



**AN ETHNOBOTANICAL STUDY OF MEDICINAL PLANTS WITH
ANTIHYPERLIPIDEMIC EFFECTS IN THE SERANGPANGJANG REGION, SUBANG,
WEST JAVA, INDONESIA**

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ABSTRACT

Medicinal plants have been known for thousands of years and are widely appreciated as a rich source of therapeutic agents to prevent and cure various diseases. The use of traditional medicinal plants has significant advantages for cultural development, acceptability, and economic affordability. This research aims to document and preserve the use of ethnomedicine to treat hyperlipidemia by people in the Serangpanjang Region, Subang, West Java, Indonesia. Fieldwork was carried out from October to December 2024 using direct interviews, questionnaires and discussions. Plant species are identified based on standard taxonomic methods, flower morphological characteristics, and where possible, using samples for comparison, as well as consultation with experts and the literature. The plant types obtained were grouped into families according to the Cronquist classification system. Plant names were checked against the Plant List (www.plantlist.org) and the International Plant Name Index (www.ipni.org). This study reports that 30 plant species are commonly used by people in the Serangpanjang Region to treat hyperlipidemia. Among the various plant parts used, leaves (56.7%) are most often used in making medicine, followed by fruit (23.3%), rhizome (10.0%), stem, rind, and seeds (3.3% respectively). Meanwhile, the most frequently used preparation method was infusion (56.7%), followed by decoction (20.0%), juice (20.0%), and paste (3.3%). The research results confirm that the Sundanese people in the Serangpanjang Region still rely heavily on medicinal plants for the treatment of hyperlipidemia. However, efforts to preserve medicinal plants and the local wisdom of the people in this area have not been significant. Therefore, it is recommended that local indigenous communities and the government carry out *in situ* and *ex situ* conservation strategies for medicinal plants in the Serangpanjang Region, so that the availability of medicinal plants in the region is maintained.

KEYWORDS: Traditional medicine, Ethnomedicinal plants, Serangpanjang Region, Antihyperlipidemic.

INTRODUCTION

Cardiovascular disease is associated with various risk factors such as blood pressure, cholesterol, LDL, HDL, glucose intolerance, and smoking. Controlling high cholesterol conditions is becoming increasingly important to reduce the prevalence of cardiovascular and coronary heart diseases. Increased cholesterol in the body can cause plaque formation and buildup in blood vessels, causing atherosclerosis.^[1] Hyperlipidemia is an increase in one or more of the plasma lipids, including triglycerides, cholesterol, cholesterol esters, LDL, and reduced HDL.^[2] The main goal of managing hyperlipidemia, especially reducing total cholesterol, LDL, triglycerides and increasing HDL, is to prevent

complications from heart disease.^[3] Allopathic hypolipidemic drugs are available at large in the market, but side effects and contraindications of these drugs have marred their popularity. Recently, herbal hypolipidemics have gained importance in overcoming these disadvantages.^[4]

Currently, research to obtain new antihyperlipidemic drugs derived from natural materials is continuing, one of which is through the exploration of active compounds from natural materials, especially medicinal plants that have traditionally been used by communities to treat hyperlipidemia in various regions in Indonesia.^[5-7] One of the Region that still uses herbal plants as an

alternative treatment for hyperlipidemia is Serangpanjang Region. This research aims to obtain detailed information about the use of herbal plants for alternative therapy for hyperlipidemia in Serangpanjang Region, Subang, West Java, Indonesia using a field survey method.

MATERIALS AND METHODS

Study Area

Serangpanjang is located in Subang Regency, West Java, Indonesia, with an area of 1,311,844 km². This area has an altitude of 1,000 meters above sea level with an average maximum air temperature of 31°C and a minimum of 21°C. Moreover, it is located between 06°41'49" South Latitude and 107°35'50" East Longitude. This region is a tropical climate area that is mostly inhabited by Sundanese tribes (90%) and other tribes (10%). Vegetation in the study area is in humid conditions with an average rainfall of 3,000 mm/year.

Data Collection

An extensive field survey was carried out to obtain information about medicinal plants from the Sundanese tribe in the study area. To document existing information about medicinal plants from tribal practitioners, several field visits were conducted from October to December 2024 in the Serangpanjang Region, Subang, West Java, Indonesia. During the research, ethnomedicinal information was collected from middle-aged and older tribal practitioners in their local language (Sundanese), through direct interviews, questionnaires, and discussions. Information on local names of plants, plant parts used, preparation methods and administration routes (e.g., infusion, paste, juice and decoction) of all ethnomedicinal plants collected were recorded during the survey period.

Botanical Identification

Plant species are identified based on standard taxonomic methods, flower morphological characteristics, and where possible, using samples for comparison, as well as consultation with experts and the literature.^[8] The plant types obtained were grouped into families according to the Cronquist classification system, except for Pteridophyta and Gymnospermae.^[9] Plant names were checked against the Plant List (www.plantlist.org) and the International Plant Name Index (www.ipni.org).

Ethics Statement

All participants provided verbal consent before the interview and gave consent to publish the information they provided.

RESULTS AND DISCUSSION

This research revealed that there are 30 plant species commonly used by the local Sundanese tribe to treat hyperlipidemia (Table 1). This shows that the study location is affordable in terms of biodiversity. Among the various plant parts used, leaves (56.7%) are most often used in making medicine, followed by fruit (23.3%), rhizome (10.0%), stem, rind, and seeds (3.3% respectively). The use of leaves is reported to be easier to prepare and easier to extract active substances from them for treatment. At the same time, leaves have less effect on the mother plant.^[10] Meanwhile, the most frequently used preparation method was infusion (56.7%), followed by decoction (20.0%), juice (20.0%), and paste (3.3%). These results are in line with previous research which reported that the forms of traditional medicine most widely used by the community were infusions and decoctions.^[8]

Table 1: Ethnomedicinal plants, local name, part used, mode of administration, and dosage uses in Serangpanjang, Subang, West Java, Indonesia.

No	Species	Family	Local name	Parts used	Mode of administration	Dosage of use
1	<i>Allium sativum</i> L.	Alliaceae	Bawang Putih	Rhizome	Juice	5 cloves once a day
2	<i>Aloe vera</i> L.	Xanthorrhoeaceae	Lidah buaya	Stem	Paste	100 grams once a day
3	<i>Annona muricata</i> L.	Annonaceae	Sirsak	Leaf	Infusion	100 grams once a day
4	<i>Apium graveolens</i> L.	Apiaceae	Seledri	Leaf	Infusion	100 grams once a day
5	<i>Averrhoa carambola</i> L.	Oxalidaceae	Belimbing	Fruit	Infusion	250 mL once a day
6	<i>Carica papaya</i> L.	Caricaceae	Pepaya	Leaf	Decoction	70 grams once a day
7	<i>Citrus aurantiifolia</i> (Christm.) Swingle	Rutaceae	Jeruk Nipis	Fruit	Juice	2 mL/kg once a day
8	<i>Citrus maxima</i> (Burm.) Merr	Rutaceae	Jeruk Bali	Rind	Infusion	150 grams once a day
9	<i>Curcuma longa</i> L.	Zingiberaceae	Kunyit	Rhizome	Infusion	400 grams once a day
10	<i>Cymbopogon nardus</i>	Poaceae	Sereh Wangi	Leaf	Infusion	50 grams once a day
11	<i>Daucus carota</i> L.	Apiaceae	Wortel	Fruit	Juice	400 grams once a day
12	<i>Dracaena angustifolia</i> (Medik.) Roxb.	Asparagaceae	Suji	Leaf	Infusion	25 grams once a day
13	<i>Glycine max</i> L.	Fabaceae	Kacang Kedelai	Seed	Juice	30 grams once a day

14	<i>Malus sylvestris</i> Mill	Rosaceae	Apel	Fruit	Juice	200 mL once a day
15	<i>Mentha longifolia</i> L.	Lamiaceae	Mint	Leaf	Infusion	2 grams once a day
16	<i>Momordica charantia</i> L.	Cucurbitaceae	Pare	Leaf	Decoction	5 grams once a day
17	<i>Morinda citrifolia</i> L.	Rubiaceae	Mengkudu	Fruit	Infusion	250 grams once a day
18	<i>Moringa oleifera</i> Lamk.	Moringaceae	Kelor	Leaf	Decoction	100 grams once a day
19	<i>Morus</i> L.	Moraceae	Murbei	Leaf	Infusion	50 grams once a day
20	<i>Murraya koenigii</i> (L.) Sprengel	Lamiaceae	Kari	Leaf	Infusion	15 grams once a day
21	<i>Pandanus amaryllifolius</i> Roxb.	Pandanaceae	Pandan	Leaf	Infusion	60 grams once a day
22	<i>Persea americana</i> Mill.	Lauraceae	Alpukat	Fruit	Juice	300 – 600 grams once a day
23	<i>Phaseolus vulgaris</i> L.	Fabaceae	Buncis	Fruit	Infusion	20 grams once a day
24	<i>Physalis angulata</i>	Solanaceae	Ciplukan	Leaf	Infusion	15 grams once a day
25	<i>Psidium guajava</i> L.	Myrtaceae	Jambu biji	Leaf	Decoction	50 grams once a day
26	<i>Salvia rosmarinus</i> Spenn	Lamiaceae	Rosemari	Leaf	Infusion	15 grams once a day
27	<i>Syzygium polyanthum</i> (Wight) Walpers	Myrtaceae	Salam	Leaf	Decoction	400 mL once a day
28	<i>Tamarindus indica</i> L.	Fabaceae	Asam Jawa	Leaf	Infusion	20 grams once a day
29	<i>Vernonia amygdalina</i> Del	Asteraceae	Daun Afrika	Leaf	Infusion	300 grams once a day
30	<i>Zingiber officinale</i> Rosc.	Zingiberaceae	Jahe	Rhizome	Decoction	20 grams once a day

CONCLUSIONS

The practice of treatment using traditional medicinal plants is an important strategy for maintaining knowledge about complementary and alternative medicine in the health care system. In addition, ethnopharmacological studies provide important information for guidance in the bioprospecting of new drugs of plant origin. The results of this study confirm that people in the Serangpanjang Region still rely heavily on medicinal plants for their health care system, especially for the treatment of hyperlipidemia. However, efforts to preserve medicinal plants and the local wisdom of the people in this area have not been significant. Therefore, it is recommended that local Indigenous communities and the government carry out *in situ* and *ex situ* conservation strategies for medicinal plants in the Serangpanjang Region, so that the availability of medicinal plants in the region is maintained.

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