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STUDY OF ETHNOMEDICINE TO REDUCE HEAT USING SEA FLOWER LEAF EXTRACT IN PULAU PAYUNG VILLAGE AS A SCIENCE LEARNING RESOURCE

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Abstract

Fever can be defined as a condition where body temperature is above normal due to an increase in the regulation of body temperature located in the hypothalamus, resulting in a disturbance in the production and release of heat known as hyperthermia, which is the initial symptom of illness. Traditional treatment using medicinal plants provides insight that not only pharmacological drugs can reduce fever, but medicinal plants also have the efficacy to reduce fever, one of which is the efficacy of hibiscus leaf. The aim of this research is to explore the use of hibiscus leaf extract as an antipyretic drug in Kampar Regency, evaluate its effectiveness based on local and scientific knowledge, and provide recommendations to support the development and preservation of the use of hibiscus leaf extract as a safe and effective antipyretic. This research was conducted in April 2024 in Pulau Payung Village, Kampar Regency, Riau Province. Data collection includes primary data collected through observation techniques and interviews, while secondary data were obtained through literature studies and documentation. The results of the study show that the community's knowledge regarding the use of hibiscus leaf extract as an antipyretic drug is sourced from experience passed down from one generation to the next. This knowledge can be used as a learning source with an ethnoscientific approach in the field of ethnomedicine through the reconstruction of local community knowledge into scientific knowledge.

Keywords: Ethnomedicine, hibiscus leaf, antipyretic medicine.

Abstrak

Demam dapat didefinisikan sebagai suatu keadaan suhu tubuh diatas normal akibat adanya peningkatan pengaturan suhu tubuh yang berada di hipotalamus terjadi gangguan produksi dan pelepasan panas yang disebut dengan hipertermi yang merupakan awal dari gejala penyakit. Pengobatan tradisional menggunakan tanaman obat ini dapat memberikan pengetahuan bahwa bukan hanya obat farmakimia saja yang dapat menurunkan demam, melainkan tanaman obat juga berkhasiat menurunkan demam salah satunya khasiat daun bunga sepatu. Tujuan penelitian ini adalah untuk mengeksplorasi penggunaan ekstrak daun kembang sepatu sebagai obat penurun panas di Kabupaten Kampar, evaluasi efektivitasnya berdasarkan pengetahuan lokal, ilmiah, dan memberikan rekomendasi untuk mendukung pengembangan dan pelestarian penggunaan ekstrak daun kembang sepatu sebagai obat penurun panas yang aman dan efektif. Penelitian ini dilakukan pada bulan April 2024 di Desa Pulau Payung Kabupaten Kampar Provinsi Riau. Pengambilan data meliputi primer yang dikumpulkan melalui teknik observasi dan wawancara sedangkan data sekunder dengan studi literatur dan dokumentasi. Hasil penelitian menunjukkan bahwa pengetahuan masyarakat terkait penggunaa

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ekstrak daun kembang sepatu sebagai obat penurun panas bersumber dari pengalaman yang diwariskan secara turun-temurun dari satu generasi ke generasi berikutnya. Pengtahuan tersebut dapat dijadikan sebagai sumber belajar dengan pendekatan etnosains pada bidang etnomedisin melalui rekonstruksi pengetahuan lokal masyarakat ke dalam sains ilmiah.
Kata Kunci: Etnomedisin, daun kembang sepatu, obat penurun panas

INTRODUCTION

Medicinal plants that contain natural ingredients can be used for treatment, and their active ingredients can be used as synthetic drug ingredients. Medicine is one of the irreplaceable components of health services. Medicine is an essential and strategic component in health services to improve the community's health. (Astuti et al., 2019) . The Food and Drug Supervisory Agency divides the use of medicinal plants into three strata, herbal medicine, standardized herbal medicine, and phytopharmaceuticals. Herbal medicine is a product of natural ingredients native to Indonesia that is used for health maintenance, disease prevention, disease treatment, health recovery, fitness, and beauty; standardized herbal medicine is a raw material for traditional medicine that is already in the form of an extract and the safety and efficacy aspects have been tested on experimental animals known as preclinical trials. In the Traditional Medicine industry or, pharmaceuticals are called phytopharmaceutical products, in the form of herbal extracts, especially for formal health services, and have undergone clinical trials at formal health service installations. (Syarifuddin et al., 2022) .

Fever can be defined as a condition of body temperature above average due to an increase in body temperature regulation in the hypothalamus, there is a disruption in the production and release of heat called hyperthermia, which is the beginning of symptoms of the disease. Fever is a disease that a viral infection can cause. Fever can also attack the body's immune system which causes body temperature to increase, namely above 37.5 ^{o}C (Prabowo et al., 2022) . Fever or pyrexia is a symptom of a disease. Infectious diseases such as dengue fever, typhus, malaria, liver inflammation, and other infectious diseases often have fever symptoms. The negative impacts of fever include dehydration, lack of oxygen, nerve damage, discomfort such as pain headache, decreased appetite (anorexia), weakness, and muscle pain. To reduce these negative impacts, fever needs to be treated with antipyretics. (Efendi et al., 2021) .

Traditional medicine using medicinal plants can provide knowledge that not only pharmacochemical drugs can reduce fever, but medicinal plants are also effective in reducing fever, one of which is the efficacy

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of hibiscus leaves. Hibiscus is a type of plant that grows well and is widely available in Indonesia. This plant is commonly found in lowlands and high mountains (Lestari, 2022) . The benefits of hibiscus are as an antibacterial such as boils, anti-inflammatory, cough, heat, urinary tract infections, normalizes the menstrual cycle, expectorant, and stops bleeding. Where the hibiscus leaf contains flavonoids, saponins, and polyphenols which can be antipyretics to reduce fever in children. The part of this plant that is usually used as medicine is the flower and leaves, either by using it fresh or by drying it. (Supriati et al., 2017) .

Image . 1 Leaf flower shoe

Flavonoids in leaves flower shoe has a structure similar to acetaminophen, namely both are phenol groups and have a benzene ring. Flavonoids have antipyretic effects and are also thought to inhibit prostaglandin biosynthesis reactions by inhibiting the cyclooxygenase enzyme. This is what is believed to make the antipyretic effect of flavonoids better than synthetic antipyretic drugs that work by inhibiting the cyclooxygenase enzyme. Therefore, hibiscus flowers containing flavonoids are expected to have an antipyretic effect that acts as a fever reducer. (Marpaung, 2019)

However , the utilization of medicinal plants is limited to the delivery from parents to children and/or grandchildren from generation to generation in the family, so it is feared that in the midst of the current development of cultural modernization, local wisdom can be slowly eroded by habits that can cause the extinction of traditional knowledge owned by the community. The knowledge that is passed down from generation to generation also causes some medicinal plants only to be known and utilized by a portion of the population. (Efremila., 2018) . The purpose of this study was to explore the use of hibiscus leaf extract as a fever reducer in Kampar Regency, evaluate its effectiveness based on local knowledge, scientific, and provide

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recommendations to support the development and preservation of the use of hibiscus leaf extract as a safe and effective fever reducer .

RESEARCH METHODS

This research was conducted in April 2024 in Pulau Village Umbrella Kampar Regency, Riau Province. This location was chosen because the local community is Still thick with the use of traditional treatments, one of them extracting leaf flower shoes as a drug reducer hot . Data collection includes primary data collected through observation and interview techniques while secondary data is collected through literature studies and documentation on the drug manufacturing process. Traditional extract leaf flower shoe as drug reducer heat . The main research data source is the community, which usually uses hibiscus leaf extract as a fever reducer.

This research uses a qualitative ethnoscience phenomenological approach, namely a study of knowledge systems organized from community culture and local wisdom related to phenomena and events related to the universe that exist in local communities. The validity of this research data uses triangulation techniques through interviews and literature studies, then rechecked with observation and documentation. The reconstruction process focuses on activities carried out by the community to make drug reducers hot with extracted leaf flower shoes to be associated with science. The instruments to be used in this study are observation sheets, interview guidelines and document analysis forms. Data were analyzed descriptively and qualitatively to reconstruct the original knowledge of the community into scientific knowledge. Referring to the Miles et al., (2018) model, namely interactive analysis consisting of data collection, data reduction, data presentation and conclusion checking. The reconstruction process focuses on activities carried out by the community in making drug reducer hot with extract leaf flower shoe .

RESULTS AND DISCUSSION

Based on the research process carried out through observation and interviews with the Kampar community, which uses hibiscus leaf extract as a fever-reducing medicine, it was found that the use of hibiscus leaf extract... This has become part of the community's tradition when a family member is fever. The process of processing hibiscus leaves is still done traditionally by squeezing the leaves to produce an extract in the form of mucus. This method has been passed down from their ancestors. . The stages of processing hibiscus leaves as a fever-reducing medicine can be seen in the following picture:

1 2 3

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4 5

Figure 2 Processing of hibiscus leaf extract as a fever-reducing medicine

Figure 2 above shows that the process of processing fever-reducing hibiscus leaf extract medicine carried out by the Kampar community can go through 5 steps. This was revealed in the observations and interviews that have been carried out. The first step, the hibiscus leaves are washed with clean water to remove dirt and dust that sticks to the leaves . In the second step, put leaf flower shoe in the basin and add enough lukewarm water. The third step, squeeze leaf flower shoe until destroyed and released extract in the form of mucus . Steps fourth , separate extract with the leaves with how to filter . And steps final or fifth , extract leaf flower shoe Ready drunk For lower hot .

The benefits of hibiscus leaves are due to the leaves containing chemical compounds that are beneficial for the health of the body. The chemical compounds contained in hibiscus leaves are antioxidant compounds such as flavonoids, saponins, and polyphenols. (Marpaung, 2019) Utilization leaf flower shoe This including into the ethnoscience field ethnomedicine . Ethnomedicine study is a method or way to document knowledge of medicines originating from local communities, so that it can be documented scientifically. Ethnomedicine study is also one of the steps in conserving natural materials, so that their sustainability can be maintained because of the need for use as traditional medicine. (Syamsuri et al., 2023) .

Based on the results of the interviews conducted, information was obtained that in the series of extract processing processes leaf flower shoe This, starting from cleaning the leaves, adding lukewarm water, squeezing to produce extract , filtering , and so on. Finally ready to consume There is local community knowledge (*indigenous science*) that can be linked to scientific knowledge (*science*). Researchers reconstruct the original knowledge of the community into scientific knowledge as seen in the table below.

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Table 1. Knowledge reconstruction original public become knowledge scientific

No	Knowledge original public	Knowledge scientific
1.	Wash the hibiscus leaves with clean water to remove dirt and dust that sticks to the leaves	Clean leaf flower shoe before processed very important For remove dirt physical , residue pesticides , or substance other possible dangers stick to its surface . Action This help reduce possibility the occurrence contamination microbes or material chemicals that can endanger health If absorbed by the body (Aminah et al., 2016) Use leaves because the leaves have a soft texture with a high water content (70-80%). The soft texture of the leaves makes the leaves easy to extract for use as medicine. In addition, the leaves are a place of accumulation of photosynthate which is thought to contain elements (organic substances) that have the property of curing diseases (Permana et al., 2022) .
2.	Insert the leaves flower shoe to in basin and add lukewarm water enough agar extract on leaves flower shoe fast exit and type drunk feel warm and comfortable in the body	Add warm water to the leaves flower shoe For soften network and stimulate release the mucus related with draft characteristic physical and chemical properties of water and characteristic physique plant in science. In matter this , warm water influence temperature and structure molecular leaves , facilitating release mucus (Oknarida et al., 2018) .
3.	Squeeze leaf flower shoe until destroyed and released extract in the form of mucus	Incident squeeze leaf flower shoe until destroyed related close with structure and function network plants . leaves flower shoe contain various type components , including cells containing pigments , water, and substances others . The squeezing process This result in the rupture cells and release content cell to in water (Handayani et al., 2019) . The mucus produced is mixture various substance the chemicals contained in leaf flower shoe . including flavonoids, cyanidin, querecetin, hentriacontane, calcium oxalate, thiamine, riboflavin, niacin, ascorbic, citric, tartaric, and oxalic (Prabowo et al., 2022) . Flavonoids have a structure similar to acetaminophen, namely both are phenol groups and have a benzene ring. In addition to these compounds, hibiscus leaves also contain compounds such as L-rhamnose, D-galactose, D-galacturonic acid, and D-glucuronic acid . These compounds are pectin-forming compounds, so that hibiscus leaves have thick mucus. (Fauzy & Asy'ari, 2020) . Squeezing process leaf flower shoe until produce mucus This Can considered as form extraction , where the substances contained in material plant extracted or separated from matrix plant the (Puspitawati et al., 2013) .

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4	Separate extract with the leaves with how to filter	Filtering process involving principles chemistry like separation mixture based on difference size particle or properties physics and chemistry others . Particles big like network leaf will held back by the filter , while fluid or solution containing extract can pass filtering This is . including characteristic colloids and filtration in chemistry (Alqamari et al., 2017) . Filtering process is one of the from Lots technique laboratory used in practice scientific . This is chance for student For understand How techniques This used in data collection and analysis in context knowledge knowledge natural (Lestari, 2022) .
5.	Extract leaf flower shoe Ready consumed as drug reducer hot	Flavonoids in leaves bag Shoes have an antipyretic effect and are thought to be able to inhibit prostaglandin biosynthesis reactions through the mechanism of inhibiting the enzyme cyclooxygenase 2. Flavonoids have an antipyretic effect which acts as a fever reducer. (Supriati et al., 2017) . According to (Marpaung, 2019) There are no toxic compounds in the mucus extract of hibiscus leaves that have been studied, so hibiscus leaves are safe for consumption .

Based on table 1 above , it shows that squeeze leaf flower shoe can used as drug reducer hot Because substances contained in leaf flower shoe potential as reducer heat . In the process of processing hibiscus leaf extract as a fever-reducing medicine, the community has indigenous knowledge (*indigenous science*) which they believe has an effect on influence the medicine they create . The original knowledge has been believed for generations. The original knowledge can be constructed into scientific knowledge that is universally believed to be true . in hibiscus leaves contain flavonoids , saponins , polyphenols, essential oils, calcium, which can overcome fever.

Use part leaf flower shoe as drug because the leaves have a soft texture with a high water content (70-80%). The soft texture of the leaves makes it easy to extract the leaves for use as medicine. (Fauzy & Asy'ari, 2020) . In addition, leaves are a place for the accumulation of photosynthate which is thought to contain elements (organic substances) that have healing properties . In addition, leaf harvesting is considered more efficient because leaves will grow faster than other parts of the plant. (Handayani et al., 2019)

CONCLUSION

The results of the study show that public knowledge regarding the use of extract leaf flower shoe as drug reducer hot comes from experiences that are passed down from one generation to the next. This knowledge can be used as a source of learning with an ethnoscience approach in the field ethnomedicine through the reconstruction of local community knowledge into scientific knowledge.

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REFERENCES

Alqamari, M., Tarigan, DM, & Alridiwirsah. (2017). Cultivation of Medicinal Plants & Spices. In *Umsu Press* .

Aminah, S., Wardenaar, E., & Muflihati. (2016). Medicinal plants utilized by battra in Sejahtera Village, Sukadana District, North Kayong Regency. *Journal of Sustainable Forestry* , *4* (3), 299–305.

Astuti, H., Azhari, R., Purwoto, Agus, S., & Jeckvy, H. (2019). Identification of Ethnomedicinal Actors and Information on Types of Medicinal Plants Used and Grown in Lampung Province. *Journal of Research and Development* , *05* (03).

Efendi, A., Hasibuan, M., Sihombing, E., & Wulandari, T. (2021). Hibiscus flowers created for health. *National Seminar on Multidisciplinary Scientific Work* , *1* (1), 129–135.

Efremila., WE and SL (2018). Ethnobotanical Study of Medicinal Plants by Dayak Ethnic Group in Kayu Tanam Village, Mandor District, Landak Regency. *Journal of Sustainable Forestry* , *3* , 234–246.

Fauzy, A., & Asy'ari. (2020). Ethnobotany Study of Medicinal Plants in East Java and Its Utilization as a Website-Based Community Education Media. *Journal of Biology Pedago* , *8* (2), 46–52. http://journal.um-surabaya.ac.id/index.php/Biologi/article/view/9333/4112#

Handayani, D., Kimia, J., & Padang, UN (2019). Study of Herbal Catalytic Kinetics From Water Squeezed from Hibiscus Leaves in Reducing Internal Heat. *Department of Chemistry, FMIPA, Padang State University, Indonesia E-Mail:*

Lestari, SM (2022). Public Understanding of the Utilization of Hibiscus (Hibiscus Rosa-Sinensis L.) as a Herbal Medicinal Plant. *National Conference of Islamic Natural Science* , 1. http://103.35.140.33/index.php/NCOINS/article/view/346/141

Marpaung, EA (2019). Physical, Chemical and Organoleptic Characteristics of Hibiscus Leaf Jelly Candy (Hibiscus rosa sinensis L.). *Journal of Clinical Pharmacy and Science* .

Oknarida, S., Husain, F., & Wicaksono, H. (2018). Ethnomedicinal Study and Utilization of Medicinal Plants by Local Healers in the Colo Village Community, Dawe District, Kudus Regency. *Solidarity: Journal of Education, Society and Culture* , *7* (2), 480–500.

Permana, MG, Asih, IS, Ambaroh, J., Safitri, NA, Firdaus, SA, & Suryanda, A. (2022). Ethnomedicinal study of Indonesian medicinal plants. *(JPB) Journal of Biology Learning: Biology Studies and Learning* , *9* (2), 92–98.

Prabowo, A., Istiqomah, N., & Modeleima, A. (2022). The Effect of Hibiscus Rosa-Sinensis L. Leaf Compress on Reducing Fever in Children. *Profession* , *20* (1), 58–64.

Puspitawati, P., Ekomila, S., & Hasanah, N. (2013). Ethnomedicine as an Alternative Solution to Economic and Public Health Problems in Bagan Village, Percut Sei Tuan District, Deli Serdang Regency. *Jupiis: Journal of Social Sciences Education* , *5* (1), 116–126. https://doi.org/10.24114/jupiis.v5i1.532

Supriati, HS, Djuari, AP, & Kusumaningtyas, FA (2017). Antipyretic Effectiveness Test of Ethanol Extract of Hibiscus Flower Bark (Hibiscus rosa-sinensis L.) on Male White Rats (Rattus Norvegicus). *Indonesian*

Pharmaceutical Media , *11* (2), 1105–1112.

Syamsuri, S., Hafsah, H., & Alang, H. (2023). Economic Value of Plants (Ethnomedicinal Study) by the Mandar Indigenous Community in Luyo District, Polewali Mandar Regency. *Bio-Lectura: Journal of Biology Education* , *10* (1), 1–10. https://doi.org/10.31849/bl.v10i1.12662

Syarifuddin, A., Falyauma, N., & Hidayat, IW (2022). Ethnomedicinal Study and Utilization of Medicinal Plants in Selected Villages, Secang District, Magelang Regency. *Journal of Clinical Pharmacy and Science* , *2* (1), 74. https://doi.org/10.26753/jfks.v2i1.760