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ETHNOPHARMACOLOGICAL STUDY OF ANTI-GASTRIC ULCER IN THE SERANGPANJANG REGION, SUBANG, WEST JAVA, INDONESIA

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ABSTRACT

Gastric ulcer (GU) is a disease characterized by damage to the gastric mucosal lining. GU can be caused by the use of non-steroidal anti-inflammatory drugs, *Helicobacter pylori* bacterial infection, smoking, and stress. The use of drugs tends to have negative effects on the body and safer alternative drugs from natural ingredients are needed. This research aims to document and preserve the use of ethnomedicinal to treat GU by communities in the Serangpanjang Region, Subang, West Java, Indonesia. Fieldwork was carried out from November to December 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 there are 30 plant species commonly used by people in the Serangpanjang Region for GU treatment. Among the various plant parts used, leaves (63.3%) are most frequently used in making medicines, followed by rhizomes (20%), fruit (10%), stems, and rhizomes (3.3% respectively). Meanwhile, the preparation methods most frequently used were decoction (53.3%) and infusion (46.7%). The results of this research confirm that people in the Serangpanjang Region still rely heavily on medicinal plants for their health care system, especially for the treatment of GU with the most frequently used parts of the leaves and their use in decoctions and infusions.

KEYWORDS: Traditional medicine, Ethnomedicinal plants, Serangpanjang Region, Gastric ulcer.

INTRODUCTION

Gastric ulcer (GU) is a major disease of gastrointestinal system which affects 10% of the world population with different aetiologies. Chronic alcohol intake, smoking, excessive stress, chronic usage of non-steroidal anti-inflammatory drugs (NSAIDs) and *Helicobacter pylori* bacterial infection are the crucial causes of GU characterized by inflammation, mucosal bleeding and abdominal pain in patients.[1,2] These GU can develop when the imbalance occurs between the gastroprotectives (mucus, bicarbonate and prostaglandins) and aggressives (acid, pepsin, bile salts and *H. pylori* bacteria).[3] The recent approach to GU is managed by inhibition of gastric acid secretion, promotion of gastro-protection, blocking apoptosis and stimulation of epithelial cell proliferation for effective healing. The conventional drugs used in the treatment of GU include histamine receptor antagonists, prostaglandins analogues, proton pump inhibitors, cytoprotective agents, antacids and anticholinergics, but most of these drugs produce undesirable side effects or drug interactions and may even alter biochemical mechanisms of the body upon chronic usage. Hence, herbal medicines are generally

used in such chronic cases, wherein drugs are required to be used for long periods.[4]

Currently, research to obtain new anti-gastric ulcer 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 GU in various regions in Indonesia.[5-7] One of the Region in Indonesia that still uses herbal plants as an alternative treatment, especially to treat GU, is the Serangpanjang Region. This research aims to obtain detailed information about the use of herbal plants as an alternative therapy for inflammation 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^2. 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 November to December 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.[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 GU (Table 1). This shows that the study location is affordable in terms of biodiversity. Among the various plant parts used, leaves (63.3%) are most frequently used in making medicines, followed by rhizomes (20%), fruit (10%), stems, and rhizomes (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 preparation methods most frequently used were decoction (53.3%) and infusion (46.7%). 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 Serangpanjang Region, Subang, West Java, Indonesia.

No	Species	Family	Local name	Parts used	Mode of administration	Dosage of use
1	*Allium cepa* L.	Amaryllidaceae	Bawang Bombai	Rhizome	Decoction	10 grams once a day
2	*Allium sativum* L.	Alliaceae	Bawang Putih	Rhizome	Infusion	50 grams once a day
3	*Alpinia galanga* L.	Zingiberaceae	Lengkuas	Rhizome	Decoction	50 grams once a day
4	*Annona muricata* L.	Annonaceae	Sirsak	Leaf	Infusion	100 grams once a day
5	*Annona squamosa* L.	Annonaceae	Srikaya	Leaf	Decoction	40 grams once a day
6	*Averrhoa carambola* L.	Oxalidaceae	Belimbing	Fruit	Infusion	10 mL once a day
7	*Catharanthus roseus* (L.) Don	Apocynaceae	Tapak Dara	Leaf	Decoction	30 grams once a day
8	*Cinnamomum verum* J.Presl	Lauraceae	Kayu Manis	Stem	Decoction	20 grams once a day
9	*Curcuma longa* L.	Zingiberaceae	Kunyit	Rhizome	Infusion	20 grams once a day
10	*Cymbopogon nardus*	Poaceae	Sereh Wangi	Leaf	Infusion	70 grams once a day
11	*Durio zibethinus* Murr.	Bombacaceae	Durian	Leaf	Infusion	10 grams once a day

12	*Elephantopus scaber* L.	Asteraceae	Tapak Liman	Leaf	Decoction	70 grams once a day
13	*Garcinia mangostana* L.	Clusiaceae	Manggis	Rind	Infusion	10 mL once a day
14	*Kaempferia galanga* L	Zingiberaceae	Kencur	Rhizome	Infusion	20 grams once a day
15	*Momordica charantia* L.	Cucurbitaceae	Pare	Leaf	Decoction	20 grams once a day
16	*Morinda citrifolia* L.	Rubiaceae	Mengkudu	Fruit	Infusion	15 grams once a day
17	*Moringa oleifera* Lamk.	Moringaceae	Kelor	Leaf	Decoction	20 grams once a day
18	*Morus* L.	Moraceae	Murbei	Leaf	Infusion	15 grams once a day
19	*Musa paradisiaca* L.	Musaceae	Pisang	Leaf	Infusion	10 grams once a day
20	*Ocimum basilicum* L.	Lamiaceae	Kemangi	Leaf	Decoction	100 grams once a day
21	*Orthosiphon stamineus* Benth	Lamiaceae	Kumis Kucing	Leaf	Infusion	50 mL once a day
22	*Pandanus amaryllifolius* Roxb.	Pandanaceae	Pandan Wangi	Leaf	Decoction	10 grams once a day
23	*Phaleria macrocarpa* (Scheff.) Boerl)	Thymelaceae	Mahkota Dewa	Fruit	Decoction	50 grams once a day
24	*Phyllanthus acidus* (L.) Skeels	Phyllanthaceae	Cermai	Leaf	Infusion	50 grams once a day
25	*Phyllanthus niruri* L.	Phyllanthaceae	Meniran	Leaf	Decoction	80 grams once a day
26	*Piper betle* L.	Piperaceae	Sirih	Leaf	Decoction	50 grams once a day
27	*Psidium guajava* L.	Myrtaceae	Jambu biji	Leaf	Decoction	10 grams once a day
28	*Syzygium cumini* (L.) Skeels	Myrtaceae	Jamblang	Leaf	Infusion	40 grams once a day
29	*Syzygium polyanthum* (Wight) Walpers	Myrtaceae	Salam	Leaf	Decoction	10 grams once a day
30	*Zingiber officinale* Rosc.	Zingiberaceae	Jahe	Rhizome	Decoction	50 grams once a day

CONCLUSIONS

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

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