



ETHNOPHARMACOLOGICAL STUDY OF MEDICINAL PLANTS IN GAMPONG ATONG, ACEH BESAR

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Abstract

Medicinal plants have secondary metabolite compounds that are effective for treatment and health care. The people of Aceh Besar, especially Gampong Atong, have their own traditions in medicine by utilizing medicinal plants as local wisdom. This study aims to inventory plants that have pharmacological activity in relation to treatment and maintenance of public health in Gampong Atong, Montasik. This type of research is a qualitative study with a snowball sampling technique. The research subjects were determined through informant sampling. The methods used were interview, observation, and documentation methods. The data validity checking technique used was the triangulation technique of sources, techniques, and time. The results of the study obtained 22 types of medicinal plants that were utilized by the people in Gampong Atong as traditional medicine. The parts of the plant that were utilized were mostly leaves (63.7%), then fruit (13.6%), rhizomes (18.2%) and tubers (4.5%). The techniques for utilizing parts of medicinal plants vary, such as boiling, grinding, applying, pounding, kneading, and crushing. The medicinal plants obtained were classified into 17 families. It is hoped that the PKK mothers in Gampong Atong will be able to preserve various types of medicinal plants spread across the village area by creating a village medicinal garden so that it can be utilized by the community.

Keywords: ethnopharmacology, medicinal plants, traditional medicine, qualitative methods

INTRODUCTION

Indonesia is a megadiverse country with a variety of flora and fauna. In addition, Indonesia has a variety of cultures originating from various tribes and ethnicities. This diversity has given birth to various traditions in the use of plants as medicine (Candra et al., 2024; Santi, Siregar, et al., 2023).

It is estimated that there are thousands of types of flora in Indonesia and 3000-4000 plant species are used. The parts of the plant that are most often used as medicinal ingredients are leaves and fruit because they contain many secondary metabolite compounds that have pharmacological effects. Herbal plants are also effective in preventing disease (preventive), increasing endurance, and restoring health (rehabilitative) (Miraj et al., 2019; Santi & Candra, 2023).

Some countries have used medicinal plants as medicine, such as in India which uses papaya leaves as an anti-inflammatory. Malaysia uses pandan leaves, lemongrass and henna as deodorants to eliminate body odor (Candra & Santi, 2017; Sankarganesh et al., 2018; Santi, Zakaria, et al., 2023).

The tradition of using traditional medicine since our ancestors and has been carried out from generation to generation. Various studies have been conducted to test the active compounds of drugs contained in various plants. Scientific studies conducted by researchers in Indonesia are still very few (0.0012%) compared to Japan and Singapore. Therefore, it is very important to carry out an inventory of medicinal plants that are efficacious and their effectiveness in curing diseases (ethnopharmacology) (Bhardwaj et al., 2019; Candra et al., 2024).

Information on various traditional medicines can be used as a reference in the field of medicine to date (Candra et al., 2023; Santi et al., 2022). Likewise, people in Aceh Province use medicinal plants with certain concoctions and techniques. Based on initial observations that researchers made on the community in Gampong Atong, many still use efficacious plant medicines to treat various diseases. Most of them use traditional medicine as first aid when experiencing symptoms of the disease.

Inventory of types of medicinal plants and their potential utilization as well as how to process and how to obtain medicinal plants in the Atong village community has never been done. The purpose of this study was to determine the types of medicinal plants that are efficacious and the level of community knowledge about these drugs (ethnopharmacology). The results of this study are expected to add to the traditional medicine treasury of the community about the use of plants as traditional medicine.

METHODS

This study uses qualitative and quantitative methods with an ethnographic approach. Research data were obtained through interviews and direct observations in the field. Interviews were conducted with the community to obtain the types of medicinal plants and their ethnopharmacology. Each medicinal plant was recorded by its local name, the part used and how to use it.

This research was conducted in Atong Village, Montasik District, Aceh Besar Regency. The research was conducted in May 2024. The subjects of this study were the Atong Village community. Sampling was carried out by purposive sampling with inclusion criteria for respondents who knew the types of medicinal plants, their properties and how to use them. Determination of the number of respondents using the formula:

$$n = \sqrt{N+1}$$

Note: n = number of respondents

N = number of families

Based on data from Atong Village in 2024, there were 354 families so that the respondents determined were:

$$n = \sqrt{354+1}$$

$$n = 18.8$$

$$n = 19$$

This research began with conducting a survey at the Atong Village location and a literature study. This aims to obtain clear information about the information to be studied. Information on knowledge and utilization of medicinal plants was obtained through semi-structured interviews using questionnaires. Descriptive data analysis by describing the types of medicinal plants including their utilization, utilization techniques presented in the form of tables and narratives. Identification of plant taxonomy was carried out through the flora of java book and the website <http://www.theplantlist.org/>

RESULTS AND DISCUSSION

Research Results

The characteristics of research respondents are shown in Table 1.

Table 1.
Characteristic of Respondents

Respondents	Frequency	%
Gender	3	15.7
Man		
Female	16	84.3
Age		
30-40 years	3	15.7
41-50 years	10	52.7
51-60 years	6	31.6
Job		
Housewife	8	42.2
PNS	2	10.5
Freelance	3	15.7
Farmer	6	31.6

Table 1 shows that the majority of respondents were female (84.3%), most were aged 41-50 years (52.7%) and most worked as housewives (42.2%). Furthermore, the results of research on the types of medicinal plants that grow and are used in Gampong Atong can be seen in Table 2.

Table 2
Types of Medicinal Plants Used by Respondents

No	Plant	Ilmiah Name	Family	Parts Used	How to Use	Benefit
1	Pepaya	<i>Carica papaya</i>	Caricaceae	Leaf	Boiled	Malaria, diarrhea
2	Pinang	<i>Areca catechu</i>	Arecaceae	Fruit	Ground	Increase the stamina
3	Binahong	<i>Anredera cordifolia</i>	Basellaceae	Leaf	Pounded	cholesterol, wound healing
4	Kuda-kuda	<i>Lannea coromandelica</i>	Anarcadiaceae	Leaf	Boiled	Wound healing
5	Sambiloto	<i>Andrographis paniculata</i>	Acanthaceae	Leaf	Boiled	Malaria
6	Capa	<i>Blumea balsamifera</i>	Asteraceae	Leaf	Boiled	Malaria, wound healing
7	Jeurangau	<i>Acorus calamus</i>	Arecaceae	Rhizome	Ground	anticonvulsant
8	Bawang merah	<i>Allium cepa</i>	Amaryllidaceae	Tuber	Crushed	Fever medicine, cold

9	Sikokoh	<i>Chromolaena odorata</i>	Asteraceae	Leaf	Squeezed	Wound healing
10	Saga	<i>Abrus prekatorius</i>	Fabaceae	Leaf	Squeezed	Cough medicine
11	Salam	<i>Syzygium polyanthum</i>	Myrtaceae	Leaf	Boiled	Diabetes medicine, Cholesterol
12	Jeruk nipis	<i>Citrus aurantifolia</i>	Rutaceae	Fruit	Squeezed	Cough medicine
13	Jahe	<i>Zingiber officinale</i>	Zingiberaceae	Rhizome	Boiled	Cold
14	Kunyit	<i>Curcuma longa</i>	Zingiberaceae	Rhizome	Ground	Cold
15	Mahkota dewa	<i>Phaleria macrocarpa</i>	Thymelaeaceae	Fruit	Dried	Cholesterol
16	Merak	<i>Caesalpinia pulcherrima</i>	Fabaceae	Leaf	Squeezed	Fever medicine
17	Temulawak	<i>Curcuma zanthorhiza</i>	Zingiberaceae	Rhizome	Ground	Appetite stimulant
18	Kelor	<i>Moringa oleifera</i>	Moringaceae	Leaf	Dried	Anticancer, stunting
19	Lidah buaya	<i>Aloe vera</i>	Asphodelaceae	Leaf	Smearred	Wound healing
20	Serai	<i>Chmbopogon citratus</i>	Poaceae	Leaf	Boiled	Antifungal
21	Belimbing wuluh	<i>Averrhoa bilimbi</i>	Oxalidaceae	Leaf	Boiled	Diabetes medicine
22	Sirih	<i>Piper betle</i>	Piperaceae	Leaf	Boiled	Feminine hygiene

Based on Table 2, the types of medicinal plants used by respondents in Gampong Atong consist of 22 species of medicinal plants grouped into 17 families. In addition, information was obtained on how to use and the parts of the plant used.

Discussion

Medicinal plants in Gampong Atong are cultivated, grow wild around rice fields and gardens, and some are planted in yards. Based on the research results shown in Table 2, various species of medicinal plants that grow in Gampong Atong can be grouped into 17 families. The family that is most widely used as medicine is Zingiberaceae. This group of plants contains oils with an aromatic and volatile odor. In addition to being used for treatment, species in this group are also used as cooking spices (Setyawan, 2002). Various plants found in Gampong Atong have been tested for pharmacological activity in several studies, such as providing anticancer, hepatoprotective, antidiabetic, antimicrobial, and cardioprotective activities (Singh et al., 2020). The results of pharmacological tests on the *Jatropha* plant showed antibacterial activity in skin infections in accordance with community utilization (Chandrasekaran et al., 2011). Basically, the utilization of medicinal plants that are hereditary in pharmacological activity tests both in vitro and in vivo have activity alignment with traditional use and test results.

Meanwhile, if viewed from the method of processing medicinal plants, most of them are by boiling. For external treatment, people choose the method of pounding and applying to the affected area. For internal treatment, the people of Atong village process medicinal plants in two ways, namely boiling and brewing or simply washing with clean water then squeezing to extract the essence. The

use of medicinal plants for treatment generally uses a single plant composition.

Basically, the use of medicinal plants by the community is simple, only based on the experience and information of previous parents. The practice of treatment is also unknown the correct dosage, but the most important thing is to process the plants so that they can be used for treatment. The treatment carried out by the community is categorized into 2 types, namely treatment for external diseases and treatment for internal diseases. External treatment is all treatment related to the outside of the human body such as skin diseases, toothache, eyes, and wounds. Meanwhile, internal medicine is a treatment that involves eating and drinking preparations of medicinal plants (Han & Ceilley, 2017; Nandini et al., 2020)

CONCLUSION

The the conclusion of this study is 22 types of medicinal plants that were utilized by the people in Gampong Atong, Montasik as traditional medicine (malaria, cold, wound healing, etc). The parts of the plant that were utilized were mostly leaves (63.7%), then fruit (13.6%), rhizomes (18.2%) and tubers (4.5%). The techniques for utilizing parts of medicinal plants vary, such as boiling, grinding, applying, pounding, kneading, and crushing. The medicinal plants obtained were classified into 17 families.

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