

OVERVIEW OF COMMUNITY KNOWLEDGE ABOUT THE USE OF BROTOWALI (*Tinospora crispa* L.) AS AN ANTIMALARIAL AGENT IN THE VILLAGE OF BALO

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A B S T R A C T

Background: Malaria is an infectious disease that occurs in tropical and sub-tropical areas and can cause death. The cause of this disease is the *Plasmodium* parasite which is transmitted to humans through the bite of female *Anopheles* mosquitoes. One of the plants that has the potential as an antimalarial is Brotowali (*Tinospora crispa* L.) which contains the active compound tinokrisposid with a function as an antimalarial. **The purpose:** of this study was to determine the description of community knowledge about the use of Brotowali (*Tinospora crispa* L.) as an antimalarial in Balo1 Hamlet. **The method:** used is descriptive qualitative. To obtain data, researchers conducted field studies using documentation and questionnaires (questionnaires) and for the calculation formula of this study using percentage data results using the Guttman scoring formula. **The results:** showed that in the age range of 46-65 years the level of knowledge of respondents was 74.61% which was included in the good category. Based on the level of education, respondents with the latest SI education dominated the level of good knowledge with a percentage of 80.90%. While based on employment status, most respondents who work have a moderate level of knowledge with a percentage of 57.66%. Overall, community knowledge about the benefits of Brotowali (*Tinospora crispa* L.) as an antimalarial in Balo 1 Hamlet, East Kabaena District is in the moderate category with a percentage of 68.64%. **The conclusion:** is that the Balo1 Hamlet community knows enough about the Brotowali plant (*Tinospora crispa* L.) as an antimalarial.

INTRODUCTION

Knowledge is the main pillar of a nation's progress, and its development depends on society's attention to science. Therefore, knowledge plays a crucial role and must be given attention in order to support a better life (Octaviana & Ramadhani, 2021). In an academic context, knowledge is a fundamental aspect that only humans can possess. Benjamin S. Bloom, a well-known figure in the study of knowledge, introduced the concept of Bloom's taxonomy in 1956. This taxonomy classifies the dimensions of cognitive processes into six main categories, namely knowledge, comprehension, application, analysis, synthesis, and evaluation (Darsini et al., 2019).

Health is the most important aspect for every individual in carrying out various activities. Health is a basic right for every human being and is one of the elements of a prosperous life. The definition of health according to Law Number 36 of 2009 is a condition of physical, mental, spiritual, and social health that is necessary for each individual to lead a useful life in social and economic terms (Kementerian Kesehatan RI, 2018).

Indonesia is a country with enormous biodiversity, especially in terms of the various types of plants that can be used as medicinal ingredients. Most tribes and ethnic groups in Indonesia already use traditional medicine in their daily lives, both to maintain health and to treat various diseases (Fauziah, 2024). Based on the current situation, many people still have limited knowledge about traditional medicines available in nature. Especially in this modern era, attention to physical health has become a top priority, along with increasing awareness of the importance of maintaining psychological well-being for both individuals and society in general (Alami et al., 2025).

The use of natural ingredients commonly used as traditional medicine in Indonesia includes the brotowali plant (*Tinospora crispa* L.), which is often used as an antimalarial. Brotowali is a wild plant that commonly grows in forests, fields, or is often planted near fences by the community. In general, brotowali contains various chemical compounds such as alkaloids, soft resin, starch, glycosides, picoretosides, harsa, bitter picoretin, tinokrisposides, berberine, palmatine, columbine,

and kaukulin/picrotoxin. Brotowali has often been used as an anti-inflammatory, antidiabetic, antimalarial, and analgesic (Margarethy et al., 2019).

Previous studies have been conducted on brotowali stem extract in mice, and the results show that brotowali stem extract can suppress the growth of *Plasmodium berghei* in the blood of mice, thereby preventing sporulation. The brotowali plant contains the active compound tinokrisposid, which functions as an antimalarial agent. This compound acts on the erythrocytic phase by inhibiting the growth of parasites and erythrocytes. Therefore, brotowali stem extract can be used as an alternative treatment for malaria (Margarethy et al., 2019).

Malaria is an infectious disease that is prevalent in tropical and subtropical regions and can be fatal. Every year, more than one million people worldwide die from this disease (Ardha Suryadinata, 2020). Malaria has been known for a long time and remains a health problem throughout the world today. The cause of this disease is the *Plasmodium* parasite, which is transmitted to humans through the bite of female *Anopheles* mosquitoes (Wasiyem et al., 2025).

Based on preliminary research conducted in Balol Hamlet, Balo Village, East Kabaena Subdistrict, Bombana Regency, Southeast Sulawesi, to date there have been no reports on community knowledge of the benefits of Brotowali (*Tinospora crispa* L.) as an antimalarial agent. Therefore, this study aims to determine the community's knowledge of the use of Brotowali (*Tinospora crispa* L.) as an antimalarial agent in Balol Hamlet.

METHOD

This study used a qualitative descriptive method to build knowledge through discovery and understanding. The study was conducted in June-July 2025 in Balol Hamlet, Balo Village, East Kabaena Subdistrict, Bombana Regency, Southeast Sulawesi. The study population included the entire community in Balol Hamlet, with a population of 143 people. The research sample consisted of 59 people. The sample selection used purposive sampling based on inclusion criteria, namely residents who lived in Balol Hamlet, were aged 25-65 years, and were willing to be respondents. The data was collected and analyzed using the Guttman scoring formula.

$$\text{Percentage} = \frac{\text{number of correct answers}}{\text{number of questions}} \times 100\%$$

Where : Value 1 for yes answer
Value 0 for no answer

RESULTS & DISCUSSION

This study was conducted with 59 participants aged 25-65 years old, with educational backgrounds ranging from elementary school to bachelor's degree, and both employed and unemployed. The results are shown in the following table:

Table 1 Respondent Characteristics

Respondent Characteristics	Number	Percentage
Age		
Adults (25-45)	33	55,93%
Seniors (46-65)	26	44,07%
Total	59	100%
Highest level of education		
Elementary school graduate	4	6,78%
Junior high school graduate	17	28,81%
High school graduate	27	45,76%
Bachelor's degree	11	18,64%
Total	59	100%
Employment		
Working	30	50,85%
Not working	29	49,15%
Total	59	100%

Source: Primary Data 2025

List of Questions	Frequency of 'Yes' Answer	Percentage	Interpretation
P1	56	94,91%	Good
P2	54	91,52%	Good
P3	25	42,37%	Poor
P4	38	64,40%	Fair
P5	48	81,45%	Good
P6	44	75,57%	Fair
P7	53	89,83%	Good
P8	45	76,27%	Good
P9	29	49,15%	Poor
P10	13	22,03%	Poor
Total	405	-	-
Average	40,5	68,64%	Fair

Source: Primary Data 2025

In Table 1, most respondents were aged 25-45 years old (33 people), while 26 respondents were aged 46-65 years old. In terms of educational level, 4 respondents had elementary school education, 17 had junior high school education, 27 had senior high school education, and 11 had bachelor's degrees. Based on occupation, 30 respondents were employed and 29 were unemployed

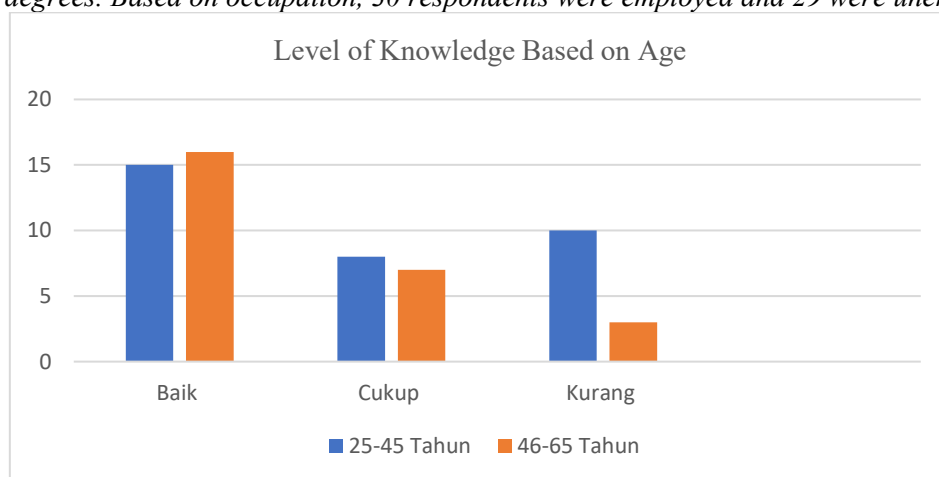


Figure 1. Knowledge Level Diagram Based on Age

Based on Figure 1, out of a total of 59 respondents, the 25–45 age group showed a good level of knowledge in 15 people, adequate in 8 people, and poor in 10 people. Meanwhile, the 46–65 age group had a higher level of good knowledge, namely 16 people, adequate in 7 people, and poor in 3 people.

Overall, it is known that the majority of respondents in the 46–65 age group had a knowledge level of 74.61%, which falls into the good category. This percentage is higher than that of the adult age group, which may indicate that people of this age tend to have more experience, including in the use of traditional medicinal plants as part of local wisdom. In line with the research (Indrayani, 2024) states that adolescents are physiologically considered to be healthy, so the likelihood of them using drugs is still low. Meanwhile, the elderly use traditional medicines more often for treatment because at that age they prefer to use traditional medicines to treat their illnesses.

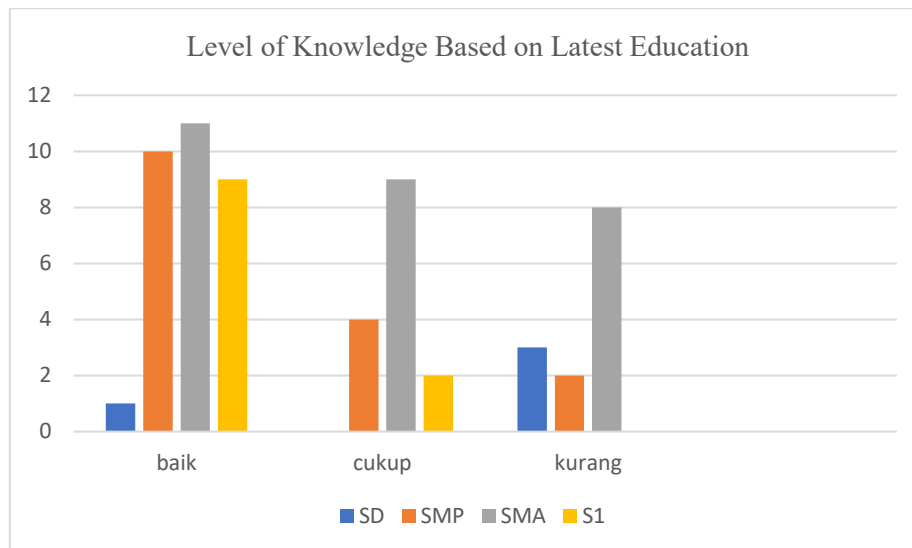


Figure 2 Knowledge Level Diagram Based on Last Education

Figure 2 shows the distribution of respondents' knowledge based on their highest level of education. Respondents with elementary school education showed that only one person had a good level of knowledge and at most three people had poor knowledge. At the junior high school level, most respondents had good knowledge (10 people), while the rest had adequate and poor knowledge (4 and 2 people, respectively). For senior high school, the level of knowledge was evenly distributed between good (11 people), adequate (9 people), and poor (8 respondents).

Meanwhile, at the bachelor's degree level, all respondents had good and adequate knowledge, with none classified as poor. The analysis results in Figure 2 show that respondents with a bachelor's degree as their last level of education dominated the very good knowledge level, with a percentage of 80.90%. This indicates a positive correlation between the level of education and the level of knowledge about the use of Brotowali as an antimalarial. In line with the research (Anwarudin, 2021) stated that the majority of respondents with higher education had fairly good knowledge. The level of education can also influence the knowledge possessed. People with higher education will absorb information easily and respond rationally to information.

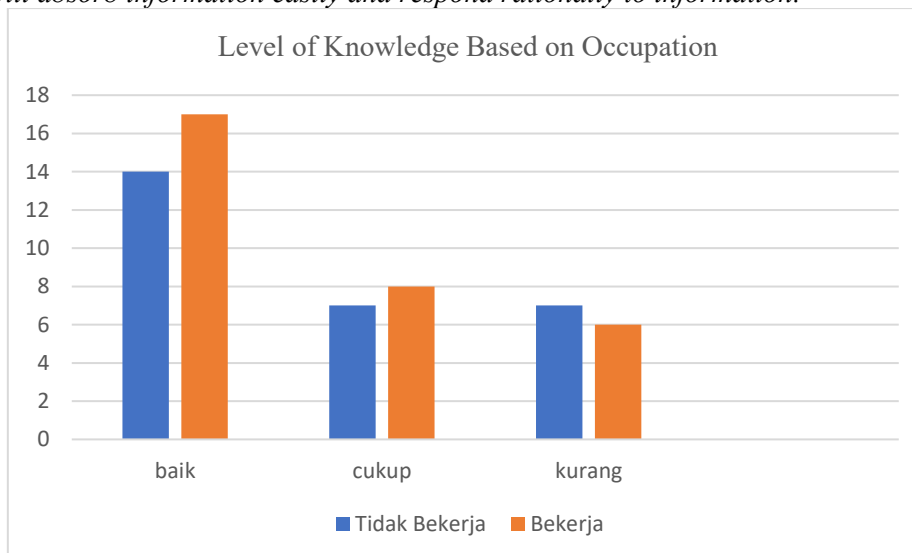


Figure 3 Knowledge Level Diagram Based on Occupation

Based on Figure 3, the level of knowledge of respondents based on occupation shows that the working group has a higher level of good knowledge, namely 17 people compared to 14 people who are not working. In the sufficient knowledge category, there are 8 people who are working and 7 people who are not working. For the poor category, there are 7 people who are not working and 6 people who are working. Figure 3 shows that employed respondents have a sufficient level of knowledge with a percentage of 57.66%. A supportive work environment and extensive social interaction are factors that contribute to strengthening their knowledge. In line with (Anwarudin,

2021) Stating that work can influence a person's level of knowledge because the work environment can enable a person to gain new knowledge and experience, either directly or indirectly.

Based on the results of the study, it is known that age is a more significant factor in determining knowledge about brotowali compared to education and occupation. This is because it is related to maturity of thought and experience, both from information obtained and passed down from generation to generation in the use of the brotowali plant.

The percentage calculation of the community's knowledge about the use of brotowali as an antimalarial in Balol Hamlet was carried out by dividing the total number of "yes" answers, which was 405, by the total number of questions, resulting in an average of 40.5 "yes" answers per question. This figure was then compared to the number of respondents, which was 59 people, and multiplied by 100% to obtain a percentage of 68.64%. Therefore, the percentage of knowledge about the use of brotowali as an antimalarial agent among the community, which is 68.64%, is in the sufficient category.

CLOSING

Based on the results of the study, the conclusion that can be drawn from the study of knowledge about the use of brotowali (*Tinospora crispa* L.) as an antimalarial drug in Balol Hamlet shows that the overall average percentage of the 10 questions from 59 respondents was 68.64%, which indicates that the level of knowledge among the community is sufficient. The limitation of this study lies in the scope of the location, which was only conducted in the community of Balol Hamlet, Balo Village. This condition means that the results of the study cannot be generalized to represent a wider population with different backgrounds and characteristics.

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REFERENCES

- Alami, R. R., Damayanti, R. H., Syafriah, W. O., & Mustiqawati, E. (2025). Tingkat Pengetahuan Masyarakat Tentang Daun Bayam (*Amaranthus Caudatus*) Sebagai Obat Anemia (Vol. 8, Issue 1). <http://journal.unpacti.ac.id/index.php/JPP>
- Amin, N. F., Garancang, S., & Abunawas, K. (2023). Konsep Umum dan Sampel Dalam Penelitian. *JURNAL PILAR: Jurnal Kajian Islam Kontemporer*, 14(1), 15-31.
- Anwarudin, W., Luthfiyan, R., & Al-Quran, F. E. (2021). Tingkat Pengetahuan Masyarakat Terhadap Perilaku Swamedikasi Maag di RT 01 RW 01 Desa Cisantana. *JFARMAKU*, 6(1), 37–41. <http://ojs.stikes-muhammadiyahku.ac.id/index.php/jfarmaku>
- Arikunto, S. (2013). *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta: PT. Rineka Cipta.
- Badan Pusat Statistik Kabupaten Bombana. (2023). *Kecamatan Kabena Dalam Angka 2023*. BPS Kabupaten Bombana.
- Darsini, Fahrurrozi, & Cahyono, E. A. (2019). Pengetahuan ; Artikel Review. *Jurnal Keperawatan*, 12(1), 97.
- Fauziah, A. (2024). Studi Etnomedisin Tumbuhan Obat sebagai Upaya Pelestarian Kearifan Lokal di Dusun Selojeneng, Sumbergempol, Tulungagung. *JBioEd*, 16(2), 68–83.
- Indrayani, F., Muin, R., & Datu, J. (2024). Tingkat Pengetahuan Masyarakat tentang Penggunaan Obat Tradisional sebagai Swamedikasi di Dusun Manggi Kecamatan Nosu. *Journal of Pharmaceutical Science and Herbal Technology*, 1(2), 42–50.

- Kamaluddin, A. K., Hukum, R. S., & Tamrin, M. (2023). *Studi Pemanfaatan Jenis Tumbuhan Obat Tradisional Di Desa Nuku Kecamatan Oba Selatan, Kota Tidore Kepulauan. JOURNAL FOREST ISLAND, 1(1), 8-16.*
- Kementerian Kesehatan RI. (2018). *Bersama Selesaikan Masalah Kesehatan.* <https://www.kemkes.go.id/article/view/18012900004/bersama-selesaikan-masalah-kesehatan>
- Margarethy, I., Yahya, Y., & Salim, M. (2019). Kearifan lokal dalam pemanfaatan tumbuhan untuk mengatasi malaria oleh pengobat tradisional di Sumatera Selatan. *Journal of Health Epidemiology and Communicable Diseases*, 5(2), 40–48. <https://doi.org/10.22435/jhecds.v5i2.2088>
- Niljan, J., Jaihan, U., Srichairatanakool, S., Uthaipibull, C., & Somsak, V. (2014). ANTIMALARIAL ACTIVITY OF STEM EXTRACT OF TINOSPORA CRISPA AGAINST PLASMODIUM BERGHEI INFECTION IN MICE. In *Original Research Article 199 J Health Res* □ (Vol. 28, Issue 3). <http://www.jhealthres.org>
- Octaviana, D. R., & Ramadhani, R. A. (2021). HAKIKAT MANUSIA: Pengetahuan (Knowledge), Ilmu Pengetshusn (Sains), Filsafat dan Agama. *Jurnal Tawadhu*, 2(2), 143–159.
- Suryadinata, A., & Fitri, Y. E. (2020). Faktor-Faktor Yang Berhubungan Dengan Kejadian Malaria Pada Keluarga. *Jurnal Lentera Perawat*, 1(2), 121-125.
- Wasiyem, Ginting, H. A. B., Zahratul, U., Selvia, L., Saskia K. B. P., Fiola, S. A. N., & Rizka, A. E. G. (2025). Analisis Faktor Risiko dan Upaya Pencegahan Malaria di Kecamatan Medan Labuhan. *Jurnal Kolaboratif Sains*, 8(3), 1428–1436. <https://doi.org/10.56338/jks.v8i3.6918>