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

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ABSTRACT

Non-steroidal anti-inflammatory drugs (NSAIDs) represent a class of pharmaceutical agents that are frequently misused and misconstrued within the medical landscape. While demonstrably efficacious in providing transient pain relief, NSAIDs do not effectively address the fundamental etiology of pain and are associated with a spectrum of potential adverse effects. This research aims to document and preserve the use of ethnomedicinal to treat hyperlipidemia by communities in the Ngamprah 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 Ngamprah Region to treat inflammation. Among the various plant parts used, leaves (50.0%) are most frequently used in making medicines, followed by rhizomes (13.3%), fruit (13.3%), flowers, stem, and seed (respectively 6.7%) and rind (3.3%). Meanwhile, the most frequently used preparation methods were decoction (76.7%) and infusion (23.3%). The results of this research confirm that people in the Ngamprah 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, Ngamprah Region, Anti-inflammatory.

INTRODUCTION

Nonsteroidal anti-inflammatory drugs (NSAIDs) are frequently employed to reduce pain and inflammation. Aspirin, ibuprofen and celecoxib are among the commonly used NSAIDs. However, the prolonged and frequent use of these drugs can cause serious side effects such as peptic ulcer, perforation and gastrointestinal bleeding.[1] Although aspirin prevents platelet aggregation, which protects the heart, it also induces gastrointestinal bleeding. Meanwhile, the administration of celecoxib has been found to potentially elevate the likelihood of cardiovascular thrombotic events, myocardial infarction, and stroke.[2,3] Consequently, there has been a substantial increase in the utilization of complementary and alternative medicines as either a substitute for or adjunct to conventional pharmaceutical interventions within human society over the preceding decades. Fortunately, several naturally occurring substances exhibit anti-inflammatory properties.[4] 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.[5,7] One of the Region that still uses herbal plants as an alternative treatment for inflammation is Ngamprah Region. This research aims to obtain detailed information about the use of herbal plants for alternative therapy for inflammation in Ngamprah Region, Bandung, West Java, Indonesia using a field survey method.

MATERIALS AND METHODS

Study Area

Ngamprah is located in Bandung Regency, West Java, Indonesia, with an area of 96.34 km^2. This area has an

altitude of 755 meters above sea level with an average maximum air temperature of 27°C and a minimum of 19°C. Moreover, it is located between 06°49′45″ South Latitude and 107°29′46″ 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 May to June 2025 in the Ngamprah 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.[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 inflammation (Table 1). This shows that the study location is affordable in terms of biodiversity. Among the various plant parts used, leaves (50.0%) are most frequently used in making medicines, followed by rhizomes (13.3%), fruit (13.3%), flowers, stem, and seed (respectively 6.7%), and rind (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 (76.7%) and infusion (23.3%). 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 Ngamprah, Bandung, West Java, Indonesia.

No	Species	Family	Local name	Parts used	Mode of administration	Dosage of use
1	*Adenanthera pavonine* L.	Fabaceae	Saga	Leaf	Decoction	100 grams once a day
2	*Allium sativum* L.	Alliaceae	Bawang Putih	Rhizome	Infusion	50 grams once a day
3	*Aloe vera* Burm.f.,	Asphodelaceae	Lidah Buaya	Stem	Decoction	100 grams once a day
4	*Andrographis paniculata* Nees	Acanthaceae	Sambiloto	Leaf	Decoction	100 grams once a day
5	*Annona muricata* L.	Annonaceae	Sirsak	Leaf	Infusion	200 grams once a day
6	*Averrhoa carambola* L.	Oxalidaceae	Belimbing	Leaf	Infusion	80 grams once a day
7	*Carica papaya* L.	Caricaceae	Pepaya	Leaf	Decoction	200 grams once a day
8	*Cinnamomum verum* J. Presl	Lauraceae	Kayu Manis	Stem	Decoction	100 grams once a day
9	*Citrus aurantifolia* (Christm) Swingle	Rutaceae	Jeruk Nipis	Fruit	Decoction	50 grams once a day
10	*Clitoria ternatea* L.	Fabaceae	Bunga Telang	Flower	Decoction	100 grams once a day
11	*Cosmos caudatus* Kunth	Asteraceae	Kenikir	Leaf	Decoction	10 grams once a day
12	*Curcuma longa* L.	Zingiberaceae	Kunyit	Rhizome	Infusion	150 grams once a day
13	*Garcinia mangostana* L.	Clusiaceae	Manggis	Rind	Infusion	100 grams

						once a day
14	*Hibiscus sabdariffa* L.	Malvaceae	Rosela	Flower	Decoction	30 grams once a day
15	*Kaempferia galanga* L.	Zingiberaceae	Kencur	Rhizome	Infusion	10 grams once a day
16	*Mangifera indica* L.	Anacardiaceae	Mangga	Leaf	Decoction	10 grams once a day
17	*Momordica charantia* L.	Cucurbitaceae	Pare	Leaf	Decoction	100 grams once a day
18	*Morinda citrifolia* L.	Rubiaceae	Mengkudu	Fruit	Infusion	50 grams once a day
19	*Moringa oleifera* Lamk.	Moringaceae	Kelor	Leaf	Decoction	10 grams once a day
20	*Nigella sativa* L.	Ranunculaceae	Jinten Hitam	Seed	Decoction	100 grams once a day
21	*Pandanus amaryllifolius* Roxb.	Pandanaceae	Pandan Wangi	Leaf	Decoction	100 grams once a day
22	Persea Americana Mill.	Lauraceae	Alpukat	Seed	Decoction	100 grams once a day
23	*Phaleria macrocarpa* (Scheff.) Boerl)	Thymelaceae	Mahkota Dewa	Fruit	Decoction	200 grams once a day
24	*Phyllanthus niruri* L.	Phyllanthaceae	Meniran	Leaf	Decoction	50 grams once a day
25	*Piper betle* L.	Piperaceae	Sirih	Leaf	Decoction	100 grams once a day
26	*Psidium guajava* L.	Myrtaceae	Jambu Biji	Leaf	Decoction	100 grams once a day
27	*Solanum torvum* Sw.	Solanaceae	Tokakak	Fruit	Decoction	100 grams once a day
28	*Syzygium polyanthum* (Wight) Walpers	Myrtaceae	Salam	Leaf	Decoction	100 grams once a day
29	*Tinospora crispa* L.	Menispermaceae	Baratawali	Leaf	Decoction	150 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 Ngamprah 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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