



ETHNOBOTANICAL STUDY OF MEDICINAL PLANTS WITH GASTROPROTECTIVE EFFECTS IN THE WANAYASA REGION, PURWAKARTA, WEST JAVA, INDONESIA

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ABSTRACT

Peptic ulcers result from an imbalance between protective factors (e.g., prostaglandins, nitric oxide, and sulfhydryl groups) and aggressive risk factors (e.g., consumption of non-steroidal anti-inflammatory drugs, alcohol, or tobacco) regarding the gastric mucosa. While various existing treatments aim to relieve pain, repair the ulcer, and prevent its recurrence, they often produce undesirable side effects. This research aims to document and preserve the use of ethnomedicine to gastroprotective by people in the Wanayasa Region, Purwakarta, 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 30 plant species are commonly used by people in the Wanayasa Region to gastroprotective. Among the various plant parts used, leaves (63.3%) are most frequently used in making medicines, followed by rhizomes (13.3%), fruit (6.7%), flowers (6.7%), stem, rind, and seed (respectively 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 Wanayasa Region still rely heavily on medicinal plants for their health care system, especially for the gastroprotective with the most frequently used parts of the leaves and their use in decoctions and infusions.

KEYWORDS: Traditional medicine, Ethnomedicinal plants, Wanayasa Region, Gastroprotective.

INTRODUCTION

The gastrointestinal mucosa is a thick layer of mucus that acts a barrier against invading pathogens, and also protects the underlying tissues from the digestive juices. When various factors and components of mucosal defense are insufficient to limit injury to the mucosa, an ulcer forms.^[1] Peptic ulcers are lesions that form when the digestive juices containing hydrochloric acid (HCl) corrode the gastric mucosal lining, which can lead to gastrointestinal bleeding, gastric perforation, and even gastric cancer.^[2] Gastric damage and ulcers can be

induced by drinking, smoking, stress, poor diet and pathogenic infections. High concentrations of ethanol directly corrode the gastric mucosal tissue, causing inflammation, mucosal congestion, edema, bleeding, mucosal erosion and ulcers.^[3] Although the exact pathological basis of gastric ulcer is unknown, oxidative stress and inflammation have been implicated as the main driving factors.^[4] Oxidative damage to the gastric epithelial and the ensuing apoptosis also play an important role in the progression of gastric diseases.^[5] The repairment of gastric ulcers is a highly regulated and

complicated process involving inhibition of inflammation and promotion of cell proliferation, formation of granulation tissue and angiogenesis.^[1] Currently, peptic ulcers are treated with H₂-receptor blockers (ranitidine), proton pump inhibitors (omeprazole) and cytoprotectants (carbenoxolone, sucralfate, misoprostol, bismuth chelate), which reduce the morbidity rates but are also associated with side effects.^[6]

Research to obtain new drugs to gastroprotective originating 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 gastroprotective in various countries, especially Indonesia.^[7,8] One of the Region in Indonesia that still uses herbal plants as an alternative treatment, especially for gastroprotective, is Wanayasa Region. This research aims to obtain detailed information about the use of herbal plants for alternative therapy for gastroprotective in Wanayasa Region, Purwakarta, West Java, Indonesia using a field survey method.

MATERIALS AND METHODS

Study Area

Wanayasa is located in Purwakarta Regency, West Java, Indonesia, with an area of 24.83 km². This area has an altitude of 736 meters above sea level with an average maximum air temperature of 27°C and a minimum of 17°C. Moreover, it is located between 06°40' 56" South Latitude and 107°33' 30" 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 3,093 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 Wanayasa Region, Purwakarta, 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.^[9] The plant types obtained were grouped into families according to the Cronquist classification system, except for Pteridophyta and Gymnospermae.^[10] 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 gastroprotective (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 (13.3%), fruit (6.7%), flowers (6.7%), stem, rind, and seed (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.^[11] 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.^[9]

Table 1: Ethnomedicinal plants, local name, part used, mode of administration, and dosage uses in Wanayasa, Purwakarta, 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 | 50 grams once a day |
| 2 | <i>Allium cepa</i> L. | Amaryllidaceae | Bawang Bombai | Rhizome | Decoction | 80 grams once a day |
| 3 | <i>Allium sativum</i> L. | Alliaceae | Bawang Putih | Rhizome | Infusion | 50 grams once a day |
| 4 | <i>Aloe vera</i> Burm.f. | Asphodelaceae | Lidah Buaya | Stem | Decoction | 100 grams once a day |
| 5 | <i>Alpinia galanga</i> L. | Zingiberaceae | Lengkuas | Rhizome | Decoction | 10 grams once a day |
| 6 | <i>Andrographis paniculata</i> Nees | Acanthaceae | Sambiloto | Leaf | Decoction | 50 grams once a day |
| 7 | <i>Annona muricata</i> L. | Annonaceae | Sirsak | Leaf | Infusion | 100 grams once a day |
| 8 | <i>Carica papaya</i> L. | Caricaceae | Pepaya | Leaf | Decoction | 100 grams once a day |
| 9 | <i>Ceiba pentandra</i> (L.) Gaertn. | Malvaceae | Kapuk | Leaf | Decoction | 10 grams once a day |

| | | | | | | |
|----|--|----------------|--------------|---------|-----------|----------------------|
| 10 | <i>Cinnamomum verum</i> J. Presl. | Lauraceae | Kayu Manis | Stem | Decoction | 50 grams once a day |
| 11 | <i>Cordia dikotoma</i> G. Forst. | Boraginaceae | Kendal | Stem | Decoction | 10 grams once a day |
| 12 | <i>Curcuma longa</i> L. | Zingiberaceae | Kunyit | Rhizome | Infusion | 100 grams once a day |
| 13 | <i>Curcuma xanthorrhiza</i> Roxb | Zingiberaceae | Temulawak | Rhizome | Decoction | 50 grams once a day |
| 14 | <i>Garcinia mangostana</i> L. | Clusiaceae | Manggis | Rind | Infusion | 100 grams once a day |
| 15 | <i>Jatropha gossypifolia</i> L. | Euphorbiaceae | Jarak | Leaf | Decoction | 100 grams once a day |
| 16 | <i>Kaempferia galanga</i> L. | Zingiberaceae | Kencur | Rhizome | Infusion | 250 grams once a day |
| 17 | <i>Manilkara zapota</i> (L.) P. Royen | Sapotaceae | Sawo | Leaf | Decoction | 50 grams once a day |
| 18 | <i>Momordica charantia</i> L. | Cucurbitaceae | Pare | Leaf | Decoction | 10 grams once a day |
| 19 | <i>Morinda citrifolia</i> L. | Rubiaceae | Mengkudu | Fruit | Infusion | 50 grams once a day |
| 20 | <i>Moringa oleifera</i> Lamk. | Moringaceae | Kelor | Leaf | Decoction | 50 grams once a day |
| 21 | <i>Myristica fragrans</i> Houtt. | Myristicaceae | Pala | Seed | Decoction | 50 grams once a day |
| 22 | <i>Nigella sativa</i> L. | Ranunculaceae | Jinten Hitam | Seed | Decoction | 10 grams once a day |
| 23 | <i>Paederia foetida</i> L. | Rubiaceae | Daun Kentut | Leaf | Decoction | 50 grams once a day |
| 24 | <i>Pandanus amaryllifolius</i> Roxb. | Pandanaceae | Pandan | Leaf | Infusion | 50 grams once a day |
| 25 | <i>Persea americana</i> Mill. | Lauraceae | Alpukat | Leaf | Decoction | 10 grams once a day |
| 26 | <i>Piper betle</i> L. | Piperaceae | Sirih | Leaf | Decoction | 100 grams once a day |
| 27 | <i>Sauropus androgynus</i> Merr. | Phyllanthaceae | Katuk | Leaf | Decoction | 100 grams once a day |
| 28 | <i>Tinospora crispa</i> L. | Menispermaceae | Baratawali | Leaf | Decoction | 10 grams once a day |
| 29 | <i>Ziziphus mauritiana</i> Lam. | Rhamnaceae | Bidara | Leaf | Decoction | 20 grams once a day |
| 30 | <i>Zingiber officinale</i> Rosc. | Zingiberaceae | Jahe | Rhizome | Decoction | 50 grams once a day |

CONCLUSIONS

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

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