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AN ETHNOPHARMACOLOGICAL STUDY OF MEDICINAL PLANTS WITH ANTI-GASTRIC ULCER EFFECTS IN THE WANAYASA REGION, PURWAKARTA, WEST JAVA, INDONESIA

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ABSTRACT

Gastric mucosal ulceration is the most common adverse effect with NSAIDs. Antacids, H_2 blockers and PPIs are considered novel in treating ulcers but are not devoid of side effects. Hence, there a need for a drug which is effective against NSAIDs induced ulcers with no side effects. This research aims to document and preserve the use of ethnomedicine to gastric ulcer by people in the Wanayasa Region, Purwakarta, West Java, Indonesia. Fieldwork was carried out from April to May 2026 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 gastric ulcer. 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 gastric ulcer with the most frequently used parts of the leaves and their use in decoctions and infusions.

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

INTRODUCTION

A gastric ulcer is a sore on the inner lining of the stomach or duodenum.[1] Gastric ulcer is a chronical development disease, characterized by an imbalance between the factors that damage the mucosa (*Helicobacter pylori*, acid, pepsin, nonsteroidal anti-inflammatory drugs (NSAIDs), stress, and alcohol) and those for its protection (gastric mucus, bicarbonate, and antioxidants compounds).[2] Gastric ulcer is a major public health problem, and most of its complications have been the major causes of morbidity and mortality.[3]

A number of drugs may be used in treatment of gastric ulcer; proton pump inhibitors (PPI), histamine H_2 receptor antagonists, and mucosal protective agents can thus all be used as protective drugs against initiation of gastric ulcer in predisposed groups as well as prevention of remittent attacks. A standard therapy consisting of a PPI and two antibiotics (clarithromycin and amoxicillin/metronidazole) is widely used as the first-line regimen for treatment of *Helicobacter pylori* infection.[4] A number of drugs used as anti-gastric ulcer medications show side effects such as diarrhea, nausea,

vomiting, and anemia, and *Helicobacter pylori* strains increasingly show resistance to the antibiotics of choice.[5] Therefore, it is necessary to find new anti-gastric ulcer agents derived from natural ingredients in the form of herbal plants. Compared to conventional drugs, herbal plants provide many advantages, including cost-effectiveness, broad cultural acceptance, ease of accessibility, and lower side effects.[6] Currently, research to obtain new anti-gastric ulcer drugs derived from natural ingredients continues to be carried out, one of which is through exploration of active compounds from natural ingredients, especially medicinal plants that have traditionally been used by people to treat gastric ulcer in various regions in Indonesia.[7-9] One of the Region in Indonesia that still uses herbal plants as an alternative treatment, especially to treat gastric ulcer is Wanayasa Region. This research aims to obtain detailed information about the use of herbal plants for alternative therapy for gastric ulcer 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 km^2. 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 (humidity: approximately 54%). 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 April to May 2026 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.[10] The plant types obtained were grouped into families according to the Cronquist classification system, except for Pteridophyta and Gymnospermae.[11] 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

The present study identified 30 medicinal plant species traditionally used for the management of gastric ulcer-related complaints (Table 1). The diversity of these species reflects the importance of plant-based remedies in traditional healthcare and provides a preliminary basis for identifying botanical resources with potential gastroprotective properties. 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.[12] 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.[10]

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	*Abrus precatorius* L.	Fabaceae	Saga	Leaf	Decoction	25 grams once a day
2	*Allium cepa* L.	Amaryllidaceae	Bawang Bombai	Rhizome	Decoction	10 grams once a day
3	*Allium sativum* L.	Alliaceae	Bawang Putih	Rhizome	Infusion	50 grams once a day
4	*Aloe vera* Burm.f.	Asphodelaceae	Lidah Buaya	Stem	Decoction	100 grams once a day
5	*Alpinia galanga* L.	Zingiberaceae	Lengkuas	Rhizome	Decoction	15 grams once a day
6	*Andrographis paniculata* Nees	Acanthaceae	Sambiloto	Leaf	Decoction	50 grams once a day
7	*Annona muricata* L.	Annonaceae	Sirsak	Leaf	Infusion	10 grams once a day
8	*Carica papaya* L.	Caricaceae	Pepaya	Leaf	Decoction	20 grams once a day

9	*Ceiba pentandra* (L.) Gaertn.	Malvaceae	Kapuk	Leaf	Decoction	10 grams once a day
10	*Cinnamomum verum* J. Presl.	Lauraceae	Kayu Manis	Stem	Decoction	100 grams once a day
11	*Cordia dikotoma* G. Forst.	Boraginaceae	Kendal	Stem	Decoction	20 grams once a day
12	*Curcuma longa* L.	Zingiberaceae	Kunyit	Rhizome	Infusion	100 grams once a day
13	*Curcuma xanthorhiza* Roxb	Zingiberaceae	Temulawak	Rhizome	Decoction	80 grams once a day
14	*Garcinia mangostana* L.	Clusiaceae	Manggis	Rind	Infusion	100 grams once a day
15	*Jatropha gossypiifolia* L.	Euphorbiaceae	Jarak	Leaf	Decoction	150 grams once a day
16	*Kaempferia galanga* L.	Zingiberaceae	Kencur	Rhizome	Infusion	20 grams once a day
17	*Manilkara zapota* (L.) P. Royen	Sapotaceae	Sawo	Leaf	Decoction	50 grams once a day
18	*Momordica charantia* L.	Cucurbitaceae	Pare	Leaf	Decoction	20 grams once a day
19	*Morinda citrifolia* L.	Rubiaceae	Mengkudu	Fruit	Infusion	80 grams once a day
20	*Moringa oleifera* Lamk.	Moringaceae	Kelor	Leaf	Decoction	10 grams once a day
21	*Myristica fragrans* Houtt.	Myristicaceae	Pala	Seed	Decoction	50 grams once a day
22	*Nigella sativa* L.	Ranunculaceae	Jinten Hitam	Seed	Decoction	30 grams once a day
23	*Ocimum basilicum* L.	Lamiaceae	Selasih	Leaf	Decoction	10 grams once a day
24	*Pandanus amaryllifolius* Roxb.	Pandanaceae	Pandan	Leaf	Infusion	50 grams once a day
25	*Persea americana* Mill.	Lauraceae	Alpukat	Leaf	Decoction	50 grams once a day
26	*Piper betle* L.	Piperaceae	Sirih	Leaf	Decoction	100 grams once a day
27	*Sauropus androgynus* Merr.	Phyllanthaceae	Katuk	Leaf	Decoction	200 grams once a day
28	*Tinospora crispa* L.	Menispermaceae	Baratawali	Leaf	Decoction	50 grams once a day
29	*Ziziphus mauritiana* Lam.	Rhamnaceae	Bidara	Leaf	Decoction	80 grams once a day
30	*Zingiber officinale* Rosc.	Zingiberaceae	Jahe	Rhizome	Decoction	150 grams once a day

LIMITATIONS AND FUTURE INVESTIGATIONS

Several limitations of the present study should be acknowledged. The inventory documents plant species, botanical families, local names, plant parts, preparation methods, and reported daily amounts, but it does not present direct experimental evidence of anti-gastric ulcer activity. There are no reported ulcer indices, percentage inhibition values, histopathological assessments, comparative treatment results, or clinical outcomes. Furthermore, the available information does not establish the frequency of use among traditional practitioners, the prevalence of gastric ulcer indications, or the relative popularity of individual remedies. Future investigations should integrate ethnobotanical documentation with pharmacognostic characterization, phytochemical profiling, and standardized pharmacological testing. Initial screening should assess extract composition and safety, followed by validated experimental models designed to investigate relevant anti-gastric ulcer mechanisms. Promising candidates could subsequently undergo dose-response evaluation and further toxicological studies. Clinical investigation would only be justified when sufficient evidence of quality, safety, and preclinical activity is available. This stepwise approach would help distinguish plants with promising traditional-use records from those with experimentally supported anti-gastric ulcer potential.

CONCLUSIONS

In conclusion, the 30 medicinal plant species documented in this study represent a diverse collection of traditional botanical resources that may support future investigations into gastric mucosal protection. The variation in botanical families, plant parts, preparation methods, and reported quantities provides useful information for selecting research candidates and designing standardized studies. However, the inventory alone cannot establish anti-gastric ulcer efficacy or identify the most effective species. Integrating traditional knowledge with rigorous phytochemical, pharmacological, and toxicological evaluation is essential to determine whether these plants can contribute to the development of safe and scientifically validated anti-gastric ulcer agents.

REFERENCES

1. Mikwangock HD, Tamfu AN, Amang AP, Siwe GT, Mezui C, Kucukaydin S, *et al*. Chronic gastric ulcer healing actions of the aqueous extracts of staple plant foods of the North-West, Adamawa, and West Regions of Cameroon. *Biomed Res Int*, 2023; 2023: 2657278.
2. Nieto Y. Therapeutic protocol of peptic ulcer. Medicine - Programa de Formación Médica Continuada Acreditado, 2012; 11(3): 179-182.
3. Sung JJ, Tsoi KK, Ma TK, Yung MY, Lau JY, Chiu PW. Causes of mortality in patients with peptic ulcer

bleeding: a prospective cohort study of 10,428 cases. *Am J Gastroenterol*, 2010; 105(1): 84-89.
4. Yang JC, Lu CW, Lin CJ. Treatment of *Helicobacter pylori* infection: current status and future concepts. *World J Gastroenterol*, 2014; 20(18): 5283-5293.
5. Wu H, Shi XD, Wang HT, Liu JX. Resistance of *Helicobacter pylori* to metronidazole, tetracycline and amoxycillin. *J Antimicrob Chemother*, 2000; 46(1): 121-123.
6. Sakthiswary R, Zakaria Z, Das S. Diabetes mellitus: Treatment challenges and the role of some herbal therapies. *Middle-East J Sci Res*, 2014; 20(7): 786-798.
7. Alkandahri MY, Sujana D, Hasyim DM, Shafirany MZ, Sulastri L, Arfania M, *et al*. Antidiabetic activity of extract and fractions of *Castanopsis costata* leaves on alloxan-induced diabetic mice. *Pharmacogn J*, 2021; 13(6): 1589-1593.
8. Alkandahri MY, Arfania M, Abriyani E, Ridwanuloh D, Farhamzah, Fikayuniar L, *et al*. Evaluation of antioxidant and antipyretic effects of ethanolic extract of cep-cepan leaves (*Castanopsis costata* (Blume) A.DC). *J Adv Pharm Educ Res*, 2022; 12(3): 107-112.
9. Nuraeni E, Alkandahri MY, Tanuwidjaja SM, Fadhilah KN, Kurnia GS, Indah D, *et al*. Ethnopharmacological study of medicinal plants in the Rawamerta Region Karawang, West Java, Indonesia. *Open Access Maced J Med Sci*, 2022; 10(A): 1560-1564.
10. Bieski IGC, Santos FR, de Oliveira RM, Espinosa MM, Macedo M, Albuquerque UP, de Oliveira Martins DT. Ethnopharmacology of medicinal plants of the Pantanal Region (Mato Grosso, Brazil). *Evid Based Complement Alternat Med*, 2012; 2012: 1-36.
11. Cronquist A. The evolution classification of flowering plants. The New York Botanical Garden, New York, NY, USA, 2nd edition, 1988.
12. Ahmed S, Ahmad M, Swami BL, Ikram S. A review on plants extract mediated synthesis of silver nanoparticles for antimicrobial applications: Agreen expertise. *J Adv Res*, 2016; 7(1): 17-28.