Maintaining Local Wisdom For Food Security: The Ethnobotanical Potential Of Repong Damar In Krui Selatan Sub-District, Pesisir Barat Regency, Lampung

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Abstract: *This study examines the role of biodiversity-based food resources within the traditional Repong Damar agroforestry system in Krui Selatan, Pesisir Barat Regency, Lampung. The research aims to analyze vegetation diversity, identify plant species utilized as food, and document local processing and preparation techniques that support household food security. Vegetation analysis was conducted using simple random sampling across 15 nested plots representing tree, pole, sapling, and seedling strata. Ethnobotanical data were collected through snowball sampling, semi-structured interviews, and participant observation. Results show that Anthoshorea javanica dominates the vegetation structure with consistently high IVI values across major growth strata, confirming its role as a foundational species shaping microhabitat conditions and vertical forest complexity. A total of 49 species were identified, with 13 species utilized as food. These food species represent diverse forms of use, including fresh consumption, boiling, fermentation, pounding, and seasoning. Processing practices such as tempoyak fermentation and melinjo emping production reflect strong continuity of traditional ecological knowledge. The integration of biodiversity into daily food systems highlights the community's adaptive cultural strategies in maintaining dietary resilience. Overall, Repong Damar serves as a socially embedded ecological system that sustains both biodiversity and food security in Krui Selatan.*

Keywords: repong damar; ethnobotany; biodiversity; food processing; krui selatan

1. INTRODUCTION

Food security has become a strategic issue in maintaining the stability of Indonesia's national food system in recent years. Although Indonesia possesses approximately 30,000 plant species and hundreds of local food species according to FAO (2019), the utilization of this biodiversity has not yet supported the national food system optimally. This aligns with French et al. (2018), who state that high biodiversity does not automatically contribute to food security if it is not integrated into community production and consumption systems. This condition indicates that Indonesia's biological wealth has not been fully utilized to strengthen national food self-sufficiency, resulting in the continued importation of various food commodities that could potentially be produced domestically. This situation demonstrates that biodiversity has not been translated into an effective national food production and consumption system.

Dependence on imports is one of the main indicators of the ineffective use of local biological resources. Data from the Ministry of Trade show that the value of Indonesia's agricultural imports exceeded USD 28 billion in 2022, reflecting the country's strong reliance on foreign food supplies (International Trade Administration, 2024). Furthermore, Statistics Indonesia reported that raw sugar imports reached 3.66 million tons with a value of approximately USD 2.15 billion during the period of January–September 2024. These figures highlight a significant gap between the availability of domestic food biodiversity and its utilization within the national food system. This finding is consistent with Danasari et al. (2023), who argue that high food import volumes result from limited use of local food sources and insufficient national food diversification. Such conditions underscore the need for more comprehensive strategies to optimize local food resources as part of efforts to strengthen national food security.

Understanding local food sources that have long been utilized by communities is therefore an important step in addressing this gap, particularly through ethnobotanical studies. Various ethnobotanical studies in Indonesia have demonstrated the richness and diversity of plant species used for daily food needs. Rahayu et al. (2024) documented more than 50 wild edible plant species from different families used by local communities, while Dewi et al. (2023) reported 72 food species and over 100 medicinal species utilized by communities in Cikaniki. These findings highlight the depth of traditional knowledge and illustrate how local biodiversity continues to play a central role in supporting community sustenance.

Further evidence from Sudomo et al. (2023) shows that multilayered vegetation structures can contribute 46–61% of household food needs and 51–54% of household income, reinforcing the important ecological and economic functions of diverse plant systems. Collectively, these studies demonstrate the substantial potential of local food resources in Indonesia. However, despite this remarkable diversity, no similar ethnobotanical study has been conducted in the Repong Damar area of Krui Selatan, indicating a significant research gap that warrants further investigation.

The absence of research in this area is important because community knowledge regarding the use of local plants has begun to decline due to lifestyle changes and environmental pressures (Navia et al., 2024). This condition threatens the continuity of ethnobotanical practices traditionally passed down across generations. Repong Damar holds great potential as a provider of local food through the variety of plant species that grow within its tree-based system. Therefore, this study is needed to scientifically document community knowledge before further decline occurs. This research aims to analyze biodiversity in the Repong Damar area, identify forms of species utilization as food sources within ethnobotanical practices, and describe the processing and preparation of biodiversity-based food by the community of Krui Selatan.

2. MATERIALS AND METHODS

2.1 Research Time and Location

This research was conducted from September to November 2025 in the Repong Damar area of Krui Selatan, Pesisir Barat. Repong Damar is a traditional agroforestry system with high biodiversity and plays an important role for local communities (Susanti et al., 2024). The location was selected because it represents active indigenous resource management and reflects stable ecological conditions. The area is considered representative for field observations, and the research location is shown in Figure 1.

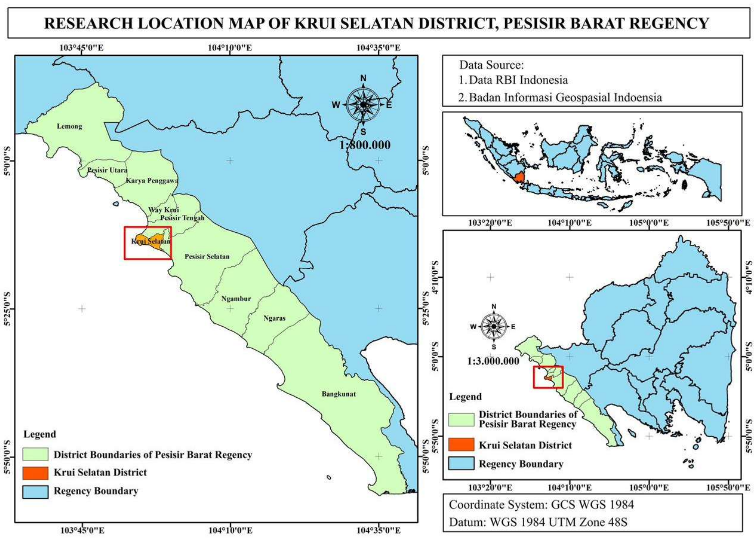

Figure 1. Location of the Repong Damar area in Krui Selatan District, Pesisir Barat Regency, Lampung.

2.2 Sampling Methods

This study consisted of two main stages: vegetation analysis and an ethnobotanical survey, each using different sampling approaches.

The vegetation analysis applied Simple Random Sampling (SRS) because the Repong Damar landscape is relatively homogeneous and does not exhibit strong ecological stratification (Friedl et al., 2022). A total of 15 plots were established randomly to obtain representative vegetation composition. Each plot consisted of nested subplots following common tropical forest structural assessment standards (Pinto et al., 2021):

- 20 × 20 m for tree stage,
- 10 × 10 m for pole stage,
- 5 × 5 m for sapling stage, and
- 2 × 2 m for seedling stage.

The ethnobotanical stage used snowball sampling, an ethnographic referral technique selected because plant-use knowledge in traditional communities is often concentrated among only a few knowledgeable individuals. Sampling began with key informants recognized for their understanding of plant uses for food, medicinal, and cultural purposes. Each informant then recommended additional individuals believed to hold relevant or complementary knowledge, allowing the sample to expand through community-based referrals. This approach ensured inclusion of knowledgeable participants who might otherwise be overlooked. The referral process continued iteratively until repeated interviews no longer produced new or unique information, indicating that data saturation had been reached (Silva et al., 2022).

2.3 Data Observed

Vegetation data included plant species, number of individuals, stem diameter, and tree height. Ethnobotanical data consisted of local plant names, plant parts used, processing techniques, and forms of utilization in daily community practices**.**

2.4 Research Implementation

Vegetation analysis began with the random selection of plots following the Simple Random Sampling (SRS) method. All plant species encountered within each plot were identified using standardized botanical determination keys, and the number of individuals for each species was systematically recorded in tally sheets to ensure accuracy and consistency. Stem diameter (DBH) was measured at 1.3 meters above ground level using a measuring tape; for species with buttresses or pneumatophores, measurements were taken 20 cm above the highest buttress or aerial root to obtain reliable DBH values. Tree height was measured using a hagameter from a fixed observation distance to minimize measurement error and maintain procedural uniformity across all plots.

The ethnobotanical stage involved conducting semi-structured interviews to document detailed community knowledge regarding the identification, utilization, and preparation of food plants. These interviews enabled informants to describe plant parts used, preparation steps, and traditional culinary practices. Participant observation complemented interview data by validating information through direct observation of harvesting activities, processing stages, and daily plant-use behaviors. This combined approach allowed researchers to capture practical techniques and culturally embedded practices that might not be fully conveyed through interviews alone. Information gathered included local plant names, useful plant parts, processing techniques, modes of consumption, and cultural meanings associated with each species, providing a comprehensive understanding of community-based food plant utilization.

2.5 Data Analysis

Vegetation data were analyzed by calculating species richness and the Importance Value Index (IVI) for each species. The IVI quantified species dominance based on relative density, relative frequency, and relative dominance (Harbi et al., 2024). The formula used is presented as follows.

$$\mathrm{IVI} = \mathrm{RD} + \mathrm{RF} + \mathrm{RDo} \quad (1)$$

where RD = relative density, RF = relative frequency, and RDo = relative dominance.

Ethnobotanical data were analyzed using a descriptive-analytic approach by grouping information based on plant species, parts used, processing techniques, and forms of utilization. This approach enabled interpretation of relationships between plant characteristics and community cultural practices using field-based evidence (Saudah et al., 2022). The analysis provided a comprehensive understanding of biodiversity utilization patterns within the Repong Damar system.

3. RESULTS AND DISCUSSIONS

3.1 Species Diversity of Vegetation in Repong Damar Krui Selatan

Based on the vegetation analysis, Damar Mata Kucing (*Anthoshorea javanica*) showed the highest Importance Value Index (IVI) across all major growth stages, with a particularly high value of 140.10 at the tree stage. This strong dominance demonstrates its role as a key species that shapes forest structure and contributes to the ecological stability of the Repong Damar system. The IVI values for individual species across growth strata are presented in Table 1.

Table 1. Importance Value Index (IVI) of Vegetation in the Repong Damar System of Krui Selatan

No	Local Name	Scientific Name	IVI			
			Growth Phase			
			Tree	Pole	Sapling	Seedling
1	Rilek	*Curcuma* sp.	-	-	-	21,42
2	Bamban Burung	*Donax canniformis*	-	-	-	5,29
3	Pacing	*Costus acanthochephalus*	-	-	-	8,43
4	Dedughuk	*Miconia crenata (Vahl) Michelang*	-	-	-	23,38
5	Talas	*Litsia* sp.	-	-	-	25,53
6	Markisa	*Passiflora edulis*	-	-	-	5,55
7	Bayur	*Pterospermum javanicum*	-	-	-	3,13
8	Jengkol	*Archidendron pauciflorum*	-	8,81	22,645	5,55
9	Duku	*Lansium speciosa*	12,93	15,86	5,59	5,55
10	Durian	*Durio zibetinus*	23,48	31,19	7,86	7,96
11	Heling	*Glochidian rubrum*	-	-	4	2,41

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Table 1. (continued)

No	Local Name	Scientific Name	IVI			
			Growth Phase			
			Tree	Pole	Sapling	Seedling
12	Bayit	*Piper* sp.	-	-	-	2,41
13	Paku	*Pteridophyta* sp.	-	-	-	9,15
14	Teki	*Cyperus rotundus L.*	-	-	-	13,72
15	Rotan	*Calamus* sp.	-	-	-	7,24
16	Rayutan	*Mikania micranta*	-	-	-	4,83
17	Salam	*Syzygium polyanthum*	-	-	4,59	6,27
18	Wali Kukun	*Schoutenia ovata Korth.*	-	-	7,17	3,13
19	Damar Mata Kucing	*Anthoshorea javanica*	140,10	40,83	47,11	2,41
20	Bambab	*Axonopus compressus*	-	-	-	10,84
21	Kerbang	*Scaphium macropodum*	5,83	8,56	5,48	7,71
22	Lada	*Piper nigrum*	_-	-	-	5,55
23	Kopi	*Coffea robusta*	-	-	22,29	7,71
24	Klawi	*Kibatalia maingayi*	-	4,48	-	2,41
25	Bungur Lilin	*Lagerstroemia speciosa*	-	4,97	4,21	-
26	Kayu Lada	*Cinnamomum porrectum*	3,30	7,81	14,73	-
27	Simpur	*Dillenia excelsa (Jack) Gilg*	-	-	5,91	-
28	Kayu Manis	*Cinnamomum verum*	-	4,79	10,51	-
29	Kayu Sepat	*Eugenia lineata*	12,88	3,34	14,51	-
30	Asam kandis	*Garcinia parvifolia (Miq.) Miq.*	10,27	10,97	13,59	-
31	Sirsak	*Annona muricata*	-	-	4,75	-
32	Melinjo	*Gnetum gnemon*	7,49	15,47	10,19	-
33	Petai	*Parkia Speciosa*	13,38	18,88	35,71	-
34	Sengon	*Albizia chinensis*	9,76	6,18	5,63	-
35	Kayu Afrika	*Maesopsis eminii Engl.*	2,94	-	4,51	-
36	Nangka	*Artocarpus heterophyllus*	2,74	16,03	4,38	-
37	Manggis	*Garcinia mangostana L.*	-	4,79	16,21	-
38	Cengkeh	*Syzygium aromatica*	-	7,91	9,34	-
39	Mangga	*Mangifera indica*	2,72	4,36	-	-
40	Jambu Bol	*Syzygium malaccense*	-	4,25	-	-
41	Pulai	*Alstonia scholaris*	22,12	19,46	-	-
42	Alpukat	*Persea americana*	-	9,30	-	-
43	Sungkai	*Peronema canescens*	5,54	8,17	-	-
44	Belimbing Wuluh	*Averrhoa bilimbi L.*	-	3,91	-	-
45	Laban	*Vitex pinnata*	5,65	7,04	-	-
46	Linsuh	*Hydnocarpus* sp1.	5,72	4,23	-	-
47	Jaling	*Archidendron bubalinum*	-	6,85	19,06	2,41
48	Aren	*Arenga pinnata*	2,85	-	-	-
49	Cempaka	*Magnolia champaca*	10,32	-	-	-

Table 1 shows that *Anthoshorea javanica* maintains very high IVI values across the sapling, pole, and tree strata, demonstrating consistent dominance throughout its growth stages. This dominance confirms its role as a foundational species that strongly shapes forest structure within the Repong Damar ecosystem. High IVI values at the tree level indicate its influence on light availability, humidity regulation, and the formation of stable microhabitats that support shade-tolerant species (Sudomo et al., 2023). These conditions enhance understory survival and stabilize species interactions. Similar dominance patterns were reported by Harianto et al. (2024) in Krui, reaffirming damar's ecological importance in damar-based agroforestry systems.

The multilayered structure of Repong Damar is illustrated by the presence of species such as *Durio* *zibethinus, Parkia speciosa,* and *Archidendron pauciflorum*, each occupying distinct vegetation layers. This arrangement reflects efficient vertical resource use, reducing competition and enabling coexistence among species with different ecological strategies. Multistrata formations promote nutrient cycling, mutualistic interactions, and complementary resource partitioning, strengthening ecological efficiency. Yuwono et al. (2024) similarly reported high species richness 28–36 species per hectare in multistrata agroforestry systems, demonstrating how layered vegetation significantly enhances ecosystem resilience and long-term vegetation stability.

Regeneration within Repong Damar is indicated by the presence of seedlings such as *Curcuma* sp. and *Donax canniformis*; however, damar regeneration remains notably weak. Its seedling IVI value is far lower than that of mature individuals, indicating that recruitment is not matching structural dominance. Limited regeneration appears linked to low light tolerance, restricted canopy openings, and competitive pressure in the understory. Declining community planting practices further exacerbate this issue, as local residents increasingly prioritize faster-yielding economic species. These conditions increase the likelihood of long-term structural changes within the system, consistent with Budiastuti et al. (2021), who emphasized the strong influence of management on keystone species sustainability.

The sustainability of Repong Damar's multilayered vegetation structure depends on the continuous regeneration of damar as the key structural species. Weak recruitment threatens its capacity to maintain canopy architecture and uphold ecological functions that support biodiversity. Without intervention, reduced regeneration may diminish ecological resilience, alter species composition, and weaken the system's ability to sustain shade dependent plants and understory diversity. Long term shifts in damar dominance could also disrupt nutrient cycling and reduce the stability of species interactions. These findings highlight the urgency of implementing targeted restoration programs including assisted regeneration, enrichment planting, and strengthened community-based management to ensure damar persistence. Enhancing local participation and integrating traditional ecological knowledge remain essential for maintaining the ecological integrity and long-term sustainability of the Repong Damar landscape.

3.2. Utilization of Biodiversity in Ethnobotanical Practices as Food Sources

Based on the ethnobotanical analysis, the community of Krui Selatan uses 13 plant species as food, with variations in the parts utilized and processing methods applied. This reflects the continued role of traditional knowledge in local food practices. Details are presented in Table 2.

Table 2. Ethnobotanical Uses and Their Forms of Utilization

No	Local Name	Scientific Name	Plant Parts Used	Processing Method
1	Petai	*Parkia Speciosa*	Fruit	Raw
2	Duku	*Lansium speciosa*	Fruit	Raw
3	Durian	*Durio zibetinus*	Fruit	Raw, Fermented (Tempoyak)
4	Jengkol	*Archidendron pauciflorum*	Fruit	Raw, Cooked
5	Dedughuk	*Miconia crenata (*Vahl) *Michelang*	Fruit	Raw
6	Talas	*Litsia* sp.	Stem, Leaf	Cooked
7	Melinjo	*Gnetum gnemon*	Fruit, Leaf	Pounded (Emping), Cooked
8	Nangka	*Artocarpus heterophyllus*	Fruit	Raw, Cooked
9	Lada	*Piper nigrum*	Fruit	Spice
10	Cengkeh	*Syzygium aromatica*	Flower	Aromatic
11	Manggis	*Garcinia mangostana L.*	Fruit	Raw
12	Jaling	*Archidendron bubalinum*	Fruit	Raw
13	Kecombrang	*Etlingera elatior*	Flower	Spice

Table 2 shows that the community of Krui Selatan utilizes various plant species as food sources through both direct consumption and traditional processing. Fresh fruits such as *Parkia speciosa, Lansium speciosum, Garcinia mangostana*, and *Miconia crenata* serve as easily accessible natural food sources and reflect daily consumption patterns that remain dependent on the biodiversity of the Repong Damar system. *Durio zibethinus* is used more diversely, being consumed fresh and fermented into tempoyak, similar to traditional fermentation practices documented in Jambi (Yusfi et al., 2025). This pattern of use aligns with Suwardi et al. (2025), who noted that agroforestry communities utilize forest fruits both fresh and through simple processing methods to extend shelf life and enhance dietary diversity.

Other species such as *Archidendron pauciflorum, Artocarpus heterophyllus*, *Gnetum gnemon*, and *Litsea* sp. require cooking to remove bitterness or soften texture, reflecting community understanding of each plant's sensory characteristics. Aromatic species including *Etlingera elatior, Syzygium aromaticum,* and *Piper nigrum* serve as essential spices in traditional dishes, aligning with Rambey et al. (2024), who highlighted the importance of local spices in shaping culinary identity in Sumatra. The diversity of utilization forms demonstrates that ethnobotanical knowledge within the Krui Selatan community remains actively practiced and contributes significantly to household food security through the sustainable use of Repong Damar's biological resources.

3.3 Processing and Presentation Techniques of Biodiversity-Based Foods

Food processing practices in the Krui Selatan community utilize traditional culinary techniques passed down through generations. The fermentation of durian into tempoyak is carried out to create a distinctive flavor while extending shelf life, a practice also documented among other communities in Sumatra (Anggadhania et al., 2023). Emping melinjo is produced through pounding and flattening the seeds of *Gnetum gnemon*, consistent with the findings of Rahayu et al. (2024), who reported the use of forest plants as local food ingredients processed through simple techniques. Jengkol and young jackfruit undergo boiling to soften their texture and reduce strong odors, reflecting community knowledge of the sensory characteristics and preparation challenges of each food material. These processing methods illustrate the community's adaptive strategies in transforming raw biological resources into edible forms while maintaining cultural authenticity.

The presentation of foods derived from Repong Damar relies on local spices and seasonings that strengthen culinary identity. Kecombrang, cloves, and pepper function as key aromatic enhancers in traditional dishes, aligning with Surya & Tedjakusuma (2022), who emphasized the importance of local spices in Indonesian culinary traditions. Emping is served as a complement to main dishes, while tempoyak is used as an ingredient in chili paste or as a seasoning for soup-based preparations. These serving practices not only contribute to flavor complexity, but also reflect the role of biodiversity in reinforcing local gastronomic identity and maintaining intergenerational culinary continuity. Such presentation techniques demonstrate how the Krui Selatan community integrates biodiversity with local culinary practices to produce culturally significant foods that also support household food security.

Beyond their practical functions, these processing and presentation techniques embody deeper cultural meanings within the community. The selection of certain species for fermentation, boiling, or seasoning reflects traditional ecological knowledge regarding plant properties, edibility, and seasonal availability. Such knowledge shapes not only daily dietary patterns but also social interactions, as food preparation often involves shared labor, collective meals, and cultural ceremonies. Moreover, the reliance on repong-based resources demonstrates the community's ecological stewardship, where the maintenance of diverse plant species directly supports food heritage and long-term nutritional resilience. This cultural ecological connection is consistent with Saudah et al. (2022), who emphasized the cultural importance of plant-based knowledge among local communities. This cultural ecological relationship highlights that biodiversity-based foods are not merely subsistence resources, but integral elements of identity, tradition, and sustainable living in Krui Selatan

4. CONCLUSIONS

The findings of this study demonstrate that the Repong Damar system in Krui Selatan supports high biodiversity, with *Anthoshorea javanica* functioning as a foundational species that dominates the vegetation structure across growth strata. A total of 49 plant species were identified, confirming that Repong Damar remains a stable and well-maintained traditional agroforestry system. Ethnobotanical assessments recorded thirteen food plant species utilized through various traditional processing methods including fresh consumption, boiling, fermentation into tempoyak, and pounding into emping. These practices reflect the resilience of local culinary knowledge and its contribution to household food security. Future studies should consider examining socio ecological factors that influence food-plant utilization and developing regeneration strategies for damar to support the long-term sustainability of the Repong Damar.

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REFERENCES

Anggadhania, L., Setiarto, R. H. B., Yusuf, D., Anshory, L., & Royyani, M. F. (2023). Exploring tempoyak, fermented durian paste, a traditional Indonesian indigenous fermented food: Typical of Malay tribe. *Journal of Ethnic Foods, 10*(1), 42. https://doi.org/10.1186/s42779-023-00206-2

Budiastuti, M. T. S., Purnomo, D., & Setyaningrum, D. (2021). Agroforestry system as the best vegetation management to face forest degradation in Indonesia. *Reviews in Agricultural Science, 10*, 14–23. https://doi.org/10.7831/ras.10.0_14

Danasari, I. F., Sari, N. M. W., Septiadi, D., & Supartiningsih, N. L. S. (2023). Dependency on beef import to support food security in Indonesia. In *IOP Conference Series: Earth and Environmental Science* (Vol. 1253, Issue 1, Article 012088). IOP Publishing. https://doi.org/10.1088/1755-1315/1253/1/012088

Dewi, A. P., Peniwidiyanti, P., Hariri, M. R., Hutabarat, P. W. K., Martiansyah, I., Lailaty, I. Q., ... Ambarita, E. (2023). Ethnobotany of food, medicinal, construction and household utilities producing plants in Cikaniki, Gunung Halimun Salak National Park, Indonesia. *Journal of Mountain Science, 20*(1), 163–181. https://doi.org/10.1007/s11629-021-7108-5

Food and Agriculture Organization of the United Nations. (2019). *The state of the world's biodiversity for food and agriculture*. FAO. https://openknowledge.fao.org/items/b355c300-72ed-4a63-be07-8295c80ec7f1

French Collier, N., Sayer, J., Boedhihartono, A. K., Hanspach, J., Abson, D., & Fischer, J. (2018). System properties determine food security and biodiversity outcomes at landscape scale: A case study from West Flores, Indonesia. *Land, 7*(1), 39. https://doi.org/10.3390/land7010039

Friedl, M. A., Woodcock, C. E., Olofsson, P., Zhu, Z., Loveland, T., Stanimirova, R., ... Souza Jr, C. (2022). Medium spatial resolution mapping of global land cover and land cover change across multiple decades from Landsat. *Frontiers in Remote Sensing, 3*, 894571. https://doi.org/10.3389/frsen.2022.894571

Harbi, J., Heripan, H., Milantara, N., Yuwono, H., Suharyadi, S., Romantik, R., ... Al-Ansori, M. A. L. (2024). Analyzing the conditions, potentials, and trends of vegetation biodiversity in conservation zones located within the business license area of PT PHE Ogan Komering. *Journal of Global Sustainable Agriculture, 4*(2), 108–115. https://doi.org/10.32502/jgsa.v4i2.8227

Harianto, S. P., Dewi, B. S., & Bintoro, A. (2024). Conservation of dynamic vegetation of Repong Damar. In *AIP Conference Proceedings* (Vol. 2970, Issue 1, Article 050048). AIP Publishing. https://doi.org/10.1063/5.0223331

International Trade Administration. (2024). *Indonesia – agriculture – Country commercial guide*. U.S. Department of Commerce. https://www.trade.gov/country-commercial-guides/indonesia-agriculture

Navia, Z. I., Suwardi, A. B., Nuraini, N., Adnan, A., Baihaqi, B., Yakob, M., ... Chairul, C. (2024). Diversity and ethnobotany of useful plants in Bandar Pusaka, Aceh Tamiang District, Indonesia. *Ethnobotany Research and Applications, 28*, 1–26. https://orcid.org/0000-0002-0416-9968

Pinto, L. O. R., de Souza, C. R., Terra, M. D. C. N. S., de Mello, J. M., Calegário, N., & Júnior, F. W. A. (2021). Optimal plot size for carbon-diversity sampling in tropical vegetation. *Forest Ecology and Management, 482*, 118778. https://doi.org/10.1016/j.foreco.2020.118778

Rahayu, Y. Y. S., Sujarwo, W., Irsyam, A. S. D., Dwiartama, A., & Rosleine, D. (2024). Exploring unconventional food plants used by local communities in West Java, Indonesia. *Journal of Ethnobiology and Ethnomedicine, 20*(1), 68. https://doi.org/10.1186/s13002-024-00710-y

Rambey, R., Alwin, S., Witri, P., Sari, Y. E., Kembaren, Y., Nelasufa, F., & Nainggolan, I. D. (2024). Ethnobotany of spice plants in Namo Rambe Village, North Sumatra, Indonesia. In *IOP Conference Series: Earth and Environmental Science* (Vol. 1352, Issue 1, Article 012107). IOP Publishing. https://doi.org/10.1088/1755-1315/1352/1/012107

Saudah, S., Zumaidar, Z., Darusman, D., Roslim, D. I., & Ernilasari, E. (2022). Ethnobotanical knowledge of Etlingera elatior for medicinal and food uses among ethnic groups in Aceh Province, Indonesia. *Biodiversitas, 23*(8). https://doi.org/10.13057/biodiv/d230862

Statistics Indonesia (BPS). (2023). *Agricultural indicators 2022*. https://www.bps.go.id/en/publication/2023/10/13/21a20fa0c364d9f9898f2b56/agricultural-indicators-2022.html

Sudomo, A., Leksono, B., Tata, H. L., Rahayu, A. A. D., Umroni, A., Rianawati, H., ... Baral, H. (2023). Can agroforestry contribute to food and livelihood security for Indonesia's smallholders in the climate change era? *Agriculture, 13*(10), 1896. https://doi.org/10.3390/agriculture13101896

Surya, R., & Tedjakusuma, F. (2022). Diversity of sambals, traditional Indonesian chili pastes. *Journal of Ethnic Foods, 9*(1), 25. https://doi.org/10.1186/s42779-022-00142-7

Suwardi, A. B., Baihaqi, B., & Harmawan, T. (2025). Diversity, utilization, and sustainable management of wild edible fruit plants in agroforestry systems: A case study in Central Kalimantan, Indonesia. *Agroforestry Systems, 99*(3), 64. https://doi.org/10.1007/s10457-025-01165-0

Susanti, A. D., Nahlunnisa, H., & Farma, A. (2024). Etnobotani tumbuhan pangan masyarakat sekitar agroforestri Repong Damar Pahmungan, Provinsi Lampung. *Jurnal Silva Samalas, 7*(2), 14–20. https://doi.org/10.33394/jss.v7i2.14228

Yusfi, L. A., Ramadani, S. P., Kharisma, Y., Sulistiana, I. P., & Pratami, T. (2025). Tempoyak as a traditional fermented food from Jambi: Integrating tradition with modern food technology innovation. *Journal of Bio & Geo Material and Energy, 5*(2). https://doi.org/10.22437/j-bigme.v5i2.48510

Yuwono, S. B., Riniarti, M., Hidayat, K. F., Hidayat, W., Damai, A. A., Prasetyo, P., & Dani, H. A. (2024). Species diversity and herbal medicine utilization of mangrove plants among coastal communities in Lampung. *Jurnal Sylva Lestari, 12*(3), 781–800. https://doi.org/10.23960/jsl.v12i3.936