



Utilization zingiberaceae as traditional medicinal plants in the dayak jangkang tribe community, sanggau regency



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ABSTRACT

One of the plant families that are widely used as medicinal plants is Zingiberaceae. This study aims to determine the use of Zingiberaceae as traditional medicine. The method used in this study is a qualitative descriptive method with an ethical and emic approach. There are 7 families of Zingiberaceae that are used by the Dayak Jangkang tribe, namely bongah (*Curcuma domestica* Valetton), bongah raya hitam (*Curcuma aeruginosa* Roxb), bongah raya kunyit (*Curcuma amada* Roxb), bongah raya putih (*Curcuma zedoaria* Roxb), longkas (*Alpinia galangal* (L.) Willd), loyak joronang (*Zingiberofficinale* Roscoe), tabau (*Kaempferia galanga* L). The part used as medicine is the rhizome. Simple processing methods include mashing, boiling, drinking, mashing and smearing. The community of the Dayak Jangkang tribe uses family plants Zingiberaceae for traditional medicine hereditary. Basically, the society knows the use as medicine without knowing the chemical composition of plants Zingiberaceae family, but the community believe that its use as medicine still has to match the dose in order to get cure a disease.

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INTRODUCTION

The traditional use of plants has been started since prehistoric times by applying them traditionally from generation to generation (Yuan et al. 2016). The advantages of medicinal plants that are felt directly by the community are that they are easy to obtain and the raw materials can be planted in the yard of the house, cheap and can be made by yourself. The Dayak Jangkang tribe living in Kobang hamlet still lives side by side with the forest and has a good interaction pattern with the surrounding environment. The Dayak Jangkang people who live around the forest still maintain their customs and traditions in utilizing forest products. Forests provide resources that

people can use as food, buildings, craft materials, natural dyes, cosmetics, and medicines (Roslinda, 2016; Andesmora et al. 2017; Nurcahyani et al. 2019; Supiandi et al. 2019; Ege et al. 2021).

One of the plant groups that are widely used for traditional medicine in the Dayak Jangkang tribe are plants from the Zingiberaceae family. The Dayak Jangkang community uses plants from the Zingiberaceae family to treat stomach ulcers, hepatitis, speed up postnatal recovery, treat swelling, cough and intestinal worms. The Zingiberaceae family is characterized by having rhizomes that have a distinctive odor (Auliani et al., 2014). The knowledge of the Dayak Jangkang community about the use of Zingiberaceae as traditional medicine is generally obtained from generation to generation, without documentation so that it is prone to neglect. Therefore, data is needed for documenting plant species from the Zingiberaceae tribe which are used as ingredients for traditional medicine by the Dayak Jangkang tribe. Scientifically, interactions between humans and plants over time are documented in ethnobotanical studies (McClatchey et al. 2009; Suntar 2019). Zingiberaceae has many species, most of which are easy to breed in treating various diseases (Nasution et al, 2020). The part used as a medicinal ingredient is the rhizome of the plant. Regarding the method of treatment, among others, by grating then drinking, sliced then boiled and drunk, ground and applied to the body (Supiandi et al, 2021).

The community of the Dayak Jangkang tribe still uses plants from the Zingiberaceae family to support their lives. This research was conducted with the aim of knowing the species, the source of the location obtained, and the utilization of Zingiberaceae plants by the community. Therefore, this research is deemed necessary as a conservation effort and to add reference data to the diversity and local wisdom of the community in utilizing plants, especially the Zingiberaceae family, as ingredients for traditional medicines. This study discusses the local wisdom of the Dayak Jangkang community regarding the use of plants in the Zingiberaceae family to treat various diseases in accordance with the habits, knowledge and beliefs of the community on the effectiveness of their healing.

RESEARCH METHODS

Research Design

This type of research is descriptive qualitative, through emic and ethical approaches. The intended emic approach to obtain data regarding public knowledge about the types of Zingiberaceae according to their knowledge and language, while the ethical approach used to analyze the knowledge data scientifically (Nasution et al, 2020).

Respondent

Data were obtained from informants, events or activities, places or locations, objects, images, and recordings, as well as written or unwritten documents. The study consisted of three informants: the main informant, the key informant, and the recommended informant. The purposive sampling techniques determined the main informant. Key and recommended informants were selected using snowball sampling. Snowball sampling is an informant selection technique from previous informant recommendations (Bernard 2002). The total number of informants was ten people consisting of one customary chairman (main informant), one village head (key informant), and eight people who were willing and knowledgeable about the use of plants of the Zingiberaceae family (informants recommendations).

Research Instruments

We received the information through in-depth interviews. First, in-depth interviews were obtained by asking open-ended questions that allowed informants to provide broad answers (Kabir 2016). Interviews were conducted to obtain data regarding the use of family plant species

zingiberaceae used. The next stage continued with participatory observation, where informants and we conducted plants documentation in the Bengkawan forest and then verified using plants of the world online (POWO 2021). The semi-structured interview guidelines related to data collection on medicinal plants used by the Dayak Jangkang tribe to treat internal diseases can be seen in Table I.

Table I. Interview guidelines

Question
Are there any plants from zingiberaceae family that you use to treat heartburn? what is the local name called by the community? how is the process of compounding it into medicine?
Are there any plants from zingiberaceae family you use to treat hepatitis B? what is the local name called by the community? how is the process of compounding it into medicine?
Are there any plants from zingiberaceae family that you use to treat swollen pain? what is the local name called by the community? how is the process of compounding it into medicine?
Are there any plants from zingiberaceae family that you use to treat poisoning? what is the local name called by the community? how is the process of compounding it into medicine?
Are there any plants from zingiberaceae family that you use to treat cough pain? what is the local name called by the community? how is the process of compounding it into medicine?
Are there any plants from zingiberaceae family that you use to treat worms? what is the local name called by the community? how is the process of compounding it into medicine?
Are there any plants from zingiberaceae family that you use to treat stomach pain? what is the local name called by the community? how is the process of compounding it into medicine?
Are there any plants from zingiberaceae family that you use to treat diarrhea? what is the local name called by the community? how is the process of compounding it into medicine?
Are there any plants from zingiberaceae family that you use to treat dysentery what is the local name called by the community? how is the process of compounding it into medicine?
Are there any plants from zingiberaceae family that you use to treat Muntaber pain (gastroenteritis)? what is the local name called by the community? how is the process of compounding it into medicine?
Are there any plants from zingiberaceae family that you use to treat cholera? What are the local names of plants and parts of plants used? How's it processed?
Are there any plants from zingiberaceae family that you use to treat intestinal pain down? what is the local name called by the community? how is the process of compounding it into medicine?
Are there any plants from zingiberaceae family that you use to treat breast milk deficiency? what is the local name called by the community? how is the process of compounding it into medicine?
Are there plants from zingiberaceae family that you use to treat hypertension? what is the local name called by the community? how is the process of compounding it into medicine?
Are there plants from zingiberaceae family that you use to treat pain difficult to urinate? what is the local name called by the community? how is the process of compounding it into medicine?
Are there any plants from zingiberaceae family that you use to treat kidney stone pain? what is the local name called by the community? how is the process of compounding it into medicine?
Are there any plants from zingiberaceae family that you use to treat a sore throat? what is the local name called by the community? how is the process of compounding it into medicine?
Are there any plants from zingiberaceae family that you use to treat malaria? what is the local name called by the community? how is the process of compounding it into medicine?
Are there any plants from zingiberaceae family that you use to treat headaches? what is the local name called by the community? how is the process of compounding it into medicine?

Are there any plants from zingiberaceae family that you use to treat a fever? what is the local name called by the community? how is the process of compounding it into medicine?

Are there any plants from zingiberaceae family that you use to treat sprains? what is the local name called by the community? how is the process of compounding it into medicine?

Are there any plants from zingiberaceae family that you use to treat cholesterol pain? what is the local name called by the community? how is the process of compounding it into medicine?

Are there any plants from zingiberaceae family that you use to treat pain difficult to defecate? what is the local name called by the community? how is the process of compounding it into medicine?

Are there any plants from zingiberaceae family that you use to treat rashes in the baby's mouth what is the local name called by the community? how is the process of compounding it into medicine?

Are there any plants from zingiberaceae family that you use to treat colds? what is the local name called by the community? how is the process of compounding it into medicine?

Are there any plants from zingiberaceae family that You use to treat sore throat swelling due to a centipede bite? what is the local name called by the community? how is the process of compounding it into medicine?

Are there any plants from zingiberaceae family that you use to treat swelling pain in the outside body? what is the local name called by the community? how is the process of compounding it into medicine?

Are there any plants from zingiberaceae family that you use to treat postpartum recovery? what is the local name called by the community? how is the process of compounding it into medicine?

Prosedures

Research related to the use of Zingiberaceae as a medicinal plant in the Dayak Jangkang tribe was carried out from April to June 2022 which included several stages including preparation of research instruments, interviewing informants, taking photos of plants, and analyzing research data. The stages of the research in more detail can be seen in Table 2.

Table 2. Research procedure

No	Time	Stages of Activity	Activity Details
1	9-23 April 2022	Compile a semi-structured interview sheet	compiling interview questions related to the use of zingiberaceae as a medicinal plan
2	May 17, 2022 - May 21, 2022	Interview	Researchers conducted interviews with ten informants
3	23 - 28 May 2022	Photo taken of medicinal plants	The researchers together with the informants took photos of the plants in the field
4	June - July 2022	Analysis of research data	Researchers conducted data analysis related to scientific names, and how to use medicinal plants

Data Analysis

The data analysis used in this study was descriptive qualitative based on interviews with informants and literature studies related to the use of plants to treat diseases in the Dayak Jangkang community. Data from interviews with informants will be collected based on plant species (local names, scientific names, families), plant organs used, processing methods, specifications for the benefits of plants used by the Dayak Jangkang people for the treatment of internal diseases. Data analysis in this research is descriptive qualitative based on the results of interviews and literature

studies on the use of plants from zingiberaceae family as medicinal plants in the people of the Dayak Jangkang tribe. The data from the interviews were then grouped based on the type of plant, the organ used, the method of processing, the variety of plant uses used by the Dayak Jangkang community as a medicinal plant.

RESULT

Based on the results of the study, there are 7 types of common zingiberaceae family plant It is used by the tribe of the Jangkang Dayak in traditional medicine. The data is presented in the Table 3.

Table 3. Utilization of the Zingiberaceae Family by the Jangkang Dayak Tribe Community

Localname	Scientificname	Partused	Modeofpreparation	Use
Bongah	<i>Curcuma domestica</i> Valeton.	Rhizome	Mashed,boiled,drunk	Treating heartburn, hepatitis, speeding up postpartumrecovery, treat ingswellingdue toimpact
Bongahraya hitam	<i>Curcuma aeruginosa</i> Roxb.	Rhizome	Mashed,boiled,drunk	Treating cough
Bongahraya kunyit	<i>Curcuma amada</i> Roxb.	Rhizome	Mashed,boiled,drunk	Treating hepatitis
Bongahraya putih	<i>Curcuma zedoaria</i> Roxb.	Rhizome	Mashed,boiled,drunk	Treating worms
Longkas	<i>Alpinia galanga</i> (L.) Willd.	Rhizome	Pounded, smeared	Treating ring worm, scabies And <i>Pityriasis versicolor</i>
Loyak joronang	<i>Zingiber officinale</i> Roscoe.	Rhizome	Pounded, mixed water, drunk	Treating swelling from injury And postpartum recovery
Tabau	<i>Kaempferia galanga</i> L.	Rhizome	Pounded, smeared	Treating colds in babies

Based on the Table 3, it is known that there are 7 types of plants in the Family Zingiberaceae which is used as medicine by the Dayak Jangkang community. Steenis, et al.,(2008) in Flora explained that Zingiberaceae is a nation of gingers in the form of herbs chronic with rhizome roots. Generally the leaves consist of two rows with a thick midrib hug the stem. This family has zygomorphic flowers that are androgynous with petal tubular and pedunculated and the fruit usually valved. There are 7 types of plants in Zingiberaceae family which is used as traditional medicine in the Dayak Jangkang tribe, namely bongah (*Curcuma domestica*), bongah raya hitam (*Curcuma aeruginosa*), bongah raya kunyit (*Curcuma amada*), bongah raya putih (*Curcuma zedoaria*), longkas (*Alpinia galanga*), loyak joronang (*Zingiber officinale*), tabau (*Kaempferia galanga*).

DISCUSSION

The use of the Zingiberaceae family is widely used as traditional medicine in the tribe of the Jangkang Dayak community. This is in accordance with the results of Supiandi et al, (2021) research which states that The family has many benefits for medicine and cooking spices. Zingiberaceae family contains flavonoids, saponins, and essential oils that serve as antioxidants,

antibacterial, and antiinflammatory (Ozaki et al, 1991; Jitoe et al, 1994; Habsah et al, 2000; TPC 2012; Dewi et al, 2017; Mutmainnah, et al. 2020; Qasrin et al. 2020). Essential oils are bioactive compounds found in rhizomes which generally function as aromatherapy. Aromatherapy provides a calming and refreshing effect on the body. In several types of plants, essential oils can be used as analgesics, internal or external antiseptics, stimulants for stomachaches, hemolytic or as enzymatic, as sedatives, and others. Essential oils besides having a fragrant aroma are also beneficial for neutralizing body odor and aiding digestion by stimulating the secretory nervous system. Saponin compounds in medicine can be used as antimicrobial and toxic materials. The largest natural phenol group of flavonoids that work as antioxidants to control free radicals that can cause tumors, can function as antivirals and antimicrobials. Polyphenolic compounds are active antioxidants that function to prevent the oxidation of LDL (Low Density Lipoprotein) and cholesterol, so that the Zingiberaceae Ethnobotanical Study I02 can prevent chronic disease. In addition, it also acts as an antimicrobial and can reduce blood sugar levels (Sinaga and Suprihatin, 2011).

Dayak Jangkang people use *Alpinia galanga* forring worm, scabies, and Pityriasis versicolor drugs. *Curcuma aeruginosa* for cough medicine. *Curcuma amada* for hepatitis medication. *Curcuma domestica* heart burn medication, hepatitis, accelerates postpartum recovery, treats swelling due to impact; *Curcuma zedoaria* to treat worms; *Kaempferia galanga* to treating colds in babies; and *Zingiber officinale* to treat swelling due to injury and postpartum recovery. Verma et al. (2011) revealed that *A. galanga* has been recognized for traditional medicine as antifungal, antitumor, antidiuretic, heart disease, rheumatism, chest pain, fever, diabetes, liver disease, and kidney. Reanmongkol et al, (2006) reported that *C. aeruginosa* is used as a prescription component of traditional medicine because it has antipyretic and antiinflammatory activity. Policegoudra et al. (2011) wrote that *C. amada* could cure itching, skin diseases, bronchitis, asthma, and inflammation due to injury because it has biological activities including antioxidants, antibacterial, antiinflammatory, antifungal, inhibition of platelet aggregation, and analgesics. Muniyappan and Nagarajan (2014) reported that *C. domestica* has biological activity such as antibacterial, antiinflammatory, and good antioxidants. Chen et al. (2011) reported that *C. Zedoaria* could be used for traditional herbs because it presents antiangiogenic activity capable of suppressing the growth of melanoma and lung metastasis. Labrooy et al. (2018) mentioned that *K. galanga* is widely used as ethnomedicinal. John et al, (2021) reported that *Z. officinale* plays a role in reducing some types of cancer, diabetes, and blood pressure because it has antiinflammatory properties. Meanwhile, Aryana (2019) in his research results stated that *Z. officinale* was used as a medicine because it had essential oil content with active chemical compounds such as zingiberin, camphor, lemonin, bomeol, shogaol, cineol, felandren, zingiberol, gingerol, and zingeron potential in treating various diseases.

The Dayak Jangkang tribe utilized roots, bulbs, rhizomes, stems, bark, hump, fruit, fruitskins, leaves, fruits, and seeds to treat diseases. We obtained that the Dayak Jangkang tribe utilized plant organs through traditions that have long been carried out, through previous parents orally, and even dream. According to Julung et al. (2018) and Supiandi and Leliavia (2020), public knowledge related to the use of plants for medicine is obtained from ancestors through dreams and from parents delivered orally. Garvita (2015) and Ege et al. (2021) stated that the traditions and knowledge of local rural communities about the use of medicinal plants cannot be separated from local culture that has been practiced for a long time and passed down by ancestors.

Dayak Jangkang people employed a simple mode of preparation. The part of the plant that is used as an ingredient in traditional medicine is the part of the plant rhizome. The simple potion that was boiled was this because its use is also very easy, besides that people believe that plants the decoction is drunk very well because of its potential to cure internal ailments (Hijrah et al, 2019; Laili et al, 2022). The boiling process can produce active substances; in other words, it can increase

antioxidants activity (Uzlifah 2014). Besides that, processing by boiling is very easy and economical because it can be boiled up to repeatedly (Nasution et al, 2020). Besides being boiled and drunk, the processing of medicinal plants from the Zingiberaceae family is done by pounding and then applying it to the skins to treat ringworm, scabies, and Pityriasis versicolor (*Alpinia galangal*), treating colds in babies (*Kaempferiagalangal*), then pounding it and then mixing it with water and drinking it for Treat swelling due to injury and postpartum recovery (*Zingiberofficinale*). Another study reported that the way plants are used by pounding and smeared generally treats external diseases and reacts when applied to the sick part (Efremila et al. 2015). In general, the active compounds that found in plant organs in the form of secondary metabolites could act as antiviral, anticancer, anti-inflammatory, antioxidant, anti-hepatotoxic, and anti-diabetic (Adfa2005).

The community of the Dayak Jangkang tribe uses family plants Zingiberaceae for traditional medicine hereditary. Basically, the society know the use as medicine without know the chemical composition of plants Zingiberaceae family, but the community believe that its use as medicine still have to match the dose in order to get cure a disease. If too too much will cause side effects which is not good for the body. The knowledge of the Dayak Jangkang community about the use of plants from the Zingiberaceae family to treat various diseases needs to be practiced continuously and passed on to the younger generation. This existence is an effort to maintain the knowledge of the local community about medicinal plants and the cultural identity of the local community so that it does not become extinct. This effort is also part of the introduction of local medicinal plants to the wider community because medicinal plants are very valuable for people in need.

CONCLUSION

The people of the Dayak Jangkang tribe in Kobang Hamlet, Jangkang District, Sanggau Regency, West Kalimantan, Indonesia have traditional knowledge of using plants from the Zingiberaceae family as medicine. There are 7 species of medicinal plants from the Zingiberaceae family. How to process and use these medicinal plants by boiling, smearing, mashed and drunk. The plant organ used to treat disease is the rhizome. This research can be a reference for the wider community to preserve traditional knowledge in utilizing plants that have medicinal properties and to carry out efforts to conserve plants that have uses as traditional medicines, especially in the Zingiberaceae family through independent cultivation of plants.

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