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ETHNOBOTANICAL SURVEY OF MEDICINAL PLANTS USED TO TREAT ALLERGIC IN THE BOJONG REGION, PURWAKARTA, WEST JAVA, INDONESIA

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ABSTRACT

In recent years, allergic diseases have occurred frequently, affecting more than 20% of the global population. The current first-line treatment of anti-allergic drugs mainly includes topical corticosteroids, as well as adjuvant treatment of antihistamine drugs, which have adverse side effects and drug resistance after long-term use. This research aims to document and preserve the use of ethnomedicine to treat allergies by people in the Bojong 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 study reports that 30 plant species are commonly used by people in the Bojong Region to treat allergies. Among the various plant parts used, leaves (50.0%) are most often used in making medicine, followed by rhizome (13.3%), fruit (13.3%), stem, seeds, and flower (6.7% respectively), and rind (3.3%). Meanwhile, the most frequently used preparation method was decoction (76.7%) and infusion (23.3%). The results of this research confirm that people in the Bojong Region still rely heavily on medicinal plants for their health care system, especially for the treatment of allergies with the most frequently used parts of the leaves and their use in decoctions and infusions.

KEYWORDS: Traditional medicine, Ethnomedicinal plants, Bojong Region, Allergic.

INTRODUCTION

Currently, there is an annual increase of allergopathologies worldwide that are mainly caused by adverse environmental conditions, changes in the body's immune reactivity, and poor nutrition. According to statistics, 20% of the population today suffers from various allergic diseases. The results of studies on the epidemiology of allergic diseases indicate their widespread and steady growth.[1] Drugs of the first generation that block histamine H_1 receptors, classic low selectivity blockers with a pronounced sedative effect (such as diphenhydramine, chloropyramine, and clemastine), and drugs of the second generation, relatively selective antagonists of peripheral histamine H_1 receptors (such as loratadine, astemizole, and cetirizine) are widely used for the treatment of allergic diseases. However, it should be noted that H_1-blockers have many undesirable effects, for example, the first-generation drugs have a sedative effect, and the second-generation drugs are not recommended for use in case of hepatic and/or renal diseases, which, of course, limits their use.[2,3] Therefore, it is relevant to create anti-allergic medicinal products based on herbal drugs. A group of combined new galenic herbal medicines is

particularly promising, they can be considered as an alternative and/or addition to the main treatment. Herbal products, due to the presence of various biologically active substances, can have a gentle effect on the body, have an effect on various aspects of the complex etiopathogenesis of allergies, and restore disturbed immune response functions.[4]

Currently, research to obtain new antihistamines 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 allergies 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 allergies is Bojong Region. This research aims to obtain detailed information about the use of herbal plants for alternative therapy for allergies in Bojong Region, Purwakarta, West Java, Indonesia using a field survey method.

MATERIALS AND METHODS

Study Area

Bojong is located in Purwakarta Regency, West Java, Indonesia, with an area of 68.69 km^2. This area has an altitude of 200 meters above sea level with an average maximum air temperature of 27°C and a minimum of 21°C (humidity: approximately 66%). Moreover, it is located between 06°42′05″ South Latitude and 107°29′46″ East Longitude. This area 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 350 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 Bojong 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.[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

Allergic diseases, including allergic rhinitis, bronchial asthma, atopic dermatitis, and food allergies, involve complex immune responses triggered by exposure to allergens. In IgE-mediated hypersensitivity, allergen-specific immunoglobulin E (IgE) binds to high-affinity receptors on mast cells and basophils. Subsequent allergen exposure can stimulate cellular degranulation and the release of histamine, leukotrienes, prostaglandins, and other inflammatory mediators. These substances contribute to common allergic manifestations, such as itching, sneezing, nasal congestion, edema, and bronchoconstriction.[10] Consequently, medicinal plants containing bioactive compounds capable of modulating inflammatory signaling, mast-cell activation, or allergic cytokine production may provide promising candidates for antiallergic drug discovery.[11] This research revealed that there are 30 plant species commonly used by the local Sundanese tribe to treat allergies (Table 1). Among the various plant parts used, leaves (50.0%) are most often used in making medicine, followed by rhizome (13.3%), fruit (13.3%), stem, seeds, and flower (6.7% respectively), and rind (3.3%). Meanwhile, the most frequently used preparation method was decoction (76.7%) and infusion (23.3%). The diversity of these plants indicates the richness of local medicinal knowledge and provides a basis for investigating their potential pharmacological activities, including antiallergic and anti-inflammatory effects. However, the present ethnomedicinal findings document traditional preparations and reported dosages rather than experimentally confirmed antiallergic efficacy.

Table 1: Ethnomedicinal plants, local name, part used, mode of administration, and dosage uses in Bojong, Purwakarta, West Java, Indonesia.

No	Species	Family	Local name	Parts used	Mode of administration	Dosage of use
1	*Allium sativum* L.	Alliaceae	Bawang Putih	Rhizome	Infusion	15 grams once a day
2	*Aloe vera* Burm.f.,	Asphodelaceae	Lidah Buaya	Stem	Decoction	50 grams once a day
3	*Andrographis paniculata* Nees	Acanthaceae	Sambiloto	Leaf	Decoction	10 grams once a day
4	*Annona muricata* L.	Annonaceae	Sirsak	Leaf	Infusion	150 grams once a day
5	*Anredera cordifolia* (Ten.) Steenis	Basellaceae	Binahong	Leaf	Decoction	20 grams once a day
6	*Averrhoa carambola* L.	Oxalidaceae	Belimbing	Leaf	Infusion	50 grams once a day
7	*Carica papaya* L.	Caricaceae	Pepaya	Leaf	Decoction	20 grams once a day
8	*Cinnamomum verum* J.Presl	Lauraceae	Kayu Manis	Stem	Decoction	20 grams once a day
9	*Citrus aurantifolia* (Christm) Swingle	Rutaceae	Jeruk Nipis	Fruit	Decoction	5 grams once a day
10	*Clitoria ternatea* L.	Fabaceae	Bunga Telang	Flower	Decoction	50 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	50 grams once a day
14	*Hibiscus sabdariffa* L.	Malvaceae	Rosela	Flower	Decoction	100 grams once a day
15	*Kaempferia galanga* L.	Zingiberaceae	Kencur	Rhizome	Infusion	100 grams once a day
16	*Mangifera indica* L.	Anacardiaceae	Mangga	Leaf	Decoction	50 grams once a day
17	*Momordica charantia* L.	Cucurbitaceae	Pare	Leaf	Decoction	50 grams once a day
18	*Morinda citrifolia* L.	Rubiaceae	Mengkudu	Fruit	Infusion	80 grams once a day
19	*Moringa oleifera* Lamk.	Moringaceae	Kelor	Leaf	Decoction	50 grams once a day
20	*Nigella sativa* L.	Ranunculaceae	Jinten Hitam	Seed	Decoction	10 grams once a day
21	*Orthosiphon aristatus* (Blume) Miq.	Lamiaceae	Kumis Kucing	Leaf	Decoction	5 grams once a day
22	*Persea Americana* Mill.	Lauraceae	Alpukat	Seed	Decoction	20 grams once a day
23	*Phaleria macrocarpa* (Scheff.) Boerl)	Thymelaceae	Mahkota Dewa	Fruit	Decoction	50 grams once a day
24	*Phyllanthus niruri* L.	Phyllanthaceae	Meniran	Leaf	Decoction	80 grams once a day
25	*Piper betle* L.	Piperaceae	Sirih	Leaf	Decoction	10 grams once a day
26	*Psidium guajava* L.	Myrtaceae	Jambu Biji	Leaf	Decoction	50 grams once a day
27	*Solanum torvum* Sw.	Solanaceae	Tokakak	Fruit	Decoction	50 grams once a day
28	*Urtica dioica* L.	Urticaceae	Jelatang	Leaf	Decoction	10 grams once a day
29	*Vigna sinensis* L.	Fabaceae	Kacang Panjang	Leaf	Decoction	50 grams once a day
30	*Zingiber officinale* Rosc.	Zingiberaceae	Jahe	Rhizome	Decoction	150 grams once a day

CONCLUSIONS

In conclusion, the ethnomedicinal survey in Bojong, Purwakarta, West Java, Indonesia, identified 30 medicinal plant species that provide a valuable starting point for investigating traditional plant-based approaches to allergic disorders. Further phytochemical, pharmacological, toxicological, and clinical investigations are necessary to determine whether these plants can provide safe, effective, and scientifically validated sources of antiallergic compounds.

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