

# Ethnobotanical Survey of Medicinal Plants in Nagari Tuo Pariangan, West Sumatera

Wika Mardiyah<sup>1\*</sup> N Nisyawati<sup>1</sup> M Silalahi<sup>2</sup>

<sup>1</sup> *Biology Department, Faculty of Mathematics and Sciences, Universitas Indonesia Jakarta, Indonesia*

<sup>2</sup> *Biology Education Department, Faculty of Teacher Training and Education, Universitas Kristen, Indonesia, Jakarta, Indonesia*

\*Corresponding author. Email: wika1210422001@gmail.com

## ABSTRACT

An ethnobotanical survey of medicinal plants was carried out among Minangkabau tribe in NagariTuoPariangan, West Sumatera. The survey was carried out to gather information on the use of medicinal plants in order to learn about traditional knowledge of NagariTuoPariangan community. Semi-structured interview was used to conduct this survey. Fifty three respondents consisting of 7 key informants and 47 general respondents were interviewed. A total of 47 species of plants distributed in 46 genera belonging to 28 families were identified as commonly used medicinal plants by NagariTuoPariangan community for digestive disease. In this study, documenting the medicinal plants and associated traditional knowledge can be used to conserve and sustain the utilization of medicinal plants in NagariTuoPariangan community. Extensive research on such medicinal plants are important to validate scientifically their ethnomedical knowledge.

**Keywords:** *digestion, ethnobotany, medicinal plants, Pariangan.*

## 1. INTRODUCTION

The utilization of plants as medicine has started since 4000 – 5000 BC by the people of China[1]. Until today, researches which study the knowledge of medicinal plants within the scope of ethnobotany among the traditional society of Indonesia are still focused on Java Island and only a few on Sumatera Island. A village in Sumatera Island that is occupied by traditional society is NagariTuoPariangan. NagariTuoPariangan is pretty close to the city center, which enables easy access for the people to obtain synthetic drug. Easy access makes the people tend to use synthetic drugs because it is more practical. The tendency to use synthetic drugs may cause degradation towards the traditional community's knowledge[2].

Digestive disease is one of the most common diseases occurred to the people of NagariTuoPariangan, according to the conducted initial survey. Digestive disease includes stomachache, gastroesophageal reflux disease, constipation, dysentery, diarrhea, and meteorismus. This symptom shows due to foods that are hard to digest, overeating or irregular eating, unbalanced diet, spicy food, and drinking water contamination[3,4]. The research to record the knowledge of NagariTuoPariangan community in the utilization of medicinal plants to cure digestive disease has never been conducted before. The non-existence of documentation may result in the degradation of the Nagari Tuo Pariangan community's knowledge on ethnobotany of medicinal plants from generation to generation.

Based on this problem, a survey on the ethnobotany of medicinal plants in NagariTuoPariangan was necessary. This survey aimed to record and to study the knowledge of NagariTuoPariangan traditional community about medicinal plant. The studied medicinal plants were plants used to cure digestive disease.

## 2. MATERIAL AND METHODS

### *Time and Location*

The research was conducted on May – June 2019. The data were collected at NagariTuoPariangan, West Sumatera. The tribe that became the research target was Minangkabau tribe at four jorong (Pariangan, Sikaladi, Padangpanjang, andGuguak). Plant species identification was conducted atAndalasHerbarium, Biology Department, Faculty of Mathematics and Sciences,Andalas University.

### *2.2. Respondents*

The respondents within this research were 54 people, consisted of key informants (7 people) and common respondents (47 people). Key informants consisted of WaliNagari (1 people), leader of jorong (4 people), leader of custom (1 people), and bundokanduang (1 people). Key informants was selected based on the knowledge and experience in utilizing local plants. The common respondents were selected using purposive sampling, under the condition that they had the knowledge on medicinal plant and are married. The common respondents

were also selected using snowball sampling method based on the information from the key informants.

### 2.3. Data Analysis

The data analysis was performed descriptively based on the knowledge of Nagari Tuo Pariangan traditional community in the utilization of medicinal plants for digestive disease.

### 3. RESULT AND DISCUSSION

Based on the research result, it was found that Nagari Tuo Pariangan community utilized 47 species of medicinal plants to cure digestive disease, belonging to 46 genus and 28 family (Table 1). Digestive disease consisted of toothache, mouth ulcer (sariawan), gastritis (tukak lambung), stomachache, dysentery, diarrhea, nausea (mual), meteorismus, swollen stomach, gastroesophageal reflux, stomach burn, stomach cramps, and intestine cancer. The parts of the plant that were used as the medicine were the leaf, bud, pistil, ripe fruit, young fruit, fruit's peel, pulp, blossom, stem, sap, stem bud, water in trunk cavity, root, and bulb.

Table 1. Medicinal plants that used to cure digestive disease by Nagari Tuo Pariangan community, West Sumatra

Family	Scientific Name	Habitus	Local Name	Parts of the Plant	Benefits
Rubiaceae	<i>Uncaria gambir</i> (Hunter) Roxb.	Climber	Gambia	Leaf, stem	Gastritis
	<i>Paederia foetida</i> L.	Climber	Sentri	Leaf	Stomachache, dysentery
Sapotaceae	<i>Manilkara zapota</i> (L.) P. Royen	Tree	Saus	Ripe fruit, young fruit, root, sap, pistil	Stomachache, diarrhea
Rutaceae	<i>Citrus aurantifolia</i> (Christm.) Swingle	Tree	Asamkapeh	Ripe fruit	Stomachache, gastritis
	<i>Clausena excavata</i> Burm. f.	Tree	Sicerek	Leaf	Stomachache
	<i>Citrus hystrix</i> DC.	Tree	Asamsundai	Ripe fruit	Stomachache, nausea
Amaryllidaceae	<i>Allium cepa</i> L.	Herbs	Bawangmerah	Bulb	Meteorismus, stomachache
Zingiberaceae	<i>Curcuma longa</i> L.	Herbs	Kunyik	Bulb	Gastritis, meteorismus, swollen stomach, gastroesophageal reflux, stomachache, intestine cancer, stomach burn, toothache
	<i>Zingiber officinale</i> Roscoe	Herbs	Sipadeh	Bulb	Stomachache, stomach cramps, gastritis, stomach burn
	<i>Etilingera elatior</i> (Jack) R. M. Sm.	Herbs	Sijengkeng	Root	Gastritis

Solanaceae	<i>Nicotianatabacum</i> L.	Herbs	Timakau	Leaf	Meteorismus
	<i>Capsicum annum</i> L.	Herbs	Ladomerah	Leaf	Stomachache, mouth ulcer
	<i>Solanumlycopersicum</i> L.	Herbs	Tomat	Ripe fruit	Intestine cancer
	<i>Physalis minima</i> L.	Herbs	Latui-k-latui-k	All part	Gastritis
Poaceae	<i>Oryza sativa</i> L.	Grass	Padi	Ripe fruit	Stomachache
	<i>Gigantochloa</i> atter(Hassk.) Kurz	Bamboo	Buluah	Water in trunk cavity	Stomach burn
	<i>Dendrocalamus</i> asper(Schult.) Backer	Bamboo	Batuang	Water in trunk cavity	Stomach burn
	<i>Leersiahexandra</i> Sw.	Grass	Banto	Leaf	Stomach burn
	<i>Imperata cylindrical</i> (L.) Raeusch	Grass	Ilalang	Leaf	Stomach burn
	<i>Cymbopogon citrates</i> (DC.) Stapf	Herbs	Sarai	Stem	Toothache
Compositae	<i>Artemisia vulgaris</i> L.	Herbs	Capo	Leaf	Gastroesophageal reflux
	<i>Ageratum conyzoides</i> (L.) L.	Herbs	Busuakputiah	Leaf	Gastritis, swollen stomach
	<i>Vernonia</i> amygdalinaDelile	Shrub	Daun Afrika	Leaf	Toothache
Leguminosae	<i>Vignasp.</i>	Herbs	Kacangtujuhhalai	Leaf	Stomachache, stomach burn
Musaceae	<i>Musa × sapientum</i> L.	Herbs	Pisangrajo	Stem bud	Stomachache
	<i>Musa balbisiana</i> avar. <i>brachycarpa</i> (Backer) Häkkinen	Herbs	Pisangbatu	Blossom	Stomach cramps
Moraceae	<i>Artocarpusheterophyllus</i> Lam.	Tree	Cubadak	Leaf	Stomachache
Cucurbitaceae	<i>Benincasahispida</i> (Thunb.) Cogn.	Climber	Kunduabatang	Ripe fruit	Stomach burn, stomachache, mouth ulcer
Salicaceae	<i>Homalanthuspopulneus</i> (Geiseler) Pax	Tree	Budi	Leaf	Stomachache
Euphorbiaceae	<i>Manihotesculenta</i> Crantz	Shrub	Pucuakubi	Ripe fruit, bulb	Gastritis, gastroesophageal reflux
	<i>Ricinuscommunis</i> L.	Shrub	Jirak	Leaf	Stomachache
Myrtaceae	<i>Psidiumguajava</i> L.	Tree	Paraweh	Pistil, ripe fruit, fruit's peel, root	Diarrhea
Lauraceae	<i>Perseaamericana</i> Mill.	Tree	Pokat	Bud	Dysentery
Lamiaceae	<i>Orthosiphonaristatus</i> (Blume) Miq.	Herbs	Sunguikkuciang	Leaf	Stomachache, stomach burn
	<i>Plectranthus</i> scutellarioides(L.) R.Br.	Herbs	Piladangungu	Leaf	Nausea
Loranthaceae	<i>Taxillusferrugineus</i> (Jack) Bân	Parasite	Binalu kopi	Leaf	Gastritis
Talinaceae	<i>Talinumpaniculatum</i> (Jacq.) Gaertn.	Herbs	Ginseng	All parts	Dysentery
Acanthaceae	<i>Graptophyllum</i> pictum(L.) Griff.	Shrub	Pudianghitam	Leaf	Gastritis
Sapindaceae	<i>Nephelium</i> lappaceumL.	Tree	Rambutan	Bud	Stomach burn

Urticaceae	Poikilospermumsuaveolens(Blume) Merr.	Climber shrub	Lundang	Root	Stomach burn
Malvaceae	Hibiscus rosa-sinensisL.	Shrub	Bungorayoputiah	Leaf	Stomach burn
	Abelmoschusmanihot(L.) Medik.	Shrub	Parasetamol	Leaf	Mouth ulcer
Arecaceae	CocosnuciferaL.	Tree	Karambia	Ripe fruit	Stomach burn
Annonaceae	AnnonamuricataL.	Tree	Durian lauik/durian balando	Leaf	Intestine cancer, toothache
Boraginaceae	SymphytumofficinaleL.	Herbs	Daun ginjal	Leaf	Toothache
Caricaceae	Carica papayaL.	Tree	Kalikih	Sap	Toothache
Piperaceae	Piper ningrumL.	Climber shrub	Merica	Ripe fruit	Toothache

Modern medical facilities are available in Nagari Tuo Pariangan, but the people still use medicinal plants to cure some diseases. The people of 60-70 years old mostly use medicinal plants to cure diseases before using synthetic drugs. The people of 40-50 years old mostly use synthetic drug before using medicinal plants. The medicinal plants used were fewer compared to other places in Sumatera Island, like in Bengkulu. The people of Bengkulu use 68 species of medicinal plants to cure digestive disease[5]. This might be caused by the frequent visitation from the Department of Health and pharmacy students to Nagari Tuo Pariangan to promote the use of synthetic drugs. Synthetic drugs are much more practical compared to medicinal plants, making the people to prefer synthetic drugs to receive faster medication. Nagari Tuo Pariangan community is suspected to experience knowledge degradation on the medicinal plants from generation to generation.

The medicinal plants used by the Nagari Tuo Pariangan community to cure digestive diseases are also utilized as dish spice. Curcuma longais well-known as a spice which has the most benefits in dealing with digestive disease. This plant is commonly used by people from another Asian region as well, such as India, Bangladesh, and Pakistan[6]. Curcuma longa is able to increase the production of mucus at the gastric wall to overcome disorder on the stomach. Curcuma longa is also able to inhibit intestinal irritable bowel or gastritis disease that is caused by stress and alcohol. An experiment was conducted to 25 patients who suffered from peptic ulcer disease. These patients were administered with 600 mg of Y powder 5 times a day. The result showed that 48% of the patients were fully cured from peptic ulcer disease[7]. Curcumin substance in Y is able to relieve diarrhea, neutrophil infiltration, and lipid peroxidation on colon tissue[8].

**4. CONCLUSION**

Nagari Tuo Pariangancommunity utilized 47 species of medicinal plants to cure digestive disease, belonging to 46 genus and 28 family. The people of 60-70 years old

mostly use medicinal plants to cure diseases before using synthetic drugs, while the people of 40-50 years old mostly use synthetic drug before using medicinal plants. The medicinal plants used were fewer compared to other places like in Bengkulu. This might be caused bythe tendency to use synthetic drugs and degradation of knowledge. Curcuma longais well-known as a spice which has the most benefits in dealing with digestive disease.

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