

ANALGESIC MEDICINAL PLANTS IN SERANGPANJANG REGION, SUBANG, WEST  
JAVA, INDONESIA-AN ETHNOBOTANICAL STUDY

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**ABSTRACT**

Many people still experience pain regardless of the available drugs for treatments. In addition, the available drugs have many side effects, which necessitated a quest for new drugs from several sources in which medicinal plants are the major one. This research aims to document and preserve the use of ethnomedicine to treat pain by people in the Serangpanjang Region, Subang, 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](http://www.plantlist.org)) and the International Plant Name Index ([www.ipni.org](http://www.ipni.org)). This study reports that 30 plant species are commonly used by people in the Serangpanjang Region to treat pain. 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 pain. 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, Analgesic.

**INTRODUCTION**

Pain is always a subjective and unpleasant sensory and emotional experience associated with actual or potential tissue damage and described in terms of such damage. There may be a strong emotional component contributing to the pain experience, but that does not mean that the suffering is less important.<sup>[1]</sup> It is the most common reason a patient sees a physician. For most patients, it is of short duration and quickly forgotten.<sup>[2]</sup> When chronic,

it markedly decreases individuals' health status and quality of life and can detrimentally affect the families of patients. It often interferes with every day work activities.<sup>[3]</sup> Unrelieved acute pain can cause chronic pain, and long standing pain can cause anatomical and even genetic changes in the nervous system.<sup>[1]</sup> Inflammation on the other hand is a physiological response of living tissues to injury. Although the inflammatory response is essential for host defense, it is

very much a double-edged sword which can lead to an organ failure and/or death.<sup>[4]</sup> To relieve the damage they cause and to reduce their effect in quality of life, it might be necessary to take pharmacological agents against pain and inflammation. Non-steroidal anti-inflammatory drugs (NSAIDs), corticosteroids, and opiates have been used classically in these conditions.<sup>[5,6]</sup> However, due to extensive use of analgesic and anti-inflammatory agents, the toxicity and untoward effects occur many times, especially when therapy of pain and inflammation involves use of higher doses for longer periods. Gastrointestinal disturbances, respiratory depression, possible dependence, constipation, renal dysfunction, peptic ulcer and bleeding are some of the commonly encountered untoward effects of analgesic and anti-inflammatory agents.<sup>[7]</sup> Natural products derived from medicinal plants are becoming preferred alternative remedies. By screening medicinal plants with acclaimed analgesic and anti-inflammatory use, safe and effective analgesic and anti-inflammatory drugs might be discovered.<sup>[8]</sup> It is therefore essential that efforts should be made to introduce new compounds derived from medicinal plants to the drug arsenal against pain and inflammation.<sup>[9]</sup>

Indonesia is the second largest country in the world with forest biodiversity, where there are 28,000 plant species and 2,500 of these species are medicinal plants.<sup>[10-12]</sup> Currently, research to obtain new analgesic drugs derived from natural ingredients continues to be carried out, one of which is through exploring active compounds from natural ingredients, especially medicinal plants which have traditionally been used by people to treat pain in various regions in Indonesia.<sup>[13,14]</sup> One of the Region in Indonesia that still uses herbal plants as an alternative treatment, especially for treating pain, is the Serangpanjang Region. This research aims to obtain detailed information about the use of herbal plants for alternative pain therapy 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 km<sup>2</sup>. 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 May to June 2025 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.<sup>[15]</sup> The plant types obtained were grouped into families according to the Cronquist classification system, except for Pteridophyta and Gymnospermae.<sup>[16]</sup> Plant names were checked against the Plant List ([www.plantlist.org](http://www.plantlist.org)) and the International Plant Name Index ([www.ipni.org](http://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 pain (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.<sup>[17]</sup> 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.<sup>[5]</sup>

**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	10 cloves once a day
2	<i>Aloe vera</i> L.	Xanthorrhoeaceae	Lidah buaya	Stem	Paste	150 grams once a day
3	<i>Annona muricata</i> L.	Annonaceae	Sirsak	Leaf	Infusion	150 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	150 mL once a day
6	<i>Carica papaya</i> L.	Caricaceae	Pepaya	Leaf	Decoction	100 grams once a day
7	<i>Citrus aurantiifolia</i> (Cristm.) Swingle	Rutaceae	Jeruk Nipis	Fruit	Juice	2 mL/kg once a day
8	<i>Citrus maxima</i> (Burm.) Merr.	Rutaceae	Jeruk Bali	Rind	Infusion	100 grams once a day
9	<i>Curcuma longa</i> L.	Zingiberaceae	Kunyit	Rhizome	Infusion	200 grams once a day
10	<i>Cymbopogon nardus</i>	Poaceae	Sereh Wangi	Leaf	Infusion	10 grams once a day
11	<i>Daucus carota</i> L.	Apiaceae	Wortel	Fruit	Juice	200 grams once a day
12	<i>Dracaena angustifolia</i> (Medik.) Roxb.	Asparagaceae	Suji	Leaf	Infusion	50 grams once a day
13	<i>Glycine max</i> L.	Fabaceae	Kacang Kedelai	Seed	Juice	60 grams once a day
14	<i>Malus sylvestris</i> Mill	Rosaceae	Apel	Fruit	Juice	100 mL once a day
15	<i>Mentha longifolia</i> L.	Lamiaceae	Mint	Leaf	Infusion	10 grams once a day
16	<i>Momordica charantia</i> L.	Cucurbitaceae	Pare	Leaf	Decoction	50 grams once a day
17	<i>Morinda citrifolia</i> L.	Rubiaceae	Mengkudu	Fruit	Infusion	200 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	100 grams once a day
20	<i>Murraya koenigii</i> (L.) Sprengel	Lamiaceae	Kari	Leaf	Infusion	150 grams once a day
21	<i>Pandanus amaryllifolius</i> Roxb.	Pandanaceae	Pandan	Leaf	Infusion	100 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	25 grams once a day
24	<i>Physalis angulata</i>	Solanaceae	Ciplukan	Leaf	Infusion	20 grams once a day
25	<i>Psidium guajava</i> L.	Myrtaceae	Jambu biji	Leaf	Decoction	100 grams once a day
26	<i>Salvia rosmarinus</i> Spenn	Lamiaceae	Rosemari	Leaf	Infusion	20 grams once a day
27	<i>Syzygium polyanthum</i> (Wight) Walpers	Myrtaceae	Salam	Leaf	Decoction	300 mL once a day
28	<i>Tamarindus indica</i> L.	Fabaceae	Asam Jawa	Leaf	Infusion	50 grams once a day
29	<i>Vernonia amygdalina</i> Del	Asteraceae	Daun Afrika	Leaf	Infusion	200 grams once a day
30	<i>Zingiber officinale</i> Rosc.	Zingiberaceae	Jahe	Rhizome	Decoction	50 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 pain. 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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