



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

**Fidela Cahya Camilla, Alya Nidaul Husna, Arif Kurnia Rahman, Divia Maulidatun Annisa, Elmi Fuvida,
Iin Nur'aini, Inayah Salehah, Mardani Syaputra, Nabila Azmi Fauziah, Nadia Nur Arifah, Putri Zulaikha,
Reyhan Radithya Bilo, Rosita Putri, Safana Nur Asfarani, Salwa Aulia Putri T, Syaira Banun and
Maulana Yusuf Alkandahri***

Faculty of Pharmacy, Universitas Buana Perjuangan Karawang, Karawang, West Java, Indonesia.



*Corresponding Author: Maulana Yusuf Alkandahri

Faculty of Pharmacy, Universitas Buana Perjuangan Karawang, Karawang, West Java, Indonesia.

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ABSTRACT

Gout is the most common arthritis with increasing incidence and prevalence throughout the world. Currently, researchers are starting to look for new antihyperuricemic compound candidates derived from natural ingredients that have been empirically proven to have antihyperuricemic effects. This research aims to document and preserve the use of ethnomedicinal to treat hyperuricemia by communities in the Patokbeusi Region, Subang, West Java, Indonesia. Fieldwork was carried out from March to April 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 research reports that 30 plant species are commonly used by people in the Patokbeusi Region to treat hyperuricemia. Among the various plant parts used, leaves (56.7%) are most frequently used in making medicines, followed by rhizomes (20.0%), seed (10.0%), fruit (6.7%), stem, and rind (respectively 3.3%). Meanwhile, the most frequently used preparation methods were decoction (80.0%) and infusion (20.0%). The results of this research confirm that people in the Patokbeusi Region still rely heavily on medicinal plants for their health care system, especially for the treatment of hyperuricemia with the most frequently used parts of the leaves and their use in decoctions and infusions.

KEYWORDS: Traditional medicine, Ethnomedicinal plants, Patokbeusi Region, Antihyperuricemia.

INTRODUCTION

Currently, the prevalence of hyperuricemia ranges from 1-4% worldwide and the incidence ranges from 0.1-0.3%. Hyperuricemia generally occurs more often in men than women with a ratio of 3:1 to 10:1. The incidence and prevalence of hyperuricemia continue to increase with each decade of life, with prevalence increasing to 11-13% and incidence increasing to 0.4% in people aged over 80 years.^[1] Although this condition can be managed effectively using currently available drugs, the existing drug options have many side effects.^[2,3] In addition, low patient treatment compliance also causes the recurrence of increased uric acid levels.^[4] Hyperuricemia is the main cause of gout arthritis. This disease is inflammatory arthritis caused by the deposition of monosodium urate (MSU) crystals in and around the joints.^[5] The use of medicinal plants for the treatment of various diseases has

increased throughout the world because they are considered much safer than synthetic drugs.^[6]

Medicinal plants have been widely used in traditional practices by different ethnic populations throughout the world for the prevention and/or treatment of several chronic diseases. Despite the development of newer technologies and advances in modern medicine, most of the world's population still relies on traditional systems of medicine to fulfill their medical care, especially in Indonesia.^[7] One of the Region in Indonesia that still uses herbal plants as an alternative treatment, especially to treat hyperuricemia, is the Patokbeusi Region. This research aims to obtain detailed information about the use of herbal plants for alternative therapy for hyperuricemia in Patokbeusi Region, Subang, West Java, Indonesia using a field survey method.

MATERIALS AND METHODS

Study Area

Patokbeusi is located in Subang Regency, West Java, Indonesia, with an area of 80.57 km². This area has an altitude of 26 meters above sea level with an average maximum air temperature of 34°C and a minimum of 27°C. Moreover, it is located between 06°34' 11" South Latitude and 107°45' 46" East Longitude. This area is a tropical climate area that is mostly inhabited by Sundanese tribes (98%) and other tribes (2%). Vegetation in the study area is in humid conditions with an average rainfall of 2,352 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 March to April 2024 in the Patokbeusi 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 30 plant species are commonly used by local people to treat hyperuricemia (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 frequently used in making medicines, followed by rhizomes (20.0%), seed (10.0%), fruit (6.7%), stem, and rind (respectively 3.3%). 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 methods were decoction (80.0%) and infusion (20.0%). These results are in line with previous research which reported that the forms of traditional medicine most widely used by the community were decoctions and infusions.^[8]

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

No	Species	Family	Local name	Parts used	Mode of administration	Dosage of use
1	<i>Abrus precatorius</i> L.	Fabaceae	Saga	Leaf	Decoction	125 grams once a day
2	<i>Allium sativum</i> L.	Alliaceae	Bawang Putih	Rhizome	Infusion	200 grams once a day
3	<i>Alpinia purpurata</i> K. Schum.	Zingiberaceae	Lengkuas	Rhizome	Decoction	250 grams once a day
4	<i>Andrographis paniculata</i> Nees.	Acanthaceae	Sambiloto	Leaf	Decoction	200 grams once a day
5	<i>Annona muricata</i> L.	Annonaceae	Sirsak	Leaf	Infusion	250 grams once a day
6	<i>Anredera cordifolia</i> (Ten.) Steenis.	Basellaceae	Binahong	Leaf	Decoction	150 grams once a day
7	<i>Apium graveolens</i> L.	Apiaceae	Seledri	Leaf	Decoction	400 grams once a day
8	<i>Carica papaya</i> L.	Caricaceae	Pepaya	Leaf	Decoction	100 grams once a day
9	<i>Cinnamomum verum</i> J.Presl.	Lauraceae	Kayu Manis	Stem	Decoction	5 grams once a day
10	<i>Curcuma longa</i> L.	Zingiberaceae	Kunyit	Rhizome	Infusion	150 grams once a day
11	<i>Curcuma zanthorrhiza</i> Roxb.	Zingiberaceae	Temulawak	Rhizome	Decoction	100 grams once a day
12	<i>Eleutherine palmifolia</i> (L.) Merr.	Iridaceae	Bawang Dayak	Leaf	Decoction	250 grams once a day
13	<i>Garcinia mangostana</i> L.	Clusiaceae	Manggis	Rind	Infusion	200 grams once a day
14	<i>Jatropha gossypifolia</i> L.	Euphorbiaceae	Jarak	Leaf	Decoction	20 grams once a day
15	<i>Kaempferia galanga</i> L.	Zingiberaceae	Kencur	Rhizome	Infusion	150 grams once a day
16	<i>Momordica charantia</i> L.	Cucurbitaceae	Pare	Leaf	Decoction	150 grams once a day

17	<i>Morinda citrifolia</i> L.	Rubiaceae	Mengkudu	Fruit	Infusion	100 grams once a day
18	<i>Moringa oleifera</i> Lamk.	Moringaceae	Kelor	Leaf	Decoction	150 grams once a day
19	<i>Myristica fragrans</i> Houtt.	Myristicaceae	Pala	Seed	Decoction	5 grams once a day
20	<i>Nigella sativa</i> L.	Ranunculaceae	Jinten Hitam	Seed	Decoction	150 grams once a day
21	<i>Ocimum tenuiflorum</i> L.	Lamiaceae	Kemangi	Leaf	Decoction	100 grams once a day
22	<i>Orthosiphon aristatus</i> (Blume) Miq.	Lamiaceae	Kumis Kucing	Leaf	Decoction	150 grams once a day
23	<i>Peperomia pellucida</i> Kunth.	Piperaceae	Sirih Cina	Leaf	Decoction	250 grams once a day
24	<i>Persea Americana</i> Mill.	Lauraceae	Alpukat	Seed	Decoction	125 grams once a day
25	<i>Phaleria macrocarpa</i> (Scheff.) Boerl.	Thymelaceae	Mahkota Dewa	Fruit	Decoction	250 grams once a day
26	<i>Piper betle</i> L.	Piperaceae	Sirih	Leaf	Decoction	250 grams once a day
27	<i>Syzygium polyanthum</i> (Wight) Walpers.	Myrtaceae	Salam	Leaf	Decoction	100 grams once a day
28	<i>Tinospora crispa</i> L.	Menispermaceae	Baratawali	Leaf	Decoction	400 grams once a day
29	<i>Vitex trifolia</i> L.	Lamiaceae	Legundi	Leaf	Decoction	100 grams once a day
30	<i>Zingiber officinale</i> Rosc.	Zingiberaceae	Jahe	Rhizome	Decoction	10 grams once a day

CONCLUSIONS

The results of this research confirm that people in the Patokbeusi Region still rely heavily on medicinal plants for their health care system, especially for the treatment of hyperuricemia with the most frequently used parts of the leaves and their use in decoctions and infusions.

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