



Ethnomedicinal approach of zingiberaceae in traditional medicine of the Kerinci tribe, Jambi, Indonesia

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Abstract

The Kerinci tribe in Kerinci Regency, Jambi Province, Indonesia is known as one of the traditional tribes that still maintains their ancestral cultural heritage, including protecting local wisdom and biological ecosystems. Studies on the ethnomedicines of plants in the Kerinci tribe are quite limited. This study aims to determine the species of plants of the Zingiberaceae used in traditional medicine in the Kerinci tribe. The field exploration method was carried out in four villages in the Lempur area of Kerinci Regency and interviews were conducted directly with traditional healers to obtain information about treatment using Zingiberaceae plants. The results showed that there were 6 plant species in the Zingiberaceae family, namely *Curcuma heyneana*, *Curcuma longa*, *Hedychium coronarium*, *Kaempferia galanga*, *Alpinia galanga*, and *Zingiber purpureum*. These plants are used to treat fever, internal body heat, tinea versicolor, jaundice, measles, stomach ache and asthma.

Keywords: Ethnomedicine, zingiberaceae, traditional medicine, kerinci tribe

Introduction

Zingiberaceae is a group of plants that are useful, one of which is as a medicinal plant. Zingiberaceae contains various bioactive compounds that function as antioxidants, anti-inflammatories, antimicrobials, antidiabetics, anticancer, hepatoprotective and neuroprotective (Ballester *et al*, 2023; Alolga *et al*, 2022) [3] [2].

The species of plants in the Zingiberaceae family are known as plants used in traditional medicine and modern medicine. Several studies have revealed the use of plants belonging to the Zingiberaceae family in traditional medicine in Indonesia. The Toba Batak tribe in North Sumatra use 9 species of Zingiberaceae for traditional medicine (Nasution *et al*, 2020) [11]. The Mentawai people on Mentawai Island, West Sumatra, use 32 species of Zingiberaceae for traditional medicine (Nurainas *et al*, 2021) [12].

The tribes in Indonesia have diversity of cultural, social, and biodiversity. This diversity can create the diversity of local wisdom and knowledge about traditional medicine among tribes in Indonesia (Fadila *et al*, 2020) [4]. The Kerinci tribe is a tribe found in the Kerinci regency, Jambi, Indonesia. The Kerinci tribe is known for having strong cultural interactions with nature and its ecosystem. This can be seen in the implementation of traditional kenduri sko ceremonies (Helida *et al*, 2016) [6].

The Kerinci tribe still uses traditional healers who use plants to cure disease. Knowledge about the use of this plant was obtained from generation to generation and is still preserved today in the Kerinci tribe. This study aims to determine the species of plants in the Zingiberaceae family and the types of diseases and how they are used by the Kerinci tribe.

Materials and Methods

The research was conducted in four villages in the Lempur area of Gunung Raya district, Kerinci regency, Jambi province, Indonesia namely Baru Lempur Village, Lempur

Tengah Village, Lempur Hilir Village and Lempur Mudik Village. The research used the field exploration method. The Species of Zingiberaceae were obtained from direct interviews with traditional healers and observations of plant habitus in their habitat. Traditional healers are known from elders in the village. Traditional healers must be native to the Kerinci tribe, and have medical knowledge using plants from their ancestors (Azzikri *et al*, 2020) [1].

Results and Discussion

The Kerinci people in the Lempur region have used plants for medicine for a long time. The use of medicinal plants is obtained from traditional healers. The results of interviews and identification revealed 6 Zingiberaceae plant species used by traditional healers of the Kerinci tribe in the Lempur region, including *Alpinia galanga* (L.) Willd., *Curcuma heyneana* Val., *Zingiber purpureum* Roxb., *Kaempferia galanga* L., *Hedychium coronarium* J.Koenig, and *Curcuma longa* L. (Table 1).

Medicinal plants from the Zingiberaceae family are used by traditional healers of the Kerinci tribe to cure tinea versicolor, stomach ache, flu in children, fever, asthma, measles, jaundice and internal body heat. Based on informations from traditional healers, the people of the Kerinci tribe also use other species of plants as ingredients to treat illnesses.

Temu kunyait (temu giring) (*Curcuma heyneana* Val.)

The *Curcuma heyneana* is used by the Kerinci people to treat internal body heat. The concoction process is carried out using 3 parts of the rhizome of the *Curcuma heyneana* measuring about the size of a thumb, cleaned, then boiled, then the water from the stew is drunk. The results of the phytochemical screening of *Curcuma heyneana* rhizome contained tannins and flavonoids which act as antioxidants (Marianne *et al*, 2018) [9].

Tabel 1: Zingiberaceae plant species used by the Kerinci tribe in the Lempur area, Kerinci Regency, Jambi.

No	Local name	Scientific name	The part used	Disease	Processing and use
1.	Temu kunyait	<i>Curcuma heyneana</i> Val.	Rhizome	Internal body heat	Boiled, drink
2.	Kunyit	<i>Curcuma longa</i> L.	Leaf, rhizome	Jaundice	Squeezed, drink
				Stomach ache	Pounded, sticked
3.	Suli	<i>Hedychium coronarium</i> J.Koenig	Flower	Flu in children	Unprocessed, dripped
4.	Ckau	<i>Kaempferia galanga</i> L.	Rhizome, leaf,	Fever S	Soaked, smeared
				tomach ache	Pounded, sticked
5.	Makuaeh	<i>Alpinia galanga</i> (L.) Willd.	Rhizome	Tinea versicolor	Pounded, sticked
6.	Kunyit melai	<i>Zingiber purpureum</i> Roxb.	Rhizome, leaf	Measles	Pounded, sticked
				Asthma	Pounded, sticked
				Fever	Soaked, smeared
				Stomach ache	Pounded, sticked

Kunyit or turmeric (*Curcuma longa* L.)

Turmeric is used to treat stomach ache and jaundice by the Kerinci people. As a concoction for stomach ache, apart from turmeric, 6 other species of plants are added, namely plantain (*Musa paradisiaca*), coffee (*Coffea* spp.), pineapple (*Ananas comosus*), cathedral bells (*Kalanchoe pinnata*), white henna (*Lawsonia inermis*), cayenne pepper (*Capsicum frutescens*). The parts of the plant that are used are the leaves and stems. The ingredients are coffee leaves (5 leaves), pineapple leaves (6 leaves), cathedral bells leaves (4 leaves), henna leaves (10 leaves), cayenne pepper leaves (4 leaves), turmeric leaves (3 leaves), and plantain stems/shoots (1 bud). The leaves and stems/shoots are cleaned, pounded until smooth, then placed on the painful stomach.

The process of making a concoction for jaundice is to prepare 5 pieces of turmeric rhizome with the size of a thumb-sized rhizome, then the rhizome is cleaned. After cleaning, the rhizome is grated and squeezed. The squeezed water is then drunk at the rate of half a glass per day. According to Mutiah (2015) ^[10], turmeric contain the main bioactive compound curcumin. Curcumin has a number of benefits for the body, namely as an anti-inflammatory, antioxidant, anti-diabetic, anti-cancer, and inhibits the growth of microorganisms.

Suli (Gandasuli) or white ginger (*Hedychium coronarium* J. Koenig)

The white ginger is used by the Kerinci tribe in the Lempur region to treat children's flu. The part of the plant used is the flower, that is by dripping the flower mucus on the baby's crown. Flower slime can be obtained on the flower crown. Flowers from this plant must be taken in the morning, because at that time the production of mucus in the flowers is more than during the day or at night.

According to Zhou *et al* (2021) ^[15], the flowers of the *Hedychium coronarium* contain many monoterpenoid and sesquiterpenoid compounds. Based on research conducted by Lestaridewi *et al* (2017) ^[8], the traditional people of Tolai Village, Parigi Moutong Regency, Central Sulawesi also use *Hedychium coronarium* flowers, but these people use them to treat myopic eyes or cataracts.

Ckau (Kencur) or aromatic ginger (*Kaempferia galanga* L.)

Kaempferia galanga is used by the Kerinci people in the Lempur region to cure fever and stomach pain. For stomach pain, use the rhizomes of *Kaempferia galanga*, *Zingiber purpureum* Roxb. and *Acorus calamus*. Each plant is taken as much as one piece of rhizome the size of a thumb, then

pounded until smooth. After that, the result of the collision process is affixed to the stomach.

The process of making a concoction to treat fever is carried out by preparing 3 pieces of rhizome the size of a thumb and 3 leaves taken from *Kaempferia galanga*, *Zingiber purpureum* and *Acorus calamus*. The rhizomes and leaves are soaked in water. The water from the soaking is then rubbed all over the body. Based on research conducted by Primawati *et al* (2013) ^[13], the rhizome of *Kaempferia galanga* L. contains flavonoids, saponins, essential oils, and has antibacterial activity.

Makuaeh (Lengkuas) or galangal (*Alpinia galanga* (L.) Willd.)

The galangal plant is used by the Kerinci people to treat tinea versicolor. In addition to galangal, *Senna alata* leaves are also used. Five leaves of *Senna alata* and one piece of the rhizome of galangal with the size of the knuckles of the thumb are pounded until smooth, then the results of the collision are affixed to the skin affected by tinea versicolor. According to Suaib *et al* (2016) ^[14], galangal rhizome extract contains saponins and acetoxichavikol compounds which act as antibacterials.

Kunyit melai (Bangle) or Javanese ginger (*Zingiber purpureum* Roxb.)

Zingiber purpureum is used by the Kerinci people in the Lempur region in the treatment of measles, stomach ache, asthma and fever. Measles disease is treated by using the rhizomes of *Acorus calamus* and *Zingiber purpureum*, 4 pieces of each rhizome about the size of a thumb are taken and cleaned. Then the rhizomes are pounded until smooth. Once smooth, the rhizome is affixed to the body parts affected by measles.

Remedy for stomach pain uses the rhizomes of *Zingiber purpureum*, *Kaempferia galanga* and *Acorus calamus*. Each plant is taken as much as one piece of rhizome the size of a thumb, then pounded until smooth. After that, the result of the collision process is affixed to the stomach.

Treatment of asthma is done by using *Zingiber purpureum* rhizomes and *Acorus calamus* as much as 5 pieces each the size of a thumb, plus 3 leaves of *Ruta graveolens*. All these ingredients are mixed to be ground until smooth. Once smooth, the material is affixed to the stomach.

The people of the Kerinci tribe treat fever by preparing 3 pieces of rhizome with the size of a thumb and 3 leaves taken from *Zingiber purpureum*, *Kaempferia galanga* and *Acorus calamus*. The rhizomes and leaves are soaked in water. The water from the soaking is then applied all over the body.

Zingiber purpureum rhizome contains bioactive compounds phenylbutenoid, curcuminoid, and essential oils which act as anti-inflammatory (including respiratory inflammation), antioxidant, anticancer and neuroprotective (Han *et al.*, 2021) [5]. *Zingiber purpureum* extract promotes neuronal differentiation, accelerates neurite outgrowth of immature neurons, and induces neurogenic gene expression (Hirano *et al.*, 2020) [7].

Conclusion

Based on the research results, the Kerinci people in Kerinci Regency, Jambi, Indonesia use 6 species of medicinal plants from the Zingiberaceae family, namely *Curcuma heyneana*, *Curcuma longa*, *Hedychium coronarium*, *Kaempferia galanga*, *Alpinia galanga*, and *Zingiber purpureum*. The species of plants in the Zingiberaceae family are used for the traditional treatment of tinea versicolor, stomach ache, flu in children, fever, internal body heat, asthma, measles and jaundice.

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