



Inventory and Use Value of Medicinal Plants of the Local Community of Talaga Village, West Halmahera Regency

Taufiq Taher¹, Muhammad Hidayat², Jena Andres³

^{1,2,3} Biology Education Study Program, Institute of Science and Education, Kie Raha, North Maluku, Indonesia
Email: aufieq@gmail.com, mhidyat5@gmail.com, jena.andres83@gmail.com

ARTICLE INFO

Keywords:

Inventory;
Use Value;
Medicinal Plants;
Ethnobotany

Article history:

Received 2025-12-18
Revised 2026-05-02
Accepted 2026-05-11

ABSTRACT

Ethnobotany study is the interaction between humans and plant resources. Ethnobotany can be used as a tool to document the knowledge of local communities in supporting their livelihoods. The objectives of this study are: 1) to determine the types of medicinal plants in Talaga village (identification is adjusted to the virtual field herbarium); and 2) to determine the utility value of medicinal plants with important categories: very important, important, less important, and not important. The research method used is ethnobotanical exploration of medicinal plants, with a qualitative approach. The research method used is in-depth interviews and participant observation. The results showed that there were 33 types of medicinal plants. Medicinal plants with an ICS value of 24.48% consisted of 21 types of plants, medicinal plants with an ICS value of 32.64% consisted of 8 types, plants with an ICS value of 35.36% consisted of 1 type, 2 types of medicinal plants had an ICS value of 53.04%, and 1 type of plant had an ICS value of 44.88%. Medicinal plants in the very important category consist of 3 types of plants, medicinal plants in the important category consist of 30 types, and no medicinal plants were found in the less important and unimportant categories.

This is an open access article under the [CC BY-NC-SA](https://creativecommons.org/licenses/by-nc-sa/4.0/) license.



Corresponding Author:

Taufiq Taher
Biology Education Study Program, ISDIK Kie Raha, North Maluku; aufieq@gmail.com

INTRODUCTION

Ethno botany studies are interactions between humans and plant resources (Safitri et al., 2024; Seko et al., 2024; Apriliani et al., 2025). Ethnobotany can be used as a tool to document local community knowledge in supporting life, such as food, medicine, building materials,



traditional ceremonies, culture, dyes, and others (Hutubessy et al., 2021; Hidayat et al., 2023; Rahmawati & Sriyati, 2024). Ethnobotany is a way for humans to utilize plants using a cultural approach that utilizes natural resources and the environment based on their experience and knowledge (Kumar et al., 2021; Mishra & Kumar, 2025; Dean, 2024). This ethnobotany study is inseparable from the knowledge of the people who inhabit an area (Chekole, 2017; Zhou et al., 2023).

Communities inhabiting a region have their own characteristics, relying on them and not being influenced by characteristics from outside their region (Sulistiani et al., 2018; Alfiansyah, 2019; Suryamah, 2023). This can be seen in their perspectives on protecting and preserving forests, utilizing their existing knowledge, both in the form of rules/laws and prohibitions.

One of the basic skills in ethnobotany is collecting plant species (Hikmayani, 2025; Jamiliya, 2025; Nainggolan et al., 2025). There are four basic benefits of ethnobotany, namely (1) Ethnobotanical studies focus on contributing to the knowledge of plant biodiversity (taking into account that biodiversity as well as human awareness of the use, application, and conservation of natural resources) on the one hand and taking this knowledge for further social and scientific interventions on the other hand. (2). Ethnobotanical research also helps in setting the priorities of local communities to ensure that local values are translated into rational use of resources and effective conservation of biodiversity and cultural knowledge. (3). More than 5000 plant species including angiosperms are used worldwide for medicinal purposes. (4). Medicinal plant products have been successfully used for various diseases both externally and internally (Prajanti et al., 2025; Septiani et al., 2025).

Ethnobotanical research helps traditional communities to protect themselves from mistakes in managing their environment, so that the environment is maintained (Alemu et al., 2024; Dean, 2024; Rajput et al., 2024). Local wisdom of the community in Talaga village regarding medicinal plants is believed to be lost, this is due to the lack of education for the younger generation about medicinal plants and the cessation of oral knowledge transmission from the older generation to the younger generation which results in a break in information about medicinal plants, in addition to that there has never been any research on medicinal plants in the village. Based on the facts stated above, it is necessary to conduct research to maintain the local knowledge of the local community about medicinal plants is maintained and not lost. This study aims to determine the types of medicinal plants in Talaga village through identification based on the virtual field herbarium, and to determine the use value of medicinal plants with important categories of very important, important, less important, and unimportant.

RESEARCH METHODS

The research was conducted in Talaga village, Ibu Selatan District, West Halmahera Regency. Data collection techniques used in this study were observation and in-depth



interviews (*depth interview*) on traditional healers in Talaga village. Hattra determination using the technique *snowball sampling*. Interview data was transcribed with assistance voice *to text* and *microsoft excel* to create a simple thematic analysis matrix. To determine the useful value of plants, *Index of Cultural Significance (ICS)*.

$$ICS = \sum_{i=1}^n (q \times i \times e)_n$$

Information:

<i>Quality value (q)</i> (Use quality value)	: How important is the function of the plant?
<i>Intensity value (i)</i> (Usage intensity value)	: How often are these plants used in everyday life or traditions?
<i>Exclusivity value (and)</i> (Exclusivity value)	: To what extent can the plant be replaced by another type for the same function?
<i>N</i>	: The total number of use categories that a plant species has.

Plants with high ICS values indicate that these plants have utility value for the Talaga village community in traditional medicine.

RESULTS AND DISCUSSION

The results of the study showed that in Talaga village there were four (4) respondents. These four respondents were native residents of Talaga village aged 60 and 65 years who had knowledge of medicinal plants, knowledge they had had for a long time and always practiced. If the people in Talaga village were sick, they would go to one of the four people, according to the disease they were suffering from. The local people's belief that consuming traditional medicine can cure diseases has been proven for a long time so that people do not doubt the benefits of medicinal plants. The types of medicinal plants can be seen in Table 1 below:

Table 1. List of plant types, regional names, latin names, parts used, how to use, and uses of medicinal plants in Talaga village

No	Indonesian names	Local Name	Latin name	Utilized Parts	How to Use	Uses
1.	Sambang getih	<i>Lire</i>	<i>Hemigraphis alternata</i> Burm F.	Leaf	Take 7 leaves, then chew and rub them.	Overcoming TB
2.	Paku rane	<i>Rutu-rutu</i>	<i>Selaginella pulvinata</i>	Leaf	Take a handful of fern leaves, crush them and then apply them	Treating wounds and stopping blood clots



3.	Baligo and Sidogiri	<i>Roka gam and digo</i>	<i>Benincasa hispida</i> (thunberg) Cogn Like a <i>hombifoli</i> L.	Leaf	Take 7-9 leaves, boil them using 3 glasses of water until 1 glass remains, then drink it.	kidney medicine
4.	Kapuk randu	<i>Kapok</i>	<i>Ceiba pentandra</i>	Duri	Take 1 kapok thorn, crush it and then apply it	Treating lumps on a baby's head
5.	Alang-alang	<i>kusu-kusu</i>	<i>Cylindrical Imperata</i> L.	Root	Take a handful of alang-alang roots, boil them in water until they boil, then drink.	As a medicine for urinary tract infections
6.	Takokak/terung pipit	<i>Wowoi sang</i>	<i>Nightshade Sw</i>	Fruit	Boil the flat eggplant using water until it boils then drink it.	Treating diabetes
7.	Cempaka	<i>Capaka</i>	<i>Magnolia champaca</i> L.	Young	Shave the cempaka stem (a handful of an adult's hand) , squeeze it with warm water then drink it.	Treating poison
8.	Rumbia	<i>Hate rumbia</i>	<i>Metroxylon sagu</i>	Rubber	Take the rubber from the plant and apply it.	Treating snake pox.
9.	Akasia palsu, kelor, putri malu dan rotan	<i>Kate-kate</i>	<i>Robinia pseudoacacia</i> , <i>Moringa oleifera</i> , <i>mimosa pudica</i> and <i>axillary sedge</i>	Young	1 section of acacia stem 15 cm long, bark (long 15 cm) and Moringa leaves (uncountable), 1 mimosa pudica tree, 15 cm long rattan, boiled	A mixture of medicines for smooth menstruation and pain during menstruation drunk, 1 time a day



					together until boiling, and then drink	
10.	Nanas	<i>Nanas</i>	<i>Ananas comosus</i> L. Take it.	Simple leaves	Take the leaves, crush them easily, squeeze them, and then drink.	Overcoming vomiting in children
11.	Bayam duri	<i>Bayam baduri</i>	<i>Amaranthus spinosus</i> L	Leaves and roots	7 leaves are crushed and then rubbed on and 7 roots are boiled until boiling, and then drink.	Leaves to treat swelling and sprains and roots for sexuality
12.	Miyana, kunyit, dan daun sere	<i>Wayana, kuning, and gramakusu</i>	<i>Plectranthus scutellarioides</i> , <i>curcuma longa</i> L, and <i>Cymbopogon citratus</i>	leaves, rhizomes and stems	Take 9 leaves, 1 rhizome and 1 stalk of lemongrass then boil until boiling, and then drink	Mixed medicine to clean dirty blood after giving birth
13.	Daun wungu, sirsak, dan tumpang air	<i>Abing-abing, gigiang, naka landa, and gofu loro</i>	<i>Graptophyllum pictum</i> , <i>Annona muricata</i> , <i>Peperomia pellucida</i>	Leaves, leaves, stems and roots	7 purple leaves, 7 soursop leaves and 7 leaves, 1 segment of stem, 1 segment of tumpang water root, boiled together until boiling, and then drink.	Mixed medicine to reduce fever
14.	Jarak pagar	<i>Balaceit</i>	<i>Jatropha curcas</i>	Leaf	9 castor oil plant leaves brewed with hot water, and then drink	Facilitate birth
15.	Pare	<i>Pupare</i>	<i>Momordica charantia</i> Descourt	Fruit	Take 1 bitter melon in a blender, then	Dialysis



					squeeze it, and then drink.	
16.	Kayu semut	<i>Hutu ciri</i>	<i>Hernandida peltata</i> Meissn	Tree bark	Shave the bark then mixed with water warm then squeezed, and then drink.	Discharge of white blood during childbirth and for birth control
17.	Awar-awar	<i>Tagalolo</i>	<i>Ficus Septica</i> Burm F	Leaf	Take 1 sheet of leaf then wrap the fish and boil it.	Itching reliever for fish
18.	Pala	<i>Gosora</i>	<i>Myristica fragrans</i>	Root	Take 7 pieces of nutmeg root then boil until boiling, and then drink	Remove blood water
19.	Pung pulutan	<i>Tabatoko</i>	<i>Urena lobata</i> L	Leaves and flowers	Take 7 leaves and 1 flower, crush them and then stick them together.	Treating boils
20.	Tumbuhan api	<i>Kastroli</i>	<i>Euphorbia heterophylla</i> L	Leaves and roots	Take 7 leaves and 1 root, crush them, then brew them with water warm, and then drink	Overcoming bloating and detecting toxins in the body
21.	Kedondong hutan	<i>Coco</i>	<i>Spondias pinnata</i>	Tree bark	Shave the kedondong tree, and then brew it with water warm then squeezed, and then drink	Cholesterol
22.	Rija-rija	<i>Caat ma go ole</i>	<i>Scleria sumatrensis</i>	Fruit	Take 7 pieces and chew them.	Hard to breathe
23.	Buah maja, kayu manis	<i>Fruit no, hate mam</i>	<i>Aegle marmelos</i> (L) Corr, <i>Cinnamomum true</i> J. Presl	leaves and bark	Take 7 maja fruit leaves and 1 cinnamon stick, boil until boiling, and then drink	Mixed leaves for cancer treatment



24.	Melati putih	Manuru	Jasminum sambac L	Leaf	Take 3 jasmine leaves, and chew them.	Increases appetite
-----	--------------	--------	-------------------	------	---------------------------------------	--------------------

A total of 33 medicinal plants were found in Talaga village, each with a variety of uses. To determine the percentage value of each medicinal plant species, an analysis was conducted using the Index of Cultural Significance (ICS). The resulting data can be seen in the following table.

Table 2. ICS values of medicinal plants in Talaga village

No	Plant Types	ICS Value (%)
1	<i>Hemigraphis alternata</i> Burm F.	24,48
2	<i>Selaginellacushioned</i>	24,48
3	<i>Benincasa hispida</i> (thunberg) cogn	24,48
4	<i>Ceiba pentandra</i>	24,48
5	<i>Cylindrical Imperata</i> L	24,48
6	<i>Sidar hombifoli</i> L	24,48
7	<i>Nightshade</i> SW	24,48
8	<i>Magnolia champaca</i>	32,64
9	<i>Metroxylon sagu</i>	35,36
10	<i>Caesalpinia bonduc</i> L	24,48
11	<i>Ananas comosus</i> L. Merr	32,64
12	<i>Moringa oleifera</i>	32,64
13	<i>Mimosa chaste</i> L	24,48
14	<i>Axillary calamus</i>	24,48
15	<i>Hernandida peltata</i> Meissn	32,64
16	<i>Ficus Septica</i> Burm F	32,64
17	<i>Myristica fragrans</i>	32,64
18	<i>Urena lobata</i> L	32,64
19	<i>Euphorbia heterophylla</i> L	32,64
20	<i>Spondias piñata</i>	24,48
21	<i>Scleria sumatrensis</i>	53,04
22	<i>Aegle marmelos</i> (L) Corr	53,04
23	<i>Jasminum sambac</i> L	24,48
24	<i>Cinnamomumtrue</i> J. Presl	24,48
25	<i>Hemigraphis alternata</i> Burm F	24,48
26	<i>Plectranthus scutellarioides</i>	24,48
27	<i>Painted Graptophyllum</i>	24,48
28	<i>Jatropha curcas</i>	24,48
29	<i>Anona muricata</i> L	24,48
30	<i>Peperomia pellucida</i>	24,48
31	<i>Curcuma longa</i> L.	24,48
32	<i>Cymbopogon citratus</i>	44,88
33	<i>Momordica charantia</i> Descourt	24,48

Data from the analysis of medicinal plants in Talaga village using ICS shows that there are medicinal plants with an ICS value of 24.48%, consisting of 21 types of plants, including *Hemigraphis alternata* Burm F., *Selaginella pulvoinata*, *Benincasa hispida* (thunberg) cog, *Ceiba*



pentandra, *Cylindrical Imperata*, *Sida rhombifolia* L, *Nightshade* Sw, *Caesalpinia bonduc* L, *Mimosa chaste* L, *Axillary calamus*, *Amararanthus spinosus* L, *Spondias piñata*, *Jasminum sambac* L, *Cinnamomum true* J. Presl, *Hemigraphis alternate* Burm F, *Plectranthus scutellarioides*, *Graptophyllum pictum*, *Jatropha curcas*, *Anona muricata* L, *Peperomia pellucida*, *Curcuma longa* L, *Momordica charantia* Descourt. Medicinal plants with an ICS value of 32.64% consist of 8 types of plants, namely *Magnolia champaca*, *Ananas comosus* L. Merr, *Moringa oleifera*, *Hernandia peltata* Meissn, *Ficus Septica* Burm F, *Myristica fragrans*, *Urena lobata* L, *Euphorbia heterophylla* L.

Plants with an ICS value of 35.36% 1 type *Metroxylon sagu*, 2 types of medicinal plants have an ICS value of 53.04% of which *Scleria sumatrensis* dan *Aegle marmelos* (L) Corr. Take it, *Moringa oleifera*, and 1 type of plant has an ICS value of 44.88%, namely *Cymbopogon citratus*. All types of medicinal plants found in Talaga village are still utilized effectively by the local community. They are further categorized into useful plants, with categories as very important, important, less important, and unimportant, as seen in Table 3 below.

Table 3. Categories of ICS Values of Useful Plants of the Talaga Village Community

No	Importance Index (ICS) Significance Category	Plant Types
1	Most Important (40- 100 And Over)	3
2	Important (20-39)	30
3	Less Important (0-19)	-
4	Not Important (0)	-
Total		33

Based on Table 3 above, it can be explained that there are 3 medicinal plants in the very important category that are always used by local people in Talaga village, namely: *Scleria sumatrensis*, *Aegle marmelos*(L) Corr, and *Cymbopogon citratus*, Meanwhile, there are 30 types of medicinal plants in the important category, including *Hemigraphis alternate* Burm F, *Selaginella pulvinata*, *Benincasa hispida* (thunberg) cogn, *Ceiba pentandra*, *Cylindrical Imperata* L, *Sidar hombifoli* L, v, *Magnolia champaca*, *Metroxylon sagu*, *Caesalpinia bonduc* L, *Ananas comosus* L. Take it, *Moringa oleifera*, *Mimosa chaste* L, *Axillary calamus*, *Amararanthus spinosus* L, *Hernandida peltata* Meissn, *Ficus Septica* Burm F., *Myristica fragrans*, *Urena lobata* L., *Euphorbia heterophylla* L, *Spondias piñata*, *Jasminum sambac* L, *Cinnamomum true* J. Presl, *Hemigraphis alternate* Burm F., *Plectranthus scutellarioides*, *Painted Graptophyllum*, *Jatropha curcas*, *Anona muricata* L, *Peperomia pellucida*, *Curcuma longa* L, and *Momordica charantia descourt*.

Discussion

There are 33 types of medicinal plants used by the people of Talaga village. The use of medicinal plants are still always preserved by the local community, because it is believed that medicinal plants do not have dangerous side effects compared to generic drugs, even though generic drugs are still consumed. As explained by Camejo-Rodrigues et al., (2003) that they do



not have side effects, medicinal plants are very easy to find and are inexpensive. The practice of using medicinal plants by the people of Talaga village is not only limited to the local community, but there are also people outside Talaga village who often come to the village to seek medicine to treat their illnesses.

Overall, the part of the plant most often used for medicinal purposes is the leaves. The most common method for treating ailments is boiling. The medicinal plant is then harvested, washed, and then mixed according to the specific ailment. Evidence shows that using traditional medicine can help people overcome their ailments. According to Oda et al., (2024); Ralte et al., (2024); Singh et al., (2024) explains that the use of medicinal plants has occurred in almost all regions and has been going on for a long time. This shows that medicines derived from plants play a very effective role in treating disease. Based on other findings conducted by Malieser et al., (2024); Nurdin et al., (2024); Siregar & Junaidi, (2024) explained that local people tend to use traditional medicine over modern medicine to treat their ailments. The same is true for the local community of Talaga village, where they use more traditional medicine to treat their ailments than chemical drugs.

CONCLUSION

This research found that the local community in Talaga village used 33 types of medicinal plants that is very important to treat various diseases. It is consist of three types of medicinal plants in the very important and 30 types of medicinal plants.

REFERENCES

- Alemu , M. , Asfaw , Z. , Lulekal , E. , Warkineh , B. , Debella , A. , Sisay , B. , & Debebe , E. (2024). The ethnobotanical study of traditional medicinal plants used by the local people in Habru District, North Wollo Zone, Ethiopia. *Journal of Ethnobiology and Ethnomedicine*, 20(1), 4. <https://doi.org/10.1186/s13002-023-00644-x>
- Alfiansyah, M. (2019). SOCIAL CHARACTERISTICS OF THE BANJAR COMMUNITY: (CASE STUDY IN THE BANJAR COMPLEX)SETTLEMENTMENDAWAI COMMUNITY OF PALANGKA RAYA CITY).*Journal of Sociology*, 2(2), 73–80.
- Apriliani, A., Dewi, N. K., & Irawanto, R. (2025). Biodiversity as Ethnobotany Education in Madiun.*Proceedings of the National Seminar on Research and Community Service, LPPM Aisyiyah University Yogyakarta*, 3, 658–666. <https://proceeding.unisayogya.ac.id/index.php/prosemnaslppm/article/view/1246>
- Chekole, G. (2017). Ethnobotanical study of medicinal plants used against human ailments in Gubalafto District, Northern Ethiopia. *Journal of Ethnobiology and Ethnomedicine*, 13(1), 55. <https://doi.org/10.1186/s13002-017-0182-7>
- Dean, M. (2024). Exploring ethnobotanical knowledge: Qualitative insights into the therapeutic potential of medicinal plants. *Golden Ratio of Data in Summary*, 4(2), 154–166.



- Hidayat, M., Taher, T., & Murniati, N. (2023). Ethnobotany of medicinal plants of the indigenous people of the Ternate Sultanate in Foramadiah Village as a developer of local wisdom-based teaching materials. *Journal of Biology Education and Learning*, 7(2), 250–259.
- Hikmayani, N. (2025). *DEVELOPMENT OF AN E-MODULE BASED ON ETHNOBOTANY OF SPICE PLANTS IN ENREKANG, SOUTH SULAWESI ON THE MATERIAL OF CLASSIFICATION OF LIVING THINGS* [PhD Thesis, IAIN Parepare]. <https://repository.iainpare.ac.id/id/eprint/11636/>
- Hutubessy, J. I., Tima, M. T., & Murdaningsih, M. (2021). Ethnobotanical Study of Local Food Crop Diversity of the Lio Ethnic Group in Flores, Ende Regency. *Journal of Agriculture*, 12(2), 96–104.
- Jamiliya, L. (2025). *Ethnobotanical study of medicinal plants in the community of Guluk-Guluk sub-district, Sumenep district as an effort to develop teaching materials for an atlas of medicinal plants at Madrasah Aliyah 1 Annuqayah Putri*. [PhD Thesis, University of Muhammadiyah Malang]. <https://eprints.umm.ac.id/id/eprint/14165/>
- Kumar, A., Kumar, S., Komal, Ramchiary, N., & Singh, P. (2021). Role of traditional ethnobotanical knowledge and indigenous communities in achieving sustainable development goals. *Sustainability*, 13(6), 3062.
- Malieser, D. N., Patty, Z., & Kastanja, A. Y. (2024). Traditional Medical Knowledge of the Kakara Village Community, Tobelo District, North Halmahera. *SALOI: Journal of Agricultural Sciences*, 2(2), 30–39.
- Mishra, P., & Kumar, J. (2025). " Exploring Ethnobotany: Understanding the Dynamic Relationship Between Humans and Plants. *Diverse Aspects of Ethnobotany*, 196.
- Nainggolan, W. A., Ulfa, S. W., & Adlini, M. N. (2025). DEVELOPMENT OF ETHNOBOTIC ENCYCLOPEDIA OF TRADITIONAL MEDICINAL PLANTS OF BATAK TOBA AS A LEARNING RESOURCE ON BIODIVERSITY IN GRADE X OF SMA NEGERI 1 PAHAE JAE. *Jurnal Bionatural*, 12(1), 57–66.
- Nurdin, A., Fitria, U., & Dinen, K. A. (2024). Disease treatment and healing systems. *Public Health Journal*, 1(3). <https://teewanjournal.com/index.php/phj/article/view/474>
- Oda, B. K., Lulekal, E., Warkineh, B., Asfaw, Z., & Debella, A. (2024). The use of ethnoveterinary medicinal plants by the indigenous and local communities of Dugda District, Central Rift Valley, Ethiopia. *Journal of Ethnobiology and Ethnomedicine*, 20(1), 32. <https://doi.org/10.1186/s13002-024-00665-0>
- Prajanti, A. D., Kusumaningrum, S. B. C., & Alamsyah, M. R. N. (2025). ETHNOBOTIC STUDY OF TOBACCO (NICOTIANA TABACUM L.) IN TRUCUK DISTRICT, KLATEN REGENCY AS AN E-BOOKLET. *Journal of Biology Education*, 16(2), 120–136.
- Rahmawati, D. N., & Sriyati, S. (2024). Ethnobotanical Study of Bamboo Plants and Their Utilization in Gombong Nyiru Village, West Bandung Regency as an Implementation of Ethnopedagogy of Biology Material in the Independent Curriculum: (Ethnobotanical Study of Bamboo Plants and Their Utilization in Gombong Nyiru Village, West Bandung Regency as an Implementation of Ethnopedagogy of Biology Material in the Independent Curriculum: Ethno Pedagogy Implementation of Biology Materials in the Independent Curriculum). *BIODIC*, 10(2), 64–79.



- Rajput, D., Khabiya, R., Dwivedi, A., & Darwhekar, G. N. (2024). Ethnobiological Research by Local People/Methodological Approaches. *Ethnobotany Research and Applications*, 27, 1–18.
- Ralte, L., Sailo, H., & Singh, Y. T. (2024). Ethnobotanical study of medicinal plants used by the indigenous community of the western region of Mizoram, India. *Journal of Ethnobiology and Ethnomedicine*, 20(1), 2. <https://doi.org/10.1186/s13002-023-00642-z>
- Safitri, G., Valentino, N., & Mulyadin, R. (2024). Ethnobotanical Study of Medicinal Plants in Suranadi Village, West Lombok Regency. *Forest Island Journal*, 2(3), 1–10.
- Seko, T. Y. P., Mau, A. E., Sinaga, P. S., & Rammang, N. (2024). Ethnobotanical Utilization of Medicinal Plants, Food Plants and Natural Dye Plants by Communities Around the Ildobo Protected Forest (Case Study of Umauta Village, Bola District, Sikka Regency, East Nusa Tenggara Province). *Innovative: Journal Of Social Science Research*, 4(6), 5823–5842.
- Septiani, F., Suriani, C., Panjaitan, G., Ramadina, C. S., Warohmah, S., Diana, P., Riyani, A. R., Malau, M. M. B., & Yanti, S. (2025). Ethnobotanical study of the use of red betel (*Piper crocatum*) and turmeric (*Curcuma longa*) as medicinal plants for diabetes mellitus in the Karo tribe. *Journal of Intellect and Scholar Archipelago*, 2(4), 7672–7681.
- Singh, P. A., Dash, S., Choudhury, A., & Bajwa, N. (2024). Factors affecting long-term availability of medicinal plants in India. *Journal of Crop Science and Biotechnology*, 27(2), 145–173. <https://doi.org/10.1007/s12892-023-00219-y>
- Siregar, A., & Junaidi, J. (2024). Community Views of Shamans as Health Treatments from the Perspective of Islamic Faith: A Case Study in South Tapanuli Regency. *Kamaya: Journal of Religious Studies*, 7(2), 143–154.
- Sulistiani, I., Sumardjo, S., Purnaningsih, N., & Sugihen, B. G. (2018). Building community empowerment through improving individual characteristics in Papua. *Integrated Agribusiness Journal*, 11(2), 213–225.
- Suryamah, D. (2023). CHARACTERISTICS OF THE CIBIRU WETAN VILLAGE COMMUNITY, CILEUNYI DISTRICT, BANDUNG REGENCY. *Book Chapter ISBI Bandung*. <https://jurnal.isbi.ac.id/index.php/bookchapter/article/view/3069/1706>
- Zhou, H., Zhang, J., Kirbis, B. S., Mula, Z., Zhang, W., Kuang, Y., Huang, Q., & Yin, L. (2023). Ethnobotanical study on medicinal plants used by Bulang people in Yunnan, China. *Journal of Ethnobiology and Ethnomedicine*, 19(1), 38. <https://doi.org/10.1186/s13002-023-00609-0>