

***Zingiber album* Nurainas among Zingiberaceae family: a Review In the Traditional Uses**

ABSTRACT

Aims: To determine the potential for local use of *Zingiber album* Nurainas among Zingiberaceae family through an ethnobotanical approach.

Study design: Information about traditional uses of Zingiberaceae family collected through literature review. The data was then analyzed quantitatively using the ethnobotanyR package in the R Studio software and visualized using a flow diagram with the ggalluvial formula

Methodology: Literature review

Results: From the research, it was found that the local use of *Z. album* as a vegetable and traditional medicines, namely the medicine for swollen uterus after childbirth, abdominal pain, internal heat.

Conclusion: The potential use of *Z. album* among other species in the Zingiberaceae family in West Sumatra indicates that this species is in the category of low importance.

Keywords: Zingiberaceae, Zingiber album, Ethnobotany, Traditional use

1. INTRODUCTION

The Zingiberaceae family, or ginger plants, is known by the general public as a group of plants with various benefits. Ginger (*Zingiber officinale*), Turmeric (*Curcuma longa*), Galangal (*Alpinia galanga*), and Kencur (*Kaempferia galanga*) are the most commonly used as cooking spices, food ingredients, traditional medicine raw materials, and as ornamental plants. Some types of ginger plants have been cultivated and sold by the community while other types grow wild in the forest. Ginger plants are found in tropical and subtropical regions, with a distribution center in Southeast Asia, particularly in the Malesia region, with terrestrial habitats [1, 2].

Sumatra, as one of the centers of distribution of Zingiberaceae, has a fairly diverse number of species, both wild and cultivated. [3] reported that at least 18 *Zingiber* species have been identified from Sumatra, including *Zingiber album* Nurainas. This species grows wild in nature in locations near agricultural land. [4] Reported that the young flowers of this species have been used by local communities as one of the food ingredients (vegetables). However, information on the use of this type is not well documented scientifically.

In West Sumatra, the use of *Zingiber album* is found in Nagari Simanau, Solok District. This plant, known locally as "Pangalan," is a wild type that is only distributed in the forest. *Z. album* is listed as an endangered plant (EN) by the IUCN Red List [4]. This is due to the decline in habitat quality due to agricultural activities and the arrival of visitors [4]. In addition, local communities have not carried out cultivation efforts for this plant, which can increase the threat to the plant in nature. In terms of its use, local communities in Simanau are known to use the young flowers of this plant as local vegetable and traditional medicines, particularly in the treatment of abdominal pain.

2. MATERIAL AND METHODS

Forecast Area: The utilization of *Zingiber album* in Simanau, Solok Regency, West Sumatera, Indonesia.

Forecast Objects: *Zingiber album* and Zingiberaceae family

Forecast Methods: Information about traditional uses of Zingiberaceae family collected through literature review. The data was then analyzed quantitatively using the ethnobotanyR package in the R Studio software and visualized using a flow diagram with the ggalluvial formula [5].

3. RESULTS AND DISCUSSION

Zingiber album belongs to the Zingiberaceae family, characterized by having species of great pharmacological and nutritional importance, such as the ginger *Zingiber officinale* Roscoe (*Z. officinale*), the cardamom *Elettaria cardamomum* (L.) Maton, and its many ornamental purposes.

3.1 *Zingiber album* Nurainas

3.1.1 Geographical and altitudinal

Zingiber album is typically found around terrestrial tropical forest in 500 – 1200 masl. It can grow well in sandy soil on the edge of green forests and on the banks of rivers. It is endemic to Sumatera and distributed throughout West Sumatera province especially in Solok, Agam, Pasaman, Sijunjung Regency, and Batang Gadis National Park North Sumatera [3,4].

3.1.2 Taxonomy and botanical description

Zingiber album is under Zingiberaceae family, Zingiberales order. Herbs 3–3.5 m. tall. Rhizomes near surface of ground, cream inside, fleshy, with tubers. Pseudostems erect, thick, basal sheaths green. Leaves 12–22 in one plant, petioles 0.7–1.5 mm, glabrous, ligule 0.4–1.0 cm long, apices rounded, hairy, green; laminae 50–55 × 10–12 cm, narrowly-lanceolate, base attenuate, tips long-acuminate, hairy. Inflorescences radical, many flowers greenish-white, glabrous; spikes elongated, 20–40 cm long, 4–6 cm diam., rose-like at apex; bracts imbricate, revolute, thin, numerous, sterile bract 4.0–4.0 × 2.0–3.0 cm, spatulate, apices subapical-mucronate, bright white, fertile bract 5–7 × 3–6 cm, spatulate, apices subapical-mucronate, bright white, bracteoles small, 1.0–1.5 × 0.5–0.7 cm, lanceolate, transparent-white, glabrous. Flowers 1–3 flowers open at a time, tubular, 7–8 cm long; calyx 3.0–3.5 cm, tubular, acute, white, glabrous; corolla tubular, tube 4–4.5 cm long, pale yellow, glabrous, corolla lobes subequal, central 3.0–3.5 × 1.0–1.5 cm, lanceolate, apex acute, laterals 2.5–3.0 × 0.5–0.8 cm., glabrous; labellum 3.0–3.5 × 2.5–3.0 cm, subtrilobed, pale yellow, glabrous, apex rounded-undulate; anther 1.2–1.5 cm long with a beak shape appendage, appendage 1.5–1.7 cm long, pale yellow and bright yellow tip, thecae 2, parallel, pale yellow; style filiform, stigma pale yellow with an circular apical aperture surrounded by stiff hairs; epigynous glands, 1 pair, 0.6–0.8 cm long, linear; ovary 0.5–0.7 cm diam., glabrous, bright white. Fruit ellipsoid, trilobular, 3.0–3.5 cm long, 1.5–2.0 cm diam. glabrous, cream; seed black with white aril, 0.4–0.6 × 0.3–0.4 cm in clump, oblong to elongate; peduncles 25–40 cm long, scale oblong, 6.0–7.0 × 4.0–4.5 cm [3].

3.1.3 popular uses

Z. Album has traditionally been used by local communities in simanau, west sumatera. Likewise, in traditional medicine, young *Z. Album* cones are used to treat swollen uterus after childbirth. *Z. Album* root is used as a hot medicine internally. Young shoots or *Z. Album* sprouts ("umbuk" in local language) are used as medicine for stomach pain (stomach ulcer and stomach acid), abdominal swollen in men (swelling in the stomach), and abdominal swollen in women (swelling in the stomach). The use of traditional medicine is applied by mixing this type with other types consisting of Pangalan (*Z. album*), red kincung (*etlingera elatior*), white kincung (*etlingera* sp), banana (*musa balbisiana*), tibarau (*saccharum spontaneum*), tabu udang (*saccharum officinarum*), sitawa (*cheilocostus speciosus*), and sidingin (*bryophyllum pinnatum*). Furthermore, local communities consume *Z. album* by cooking it with other ingredients such as fish and potatoes. In addition, it can also be eaten as a condiment with "samba lado uok," a steamed chili sauce. The part of *Z. album* that is consumed is the young inner cone. The taste of this condiment processing is fresh and slightly sour [6].

3.2 Family Zingiberaceae

Zingiberaceae is the largest family in the order Zingiberales with 53 genera and over 1 200 species and is one of the leading families of tropical plants. The first family classification was proposed in 1889 and since then, it has been refined. Currently, there are four recognized tribes (Globbeae, Hedychieae, Alpinieae and Zingibereae) based on morphological characteristics, such as the number of cores and placentation in the ovary, staminodes development, changes in fertile anther, and the orientation of rhizome. The new phylogenetic analyzes based on DNA sequences suggest that some of these morphological traits are homoplasious and three tribes are paraphyletic [7].

4. CONCLUSION

Zingiber album Nurainas has potential as a food and traditional medicine. Ethnoalluvial analysis of the potential utilization of *Z. album* among other species in the Zingiberaceae family in West Sumatra showed that the species categorized as low importance.

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