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ETHNOPHARMACOLOGICAL SURVEY OF ANTI-INFLAMMATORY PLANTS IN THE CIMENYAN REGION, BANDUNG, WEST JAVA, INDONESIA

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ABSTRACT
Inflammation is a physiological process that serves as a defense mechanism for the body against foreign substances, bacteria, or irritants. Inflammation can be cured with anti-inflammatory drugs. This research aims to document and preserve the use of ethnomedicinal to treat hyperuricemia by communities in the Cimenyan Region, Bandung, West Java, Indonesia. Fieldwork was carried out from May to June 2025 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 Cimenyan Region to treat inflammation. 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 Cimenyan Region still rely heavily on medicinal plants for their health care system, especially for the treatment of inflammation with the most frequently used parts of the leaves and their use in decoctions and infusions.

KEYWORDS: Traditional medicine, Ethnomedicinal plants, Cimenyan Region, Anti-inflammatory.

INTRODUCTION
Reports have shown that inflammation is usually triggered by damage to living tissues resulting from bacterial, viral, fungal infections; physical agents; and defective immune response. The fundamental aim of inflammatory response is to localize and eliminate the harmful agents; secondarily, to remove damaged tissue components to culminate in healing of the affected tissues, organs, or system.[1,3] An inflammatory response involves macrophages, neutrophils known to secrete different mediators that are responsible for the initiation, progression, persistence, regulation, and eventual resolution of the acute state of inflammation. The resolution of inflammation is influenced by several anti-inflammatory mediators and the recruitment of monocytes for the removal of cell or tissue debris. It is possible that the resolution may not occur in the acute phase, thereby turning into a chronic phase. Various nonsteroidal anti-inflammatory drugs can reduce pain and inflammation by blocking the metabolism of arachidonic acid by isoform of cyclooxygenase enzyme (COX-1 and/or COX-2), thereby reducing the production of prostaglandin. Unfortunately, there are many side effects associated with the administration of nonsteroidal anti-inflammatory drugs. However, there are medicinal plants with anti-inflammatory therapeutic effects with low or no side effects.[4-7] Currently, research to obtain new anti-inflammatory 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 inflammation in various regions in Indonesia.[8,10] One of the Region that still uses herbal plants as an alternative treatment for inflammation is Cimenyan Region. This research aims to obtain detailed information about the use of herbal plants for alternative therapy for inflammation in Cimenyan Region, Bandung, West Java, Indonesia using a field survey method.

MATERIALS AND METHODS

Study Area

Cimenyan is located in Bandung Regency, West Java, Indonesia, with an area of 53.08 km^2. This area has an altitude of 1,200 meters above sea level with an average maximum air temperature of 22°C and a minimum of 18°C. Moreover, it is located between 06°52′44″ South Latitude and 107°39′40″ 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 4,000 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 May to June 2025 in the Cimenyan Region, Bandung, 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 (e.g., infusion, paste, juice and decoction) of all collected ethnomedicinal plants was 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.[11] The plant types obtained were grouped into families according to the Cronquist classification system, except for Pteridophyta and Gymnospermae.[12] 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 inflammation (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.[13] 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.[11]

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

No	Species	Family	Local name	Parts used	Mode of administration	Dosage of use
1	*Abrus precatorius* L.	Fabaceae	Saga	Leaf	Decoction	100 grams once a day
2	*Allium sativum* L.	Alliaceae	Bawang Putih	Rhizome	Infusion	150 grams once a day
3	*Alpinia purpurata* K. Schum.	Zingiberaceae	Lengkuas	Rhizome	Decoction	100 grams once a day
4	*Andrographis paniculata* Nees.	Acanthaceae	Sambiloto	Leaf	Decoction	80 grams once a day
5	*Annona muricata* L.	Annonaceae	Sirsak	Leaf	Infusion	100 grams once a day
6	*Anredera cordifolia* (Ten.) Steenis.	Basellaceae	Binahong	Leaf	Decoction	80 grams once a day
7	*Apium graveolens* L.	Apiaceae	Seledri	Leaf	Decoction	100 grams once a day
8	*Cayratia trifolia* L.	Vitaceae	Galing-galing	Leaf	Decoction	150 grams once a day
9	*Cinnamomum verum* J.Presl.	Lauraceae	Kayu Manis	Stem	Decoction	100 grams once a day
10	*Curcuma longa* L.	Zingiberaceae	Kunyit	Rhizome	Infusion	150 grams once a day
11	*Curcuma zanthorrhiza* Roxb.	Zingiberaceae	Temulawak	Rhizome	Decoction	150 grams once a day
12	*Eleutherine palmifolia*	Iridaceae	Bawang	Leaf	Decoction	150 grams once

	(L.) Merr.		Dayak			a day
13	*Garcinia mangostana* L.	Clusiaceae	Manggis	Rind	Infusion	200 grams once a day
14	*Jatropha gossypiifolia* L.	Euphorbiaceae	Jarak	Leaf	Decoction	10 grams once a day
15	*Kaempferia galanga* L.	Zingiberaceae	Kencur	Rhizome	Infusion	100 grams once a day
16	*Momordica charantia* L.	Cucurbitaceae	Pare	Leaf	Decoction	150 grams once a day
17	*Morinda citrifolia* L.	Rubiaceae	Mengkudu	Fruit	Infusion	100 grams once a day
18	*Moringa oleifera* Lamk.	Moringaceae	Kelor	Leaf	Decoction	100 grams once a day
19	*Myristica fragrans* Houtt.	Myristicaceae	Pala	Seed	Decoction	50 grams once a day
20	*Nigella sativa* L.	Ranunculaceae	Jinten Hitam	Seed	Decoction	10 grams once a day
21	*Ocimum tenuiflorum* L.	Lamiaceae	Kemangi	Leaf	Decoction	20 grams once a day
22	*Orthosiphon aristatus* (Blume) Miq.	Lamiaceae	Kumis Kucing	Leaf	Decoction	150 grams once a day
23	*Peperomia pellucida* Kunth.	Piperaceae	Sirih Cina	Leaf	Decoction	100 grams once a day
24	Persea Americana Mill.	Lauraceae	Alpukat	Seed	Decoction	50 grams once a day
25	*Phaleria macrocarpa* (Scheff.) Boerl).	Thymelaceae	Mahkota Dewa	Fruit	Decoction	150 grams once a day
26	*Piper betle* L.	Piperaceae	Sirih	Leaf	Decoction	150 grams once a day
27	*Sonchus arvensis* L.	Asteraceae	Tempuyung	Leaf	Decoction	50 grams once a day
28	*Tinospora crispa* L.	Menispermaceae	Baratawali	Leaf	Decoction	100 grams once a day
29	*Vitex trifolia* L.	Lamiaceae	Legundi	Leaf	Decoction	50 grams once a day
30	*Zingiber officinale* Rosc.	Zingiberaceae	Jahe	Rhizome	Decoction	100 grams once a day

CONCLUSIONS

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

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