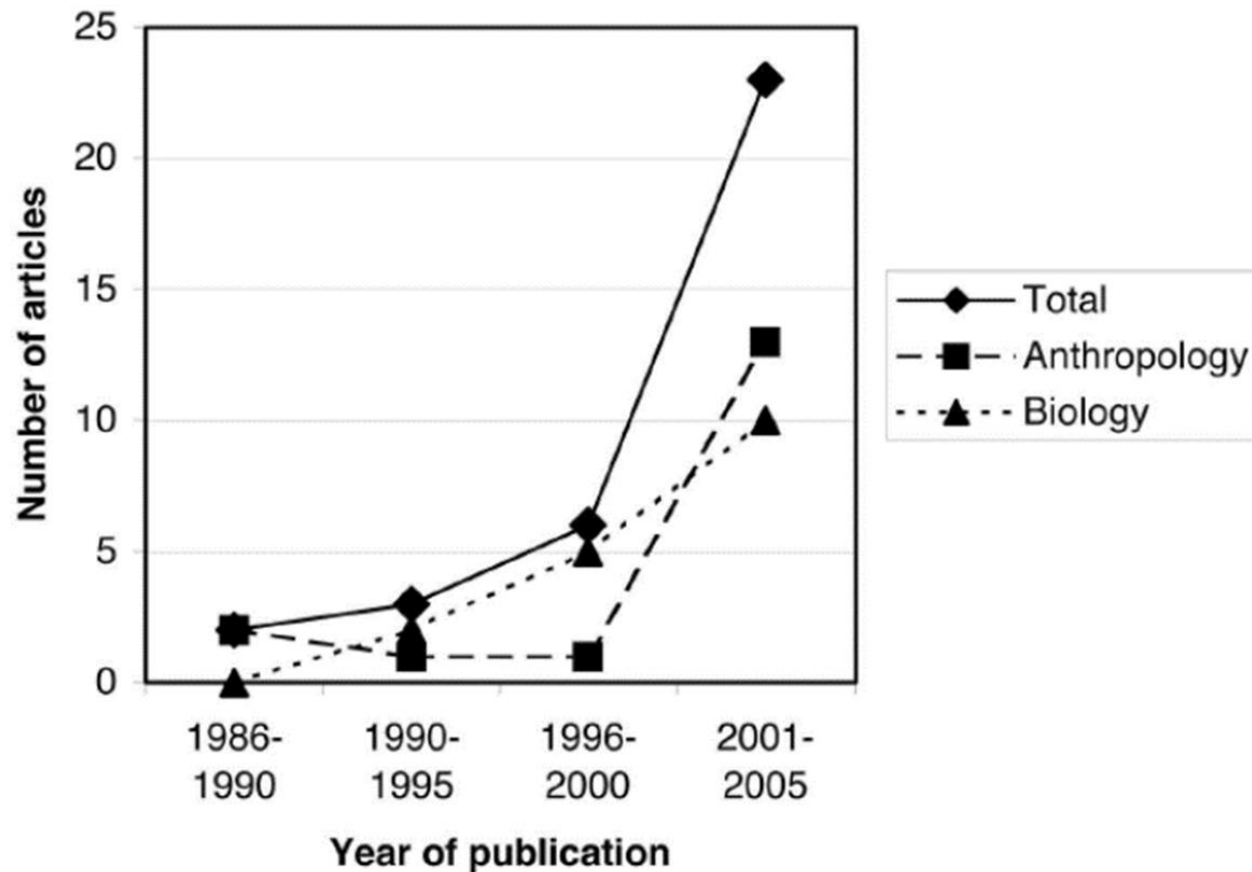


Figure 1. Number of ethnomedicine research articles conducted by anthropologists and botanists (Reyes-Garcia et al 2007)

- ❖ Documentation of useful plants in Indonesia, especially medicinal plants, has been carried out for hundreds of years, both partially and systematically.

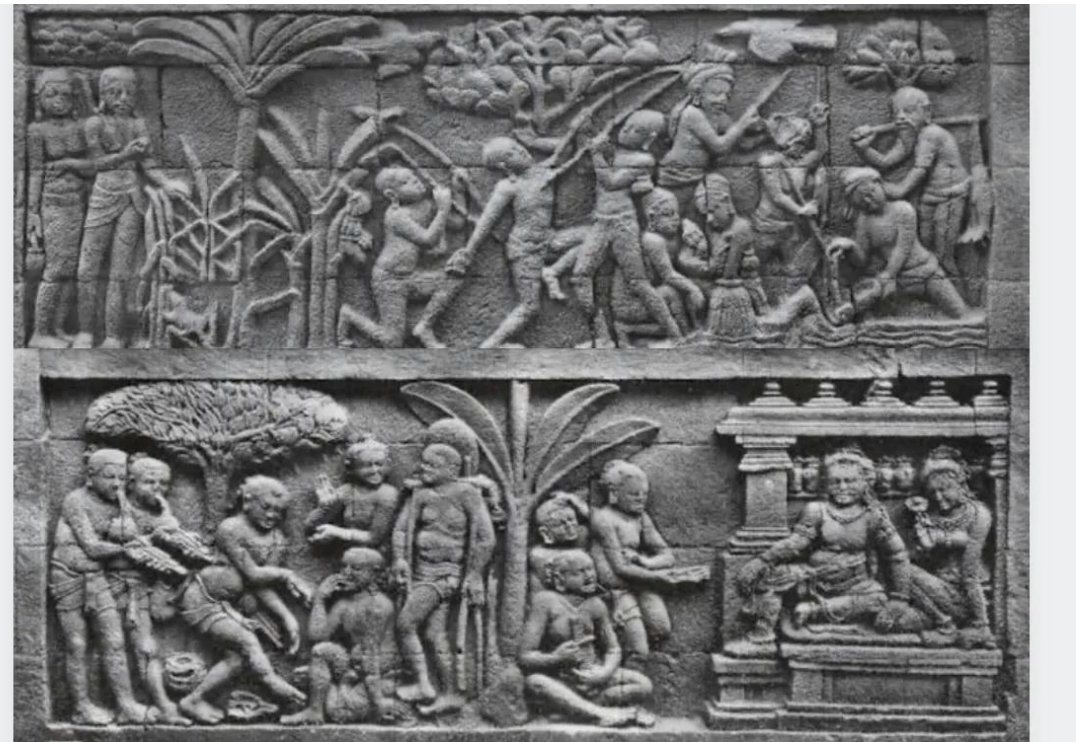


Figure 2. Relief of medicinal plants in Borobudur temple

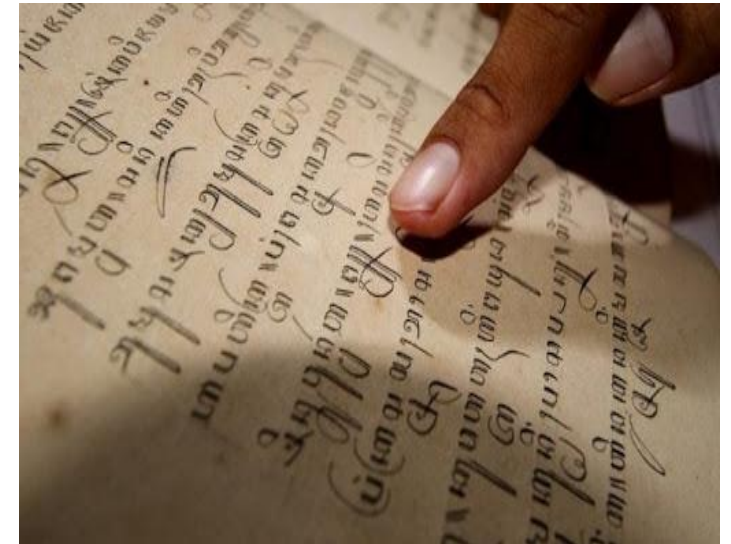
- ❖ Partial documentation includes reliefs of plants at Borobudur Temple and temples on the island of Java. Ancient manuscripts that explain recipes for medicinal plants to treat various diseases include Lontar Husada, Serat Sentini, Jampi-Jampi Jawi.



Lontar husada

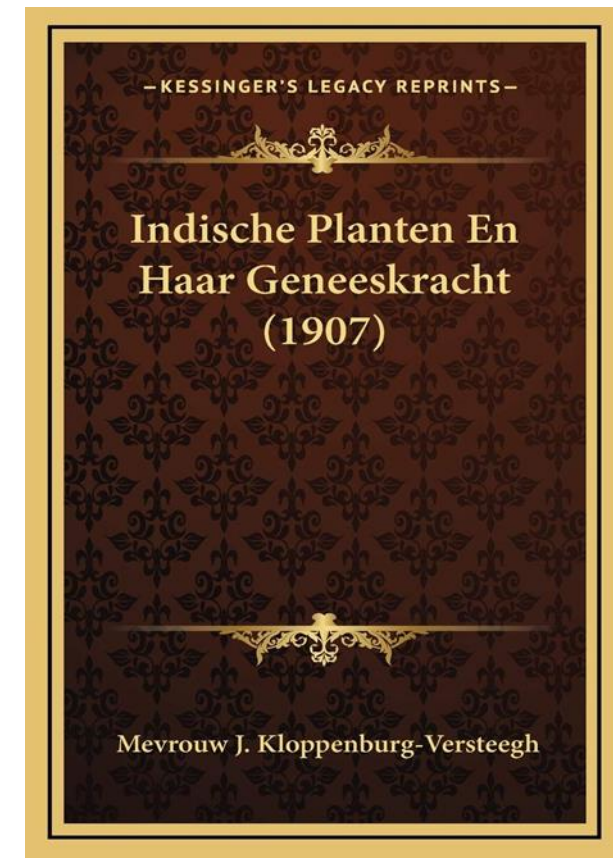
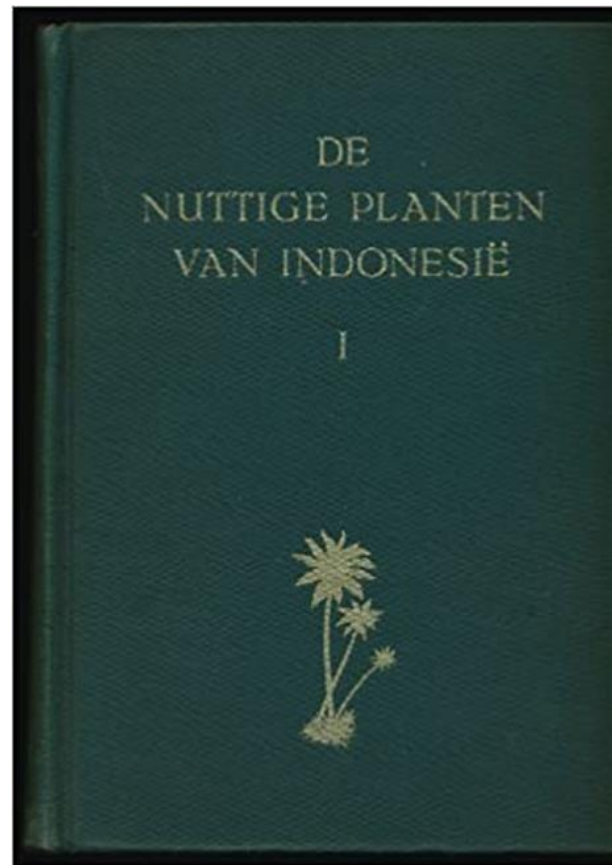
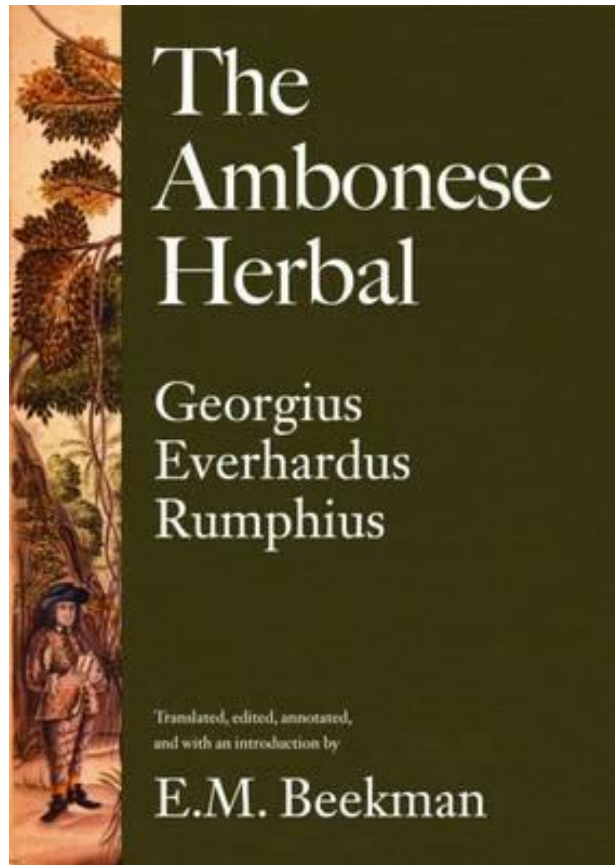


Serat Centini



Jampi-jampi jawi

- ❖ Systematic documentation of medicinal plants has been carried out by Dutch scientists during the Dutch colonial period in Indonesia, namely (1) Georgius Everhardus Rumphius (1627-1702) documenting Herbarium Amboinense (2) Karel Heyne (1907) has written the book De Nuttige Planten van Indonesia; (3) J.M.C. Kloppenburg-Versteegh (1906) wrote Indische planten en haar geneeskracht, G.C.T. Van Dorp.





G.E. Rumphius



Karel Heyne



Kloppenburg

- ❖ Although ethnomedicine research has been carried out in Indonesia for a long time, it was introduced as a scientific study in the 1980s, followed by the construction of the Ethnobotany Museum in Bogor on 18 May 1983. Several Indonesian scientists who have consistently developed ethnobotany and ethnomedicine include: Prof. Dr. Eko Baroto Walujo, Prof. Dr. Ervizal A. M. Zuhud, and Prof. Dr. Johannes Purwanto.



Museum Etnobotani



Eko Baroto
Walujo



Ervizal A. M.
Zuhud



Johannes
Purwanto

- ❖ Walujo (2008) reported that data on ethnobotany and ethnomedicine in Indonesia is still concentrated on the islands of Java and Bali as shown in Figure 2. Currently, ethnomedicine research is mostly aimed at discovering new chemical compounds as raw materials in the manufacture of drugs for serious and dangerous diseases, such as cancer drugs.



Figure 2. Map of ethnobotany/ethnomedicine research, conducted by the Indonesian Institute of Science/LIPI (Walujo 2008).

Ethnomedicinal Research We Have Done

BIODIVERSITAS

Volume 16, Number 1, April 2015

Pages: 44-54

ISSN: 1412-033X

E-ISSN: 2085-4722

DOI: 10.13057/biodiv/d160106

Local knowledge of medicinal plants in sub-ethnic Batak Simalungun of North Sumatra, Indonesia

MARINA SILALAH^{1,3,*}, JATNA SUPRIATNA¹, EKO BAROTO WALUJO², NISYAWATI¹

- ❖ It was found that 239 species (170 genera, 70 families) of medicinal plants were used to cure 18 kinds of natural diseases and 2 kinds of supra natural diseases. Almost half of those plants (119 species) had leaves used as medicines.
- ❖ It see that younger generation had lost their knowledge in the medicinal plants because their knowledge of medicinal plants (48.19 ± 8.35 species) was lower than the that of older generation (170.19 ± 18.38 species), while our key informants had the highest knowledge of medicinal plants among respondents (202.00 ± 12.32 species).

Characteristics	Name of diseases	Number of species
Natural disease	Hypertension	15
	Cough	10
	Ashma	24
	Diarrhea	22
	Gastrointestinal disorders	72
	Stomach ache	12
	Fractures	41
	Rheumatism	6
	Itch	8
	Ulcer	12
	Kidney disease	25
	Diabetes mellitus	21
	Aphrodisiac	13
	Injury	39
	Fever	64
	Eye infection	6
	Thrush	4
Toothache	5	
Supranatural disease	<i>Busung (liver disease)</i>	23
	<i>Alogo-alogo (“malnutrition”)</i>	18
Traditional concoction	<i>Tinuktuk tawar (“mashed concotion” to maintain stamina)</i>	117
	<i>Tinuktuk paranggetek (“mashed concotion” to maternity)</i>	11

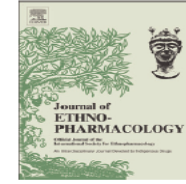
Table 1. Number of medicinal plants species used to cure the “diseases” in sub-ethnic Batak Simalungun of North Sumatra.



Contents lists available at ScienceDirect

Journal of Ethnopharmacology

journal homepage: www.elsevier.com/locate/jep



The local knowledge of medicinal plants trader and diversity of medicinal plants in the Kabanjahe traditional market, North Sumatra, Indonesia



Marina Silalahi ^{a,*}, Nisyawati ^b, Eko Baroto Walujo ^c, Jatna Supriatna ^b,
Wibowo Mangunwardoyo ^b

- ❖ Market is the main place for transactions of medicinal plants and traditional ingredients by local community in the Karo regency, North Sumatra, Indonesia.
- ❖ We recorded 344 species, 217 genera and 90 families of medicinal plants. Those that were sold mostly belong to Zingiberaceae (20 species), Poaceae (19 species), and Asclepiadaceae (17 species).
- ❖ Asclepidiaceae was used to treat diseases like cancer and heart problems.
- ❖ [Dischidia imbricata (Blume) Steud., Dischidia nummularia R.Br., Hoya macrophylla Blume, and Hoya coriacea Blume] have been used for cancer treatment by local communities, but pharmacologically unknown, hence they are promising candidates for further investigation.

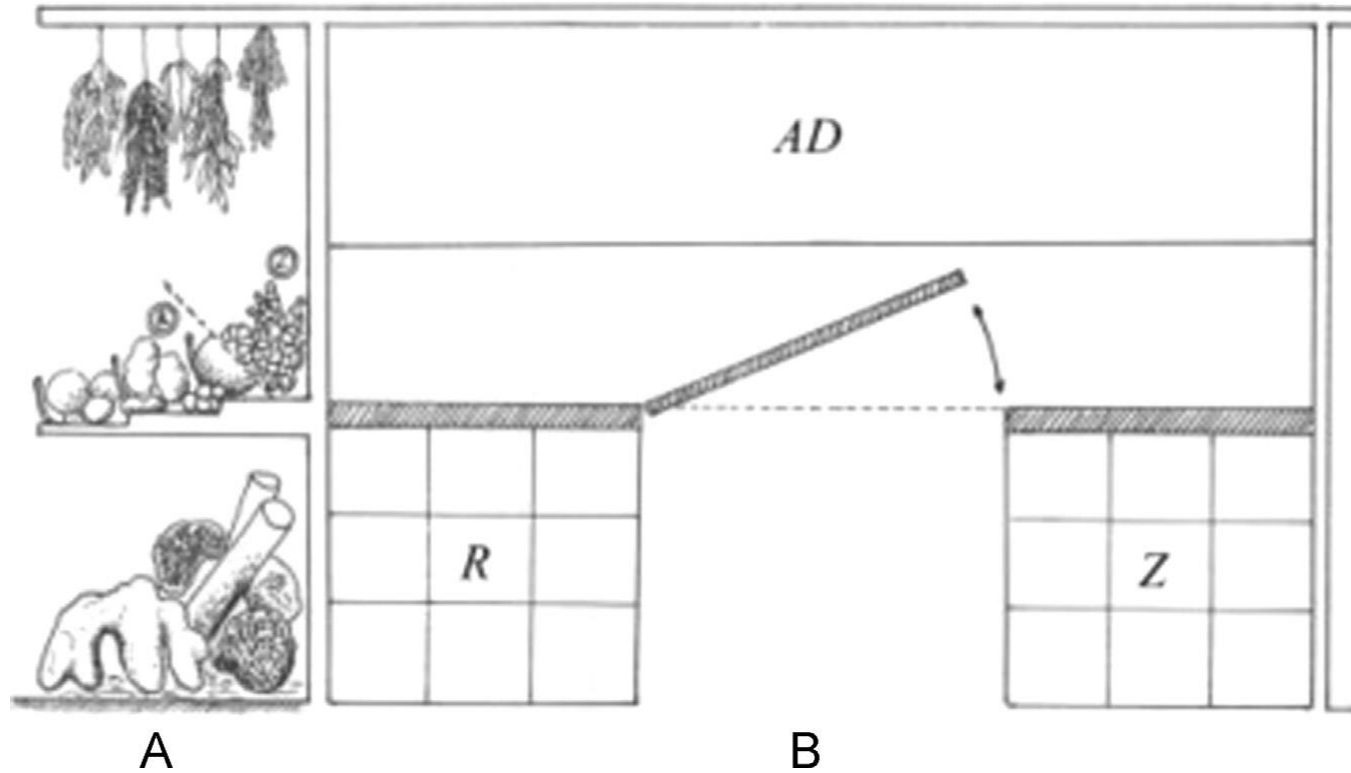


Figure 3. schematic arrangement of medicinal plants in Kabanjahe market stall. (A) store view vertically; (B) side of the store front/main room; AD (variety of leaves); R (Rutaceae); Z (Zingiberaceae).

An ethnobotanical study of traditional steam-bathing by the Batak people of North Sumatra, Indonesia

Marina Silalahi^{ID A,C} and Nisyawati^B

- ❖ The basic principle of steam-bathing by the Batak people is based on thermotherapy and aromatherapy. A total of 59 species (belonging to 37 genera and to 25 families) have been documented as medicinal plants for their use as steam-bathing materials by the Batak people.
- ❖ The traders, midwives and mothers are all aware of the benefits of steam-bathing.
- ❖ *Gaultheria leucocarpa* Blume and *Cinnamomum porrectum* (Roxb.), the species that produce distinctive aromas and reduce pain, would be interesting to study for their phytochemical and pharmacological properties.

Table 2. The medicinal benefits of steam-bathing according to the Batak people in North Sumatra

Medicinal benefits	No. of responses		
	Traders of medicinal plants (<i>n</i> = 9)	Midwives (<i>n</i> = 9)	Mothers (<i>n</i> = 32)
Restoring stamina	9	9	32
Cleansing women's reproductive organs	9	9	20
Improving blood circulation	9	9	18
Increasing breast milk production	8	6	12
Curing headache	7	2	11
Smoothing the skin	7	2	0
Curing rheumatism	7	0	0
Curing polyps	6	0	0
Reducing cholesterol levels	5	0	0
Curing diabetes mellitus	4	0	0



Figure 4. Left. Steam-bathing materials. Right. The stall and traders of medicinal plants in the Kabanjahe traditional market.



Contents lists available at [ScienceDirect](#)

Journal of Ethnic Foods

journal homepage: <http://journalofethnicfoods.net>

Original Article

Gastronomic ethnobiology of “*terites*”—a traditional Batak Karo medicinal food: A ruminant’s stomach content as a human food resource



Endang C. Purba ^{a,*}, Marina Silalahi ^b, Nisyawati ^a

- ❖ A total of 29 plant species belonging to 17 families were used to prepare *terites*.
- ❖ The main rationale behind consuming this indigenous food was its perceived medicinal value, particularly for the treatment of digestive disorders.
- ❖ Karo people use several lesser-known wild food plants for preparation of this local specialty.
- ❖ To best of our knowledge, consumption of chyme in tropical Asia is so far unique solely to the Batak Karo people.
- ❖ This extraordinary food heritage of Karo indigenous gastronomy, based on traditional knowledge, indicates rich foodscapes and bio-cultural diversity of the Batak Karo ethnic group.

Table 3. Informant consensus on most commonly used wild edible plants.

Scientific name of wild edible plants	No. of informants	Percentage
<i>Bischofia javanica</i> Blume.	29	22.8
<i>Aleurites moluccanus</i> (L.) Willd.	27	21.3
<i>Begonia laruei</i> M. Hughes	22	17.3
<i>Eugenia polyantha</i> Barb. Rord.	13	10.2
<i>Medinilla speciosa</i> Blume	11	8.7
<i>Polygonum Chinense</i> Linn	10	7.9
<i>Enhydra fluctuans</i> Lour	5	3.9
<i>Debregeasia longifolia</i> (Burm.f.) Wedd.	5	3.9
<i>Artabotrys suaveolens</i> (Blume) Blume	4	3.1
<i>Ficus fistulosa</i> Reinw	1	0.8
		100



Figure 5. The terites soup. Terites is a Batak Karo soup.



Edible plants of the Batak Karo of Merdeka District, North Sumatra, Indonesia

Endang C. Purba, Marina Silalahi

Correspondence

Endang C. Purba ^{1*}, Marina Silalahi ²

- ❖ A total of 53 food plants belonging to 27 families were documented. Thirty percent of the collected species are wild and used for food. Several of these edible plants are also referred as medicinal plants for local people so they could be classified as food medicines.
- ❖ *Begonia laruei* M. Hughes, *Medinilla speciosa* Blume, *Debregeasia longifoli* (Burm. f.) Wedd, *Zanthoxylum acanthopodium* DC and *Eugenia polyantha* Barb. Rord. need to be evaluated as potential crops.
- ❖ The importance of some of these plant species as wild crops must be outlined since they are a source of genetic resources to establish diversity food.

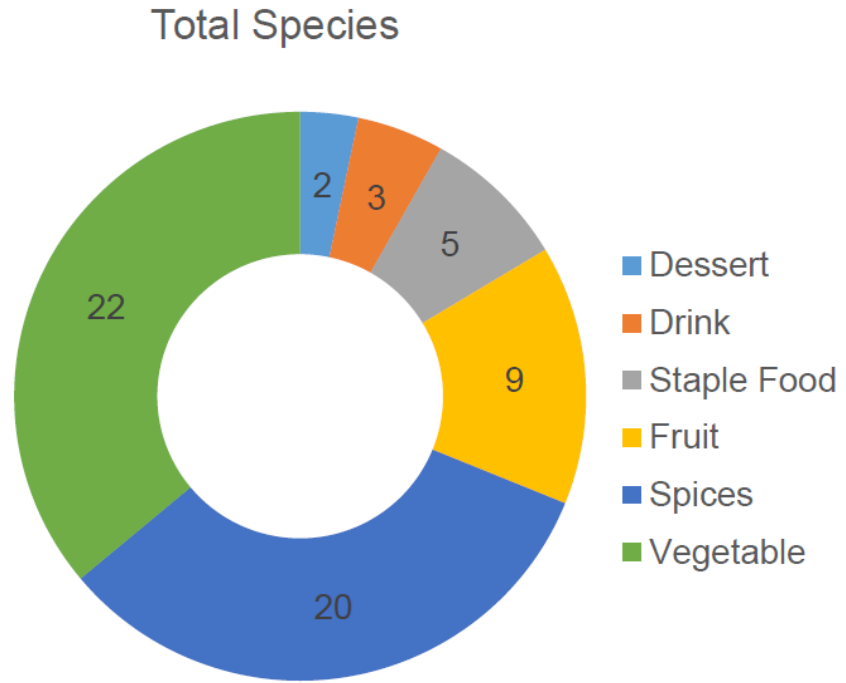


Figure 6. Food categories and the number of plant species used as food by Karo tribe in the study area.

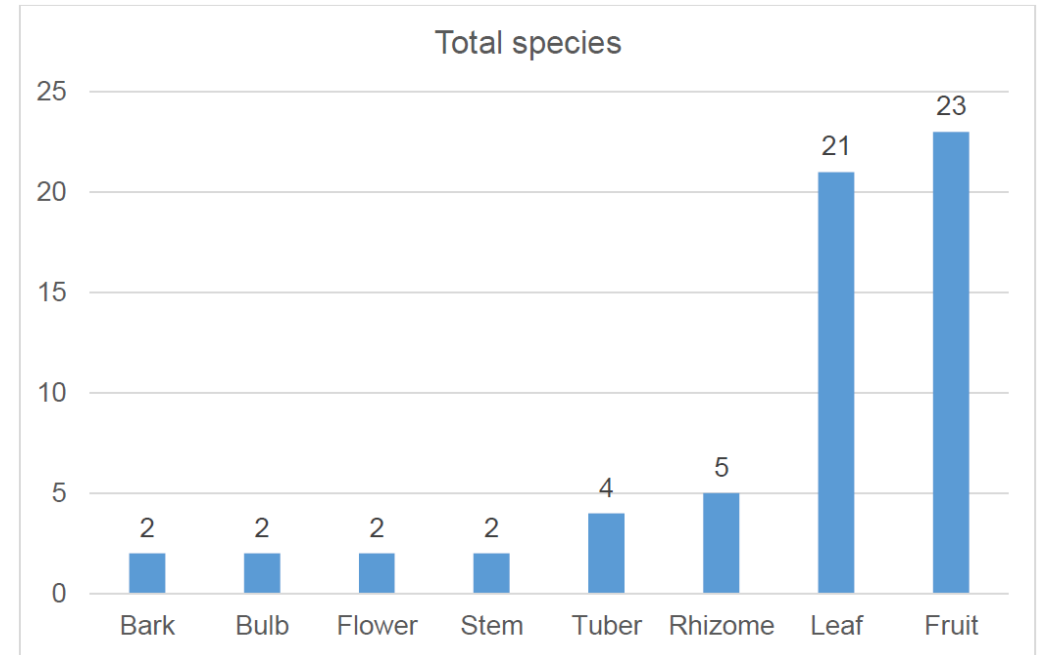


Figure 7. Plant parts consumed as food by the Karo people of North Sumatra, Indonesia.

Ethnomedicine Research Methods

A. The Market Survey

- ❖ Markets, especially traditional markets for the community, function as places for buying and selling transactions, exchanging information on plant benefits (Lee et al 2008), and livelihoods (Toksoy et al 2010).
- ❖ In addition, the market can also reveal the benefits of plants through market surveys, as well as the conservation status and development plans of medicinal plants (van Andel et al 2012).

- ❖ The traditional market that is used as the research location is a market that trades medicinal plants so that it can describe culture or wisdom local/ethnic.
- ❖ Respondents are all (some) traders of medicinal plants depending on the research objectives.
- ❖ Respondents were determined by purposive sampling or snowball sampling
- ❖ Several things were asked: local name, part used, benefits, method of use, source of acquisition, inventory (stock), packaging method (single, herb), selling price, market demand (high, medium and low) (Silalahi et al 2015).
- ❖ Specimen voucher is made for scientific name identification

In the research Silalahi and Nisyawati (2019)

- ❖ Information concerning the use of steam-bathing was obtained by means of interviews. Informants consisted of nine traders of medicinal plants, nine midwives, and 32 mothers.
- ❖ The informants in the local community surveys were the mothers who had taken steam-baths and they were selected with purposive snowball sampling methods.
- ❖ Purposive sampling is a technique of determining informants based on criteria set by researchers, in this case the criteria used were informants who knew the ingredients and processes of steam bathing.
- ❖ Snowball sampling is a technique of determining informants who have been recommended by previous informants.
- ❖ All traders of medicinal plants in Kabanjahe and Berastagi traditional markets were designated as respondents, while midwives and mothers were selected with purposive snowball sampling method (16 informants in the Kaban Tua village and 16 informants in the Tanjung Julu villages).

B. Village Survey

- ❖ Mostly used by ethnomedicine researchers, especially homogeneous villages that still use medicinal plants in their daily life.
- ❖ However, it can be done in a heterogeneous village or city, but the ethnic focus of Bali Aga (Sujarwo et al. 2015) depends on the research objectives.
- ❖ Survey data collection, interviews and participatory observations.
- ❖ Researchers have local language skills and cultural knowledge.

- ❖ Respondents in this survey were divided into general respondents and key informants.
- ❖ Respondents were determined by purposive sampling and snowball sampling.
- ❖ For completeness of research on geographical, topographical, economic and socio-cultural conditions of the community.

In the research Gastronomic ethnobiology of “terites”da traditional Batak Karo medicinal food: A ruminant's stomach content as a human food resource (Purba et al 2018)

- ❖ Information for this study was collected during April-June 2014 and August 2016 through questionnaires and semistructured and general conversations from the herbalists, village elders, and farmers.
- ❖ The interview was carried out with the help of 29 informants; Semangat Gunung (7), Jaranguda (3), Merdeka (2), Cinta Rayat (4), Doulu (4), and Lingga (9).
- ❖ The head of the village was used as a key informant who could provide information on how many people know about terites.
- ❖ The informants were chosen based on traditional ecological knowledge, professional activity, and age.

- ❖ Each informant was interviewed individually in Batak Karo language.
- ❖ Informants were asked to provide a list of ingredients used to prepare terites. The local names of all the plants used, use of plants, plant parts used, and mode of preparation of terites were then collected under the guidance of whoever gave the information about the preparation of terites.
- ❖ The plants used included not only wild species but also cultivated plants that had been taken from the forest and planted in gardens or agricultural fields.
- ❖ The specimens were identified and deposited at the herbarium of the Universitas Indonesia, Depok, Indonesia. Scientific names of the plants species were verified using The Plant List online source.

CONCLUSION

- ❖ Ethnomedicine is a study of local people's perceptions and conceptions in understanding health which is carried out to understand health culture from the community's point of view (emic), then scientifically proven (etic).
- ❖ In Indonesia, ethnomedicine research has been carried out since the Dutch colonial, but as a scientific study it began to develop since 1983.
- ❖ The Karo and Simalungun Batak ethnic groups still use medicinal plants to maintain their health.

- ❖ The medicinal plant traders in Kabanjahe and Berastagi the traditional markets have local wisdom in composing, arranging and managing their stalls so that they are similar to "herbarium".
- ❖ Data collection methods be used in ethnomedicine research are market and village surveys. The sources of information are respondents (key informants and general respondents) who were determined based on purposive and snowball sampling.
- ❖ Ethnomedicine research in Indonesia must be improved so that the degradation of local wisdom, especially the use of plants, be suppressed.

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