Quagga
Jurnal Pendidikan dan Biologi

p-ISSN 1907-3089, e-ISSN 2615-5869
Vol 17, No. 2, 2025, pp 126 - 135
Available online https://journal.fkip.uniku.ac.id/quagga
DOI: 10.25134/quagga.v17i2.388

Diversity and Potential of Medicinal Plants at PT Indocement Tunggal Prakarsa Cirebon, Indonesia

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APA Citation: Hendrayana, Y., Herlina, N., Nasihin, I., Adhya, I., Chandra, R., Kristanto, M. A., & Suswanto. (2025). Diversity and Potential of Medicinal Plants at PT Indocement Tunggal Prakarsa Cirebon, Indonesia. *Quagga: Journal of Education and Biology*, 17(2), 126-135. DOI: 10.25134/quagga.v17i2.388.

Received: 09-03-2025 Accepted: 28-04-2025 Published: 04-07-2025

Abstract**:** *Medicinal plants have high value and have long been used in traditional medicine. Indonesia is rich in plants with medicinal potential, but their utilization faces challenges such as environmental degradation and lack of research. PT Indocement Tunggal Prakarsa Palimanan Cirebon is committed to maintaining biodiversity amidst the impacts of its industry. The surrounding area remains a habitat for medicinal plants and ecosystems that support life. This study aims to determine the diversity and potential of medicinal plants in several ecosystems or land cover. Data collection used the grid path method by making observation plots at each location for undergrowth, seedlings, stakes, poles and trees, then analyzed for diversity and potential. The results of the study inform that the diversity of undergrowth dominates each ecosystem and the location of the Blindis Mountain Conservation Area has higher diversity compared to other areas. There are 29 types of undergrowth that have medicinal potential and 31 types of tree habitus at each location that have medicinal potential. These results are important information for companies to manage their areas, especially for plants that have medicinal properties.*

Keywords: *Diversity, Conservation, Medicinal plants, Mining, Reclamation*

1. INTRODUCTION

Medicinal plants are one of the biological resources that have high ecological and economic value (Notosoedarmo & Fauzi, 2020; Miharjo *et al*., 2025). The use of medicinal plants has been a part of people's lives since ancient times, especially in traditional medicine (Widiastuti *et al*., 2017). Since the time of our ancestors, various types of plants have been used to treat various diseases, either in the form of potions, extracts, or essential oils (Larasati *et al*. 2019). The existence of medicinal plants is very important in the medical world, especially in the development of herbal medicines that are more natural and have minimal side effects (Awuchi, 2019). Indonesia, as a country with high biodiversity, has many types of plants that have the potential to be used as medicine (Hendrayana *et al*., 2020; Yulisma & Fathiya, 2023). However, the exploration and sustainable use of medicinal plants still faces various challenges, including environmental degradation, land conversion, and lack of research that supports further development (Saranani *et al*., 2021).

PT Indocement Tunggal Prakarsa (ITP) Palimanan, located in Cirebon Regency, is one of the largest cement companies in Indonesia. Industrial activities in this area certainly have an

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impact on the local ecosystem, both in terms of changes in soil structure (Karyaningsih & Hendrayana, 2021), water availability, and biodiversity. However, the area around PT Indocement still has a unique ecosystem and is a habitat for various types of plants, including medicinal plants. PT. ITP is committed to environmental sustainability and biodiversity by allocating conservation areas and maintaining important locations. Biodiversity, including plants and animals, is important for human life and is an indicator of environmental quality (Parmar *et al*., 2016; Adnan *et al*., 2023). High diversity increases productivity, nutrient retention, and ecosystem stability (Wang *et al*., 2019). Plants play an important role as shelter, food sources, and other functions for living things (Jamshidi-Kia *et al*., 2017).

Plant diversity is greatly influenced by the ecological conditions of an area (Hutasuhut, 2018; Ismail *et al*., 2023). Factors such as soil type, humidity, rainfall, and interactions with other organisms can determine the presence and abundance of a plant species (Fujii *et al*., 2018). Industrial activities can have an impact on the existence of flora, both directly and indirectly (Prakash & Verma, 2022). Studies on the diversity and potential of medicinal plants in this area are important to identify the types that can be utilized and appropriate conservation strategies. The presence of medicinal plants in industrial areas is an indication that even though there is industrial activity, there is still an opportunity to maintain and utilize natural resources sustainably (Atika, 2021).

With this research, it is expected to find the best solution in the utilization of medicinal plants that not only benefit humans, but also maintain the balance of the ecosystem in industrial areas. In addition, the results of this study are expected to provide insight into the importance of medicinal plant conservation in environments affected by industrial activities. With proper management, the utilization of medicinal plants can provide economic benefits to the surrounding community and support more sustainable industrial practices.

2. RESEARCH METHOD

This research was conducted at PT Indocement Tunggal Prakarsa Palimanan Cirebon during October 2024 at seven locations with different types of ecosystems and land cover, namely: Mount Blindis Conservation Area (AKGB), Plantation Area Inside the Factory (TDL), Plantation Area Outside the Factory (TLP), Buffer Area (AP), Shrub Area (ASB), Around the Lake (SD), and Rice Field Area (APS).

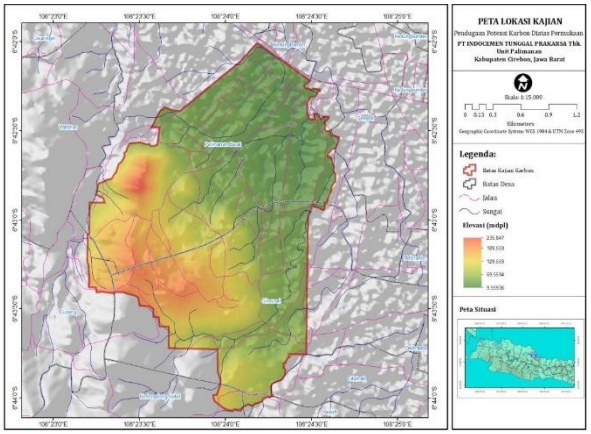


Figure 1. Research location map

Plant data collection used the gridded path method (Soerianegara & Indrawan 2005) which was conducted in seven research locations. The length of each path in each location/cover type followed the cover conditions, ranging from 100 - 200 meters. Placement between sample plots in each path did not use distance, but were adjacent. The total sample plots in each location/cover type were 20 plots. Data collected during the survey based on their habitus were undergrowth, epiphytes and lianas, and trees. Tree habitus was classified into seedling, sapling, pole, and tree growth levels. The sample plot size for collecting undergrowth data was 1 m x 1 m, seedlings were 2 m x 2 m, saplings were 5 m x 5 m, poles were 10 m x 10 m, and trees were 20 m x 20 m (Soerianegara & Indrawan 2005). Meanwhile, the criteria for vegetation growth levels for seedlings to trees are as follows:

Seedling : height < 1.5 m and diameter < 3 cm
Sapling : stem diameter < 10 cm, height > 1.5 m
Pole : stem diameter 10 - 19 cm
Tree : stem diameter ≥ 20 cm

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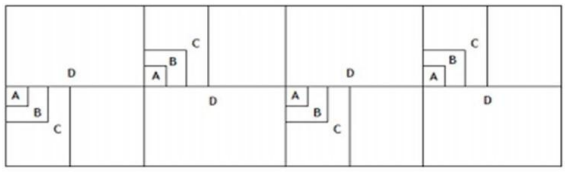


Figure 2. Sample data collection plot

The frequency, density and dominance of each tree species found were recorded for analysis using the Importance Value Index (IVI) (Chhetri & Shrestha, 2019). IVI= RD+RCC+RF.

$$\text{Relative desity (RD)} = \frac{\text{The density of a species}}{\text{Total density of all species}} x100\%$$

$$\text{Relative canopy cover (RCC)} = \frac{\text{Canopy cover of a species}}{\text{Total cover of all species}} x100\%$$

$$\text{Relative frequency (RF)} = \frac{\text{Frequensy value of a species}}{\text{Sum of frequency of all species studied}} x100\%$$

Diversity index is a mathematical measure of species diversity in a community. The Diversity Index that will be used in this study is the Shannon-Wiener equation (Magurran 1988), with the following formula:

$$H' = -\Sigma\left(\frac{n_i}{N}\right)\ln\left(\frac{n_i}{N}\right)$$

Description:
H' = Shannon-Wiener diversity index
ni = Number of individuals of the i-th species
N = Total individuals of all species

3. RESULTS AND DISCUSSION

Based on the research results, it was found that the Blindis Mountain Conservation Area (AKGB) is the location with the highest number of species, namely 140 species, consisting of 124 species in the observation plot and 16 species outside the observation plot. The next location is the Buffer Area (AP) with 108 species, Rice Field Area (APS) with 93 species, Around the Lake (SD) with 79 species, Stands Outside the Factory (TLP) with 73 species, Shrub Area (ASB) with 68 species, and Stands Inside the Factory (TDP) with 67 species.

Understory plants

The dominant understory plant types include rumput bermuda (*Cynodon dactalyon*); landep (*Barleria prionitis*); jalatrang (*Laportea aestuans*); rumput peking (*Agrostis stolonifera*); Nampong (*Chromolaena odorata*) and rumput tussock (*Heteropogon contortus*). The IVI for these types are respectively 97.04%; 36.91%; 28.62%; 24.15%; 47.50%, and 35.34. Furthermore, the dominant types at the AKGB location are rumput bermuda (*Cynodon dactalyon*) IVI 97.04%; nampong (*Chromolaena odorata*) IVI 27.61% bunga kembang (*Friesodielsia desmoides*) IVI 11.89%; tapak liman (*Elephantopus scaber*) IVI 10.97% and kacangan (*Calopogonium mucunoides*) IVI 10.26%. In the TDP area, the most dominant types are Landep (*Barleria prionitis*) IVI 36.91% and kacangan (*Calopogonium mucunoides*) IVI 32.56%, hop liar (*Bryonia alba*) IVI 19.49%, jalatrang (*Laportea aestuans*) IVI 19.42% and nampong (*Chromolaena odorata*) IVI 19.17%.

Table 1. Understory Plants with the Highest IVI

Location	Type Name	IVI (%)
AKGB	*Cynodon dactalyon*	97,04
	Chromolaena odorata	27,60
	Friesodielsia desmoides	11,89
	Elephantopus scaber	10,97
	Calopogonium mucunoides	10,26
TDP	*Barleria prionitis*	36,91
	Centrosema	32,56
	Bryonia alba	19,49
	Laportea aestuans	19,42
	Chromolaena odorata	19,17
TLP	*Laportea aestuans*	36,91
	Centrosema	32,56
	Asystasia gangetica	19,49
	Bryonia alba	19,42
	Paspalum conjugatum	19,17
AP	*Agrostis stolonifera*	24,15
	Imperata cylindrica	22,52
	Chromolaena odorata	21,40
	Calopogonium mucunoides	20,21
	Ruellia tuberosa	19,77
ASB	*Chromolaena odorata*	47,50

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Location	Type Name	IVI (%)
	Laportea aestuans	32,13
	Sida rhombifolia	22,40
	Centrosema	20,92
	Imperata cylindrica	16,86
SD	*Agrostis stolonifera*	30,98
	Chromolaena odorata	25,09
	Waltheria indica L.	17,81
	Stevia rebaudiana	15,62
	Sida rhombifolia	15,33
APS	*Heteropogon contortus*	35,33
	Mimosa pudica	18,75
	Cynodon dactalyon	15,65
	Imperata cylindrica	14,59
	Chromolaena odorata	13,89

Description: AKGB = Mount Blindis Conservation Area, TDP = Plant Stands Inside the Factory, TLP = Plant Stands Outside the Factory, AP = Buffer Area, ASB = Shrub Area, SD = Around the Lake, APS = Rice Field Area.

Seedling level

At the seedling growth level, the dominant plant species at each location varied, including bintaos (Wrightia pubescens) IVI 81.32%, lamtoro (*Leucaena leucocephala*) IVI 67.14%, palem (*Dypsis lutescens*) IVI 108.91%, randu (*Ceiba pentandra*) IVI 103.15%, kemiri sunan (*Reutealis trisperma*) IVI 153.33%, kormis (*Acacia auriculiformis*) IVI 174.27% and lengkeng (*Dimocarpus longan*) IVI 130.00%.

Table 2. Seedlings with the Highest IVI

Location	Type Name	IVI (%)
AKGB	*Wrightia pubescens*	81,32
	Vanguieria spinosa	24,93
	Microcos tomentosa	17,19
	Bergera Koinigii	14,49
	Oroxylum indicum	14,00
TDP	*Leucaena leucocephala*	67,14
	Acacia auriculiformis	50,00
	Delonix regia	44,28
	Ficus hipsida	12,85
	Melaleuca leucadendra	12,85
TLP	*Dypsis lutescens*	108,91
	Syzygium aqueum	29,19
	Polyalthia longifolia	25,06
	Albizia procera	12,27
	Annona cherimola	12,27
AP	*Ceiba pentandra varigata*	103,15
	Reutealis trisperma	44,00
	Tectona grandis	16,54
	Thevetia peruviana	7,26
	Leucaena leucocephala	7,26
ASB	*Reutealis trisperma*	153,33
	Morinda citrifolia	23,33
	Manilkara zapota	23,33
SD	*Acacia auriculiformis*	174,27
	Dalbergia latifolia	16,31
	Albizia procera	9,41
APS	*Dimocarpus longan*	130,00
	Annona cherimola	70,00

Description: AKGB = Mount Blindis Conservation Area, TDP = Plant Stands Inside the Factory, TLP = Plant Stands Outside the Factory, AP = Buffer Area, ASB = Shrub Area, SD = Around the Lake, APS = Rice Field Area.

Sapling Level

At the sapling level, the dominant plant types in AKBP are bintaos (*Wrightia pubescens*) IVI 125.51%, TDP location lamtoro (*Leucaena leucocephala*) IVI 84.36%, TLP location jackfruit (*Artocarpus heterophyllus*) IVI 200%, AP teak (*Tectona grandis*) IVI 98.33%, ASB location teak (*Tectona grandis*) IVI 145.71%, SD location kormis (*Acacia auriculiformis*) IVI 178.41% and APS srikaya (*Annona squamosa*) IVI 200%.

Table 3. Sapling with the Highest IVI

Location	Type Name	IVI (%)
AKGB	*Wrightia pubescens*	125,51
	Microcos tomentosa	24,87
	Streblus asper	14,41
	Leucaena leucocephala	10,33
	Dalbergia latifolia Roxb	8,29
TDP	*Leucaena leucocephala*	84,36
	Delonix regia	36,69
	Acacia auriculiformis	32,28
	Muntingia calabura	18,66
	Albizia procera	18,66

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Location	Type Name	IVI (%)
TLP	*Artocarpus heterophyllus*	200,00
AP	*Tectona grandis*	98,33
	Switenia mahagoni	50,00
	Ceiba pentandra varigata	15,00
	Dalbergia latifolia Roxb	15,00
	Acacia tomentosa	12,22
ASB	*Tectona grandis*	145,71
	Reutealis trisperma	27,14
	Acacia auriculiformis	27,14
SD	*Acacia auriculiformis*	178,41
	Muntingia calabura	21,58
APS	*Annona squamosa*	200,00

Description: AKGB = Mount Blindis Conservation Area, TDP = Plant Stands Inside the Factory, TLP = Plant Stands Outside the Factory, AP = Buffer Area, ASB = Shrub Area, SD = Around the Lake, APS = Rice Field Area.

Pole level

At the level of pole growth, the dominant types in AKGB, TDP, TDL, AP, ASB, SD, and APS respectively are klinu (*Microcos tomentosa* Sm) IVI 118.76%, Kormis (*Acacia auriculiformis*) IVI 171.19%, sengon buto (*Enterolobium cyclocarpum*) IVI 300%, kemiri Sunan (*Reutealis trisperma*) IVI 183.69%, kemiri sunan (*Reutealis trisperma*) IVI 136.52%, kormis (*Acacia auriculiformis*) IVI 257.89%, and kemiri sunan (*Reutealis trisperma*) IVI 300%.

Table 4. Pole with the Highest IVI

Location	Type Name	IVI (%)
AKGB	*Microcos tomentosa*	85,88
	Dalbergia latifolia Roxb	71,19
	Leucaena leucocephala	31,88
	Muntingia Calabura	21,51
	Mallotus paniculatus	18,13
TDP	*Acacia auriculiformis*	114,89
	Delonix regia	86,32
	Ficus benjamina	38,25
	Muntingia calabura	31,62
	Wrightia pubescens	28,89
TLP	*Enterolobium cyclocarpum*	240,94
	Delonix regia	59,05
AP	Reutealis trisperma	164,01
	Ficus Callosa	50,13
	Tectona grandis	43,23
	Acacia auriculiformis	42,61
ASB	*Tectona grandis*	300,00
SD	*Acacia auriculiformis*	241,99
	Enterolobium cyclocarpum	58,00
APS	Reutealis trisperma	300,00

Description: AKGB = Mount Blindis Conservation Area, TDP = Plant Stands Inside the Factory, TLP = Plant Stands Outside the Factory, AP = Buffer Area, ASB = Shrub Area, SD = Around the Lake, APS = Rice Field Area.

Tree level

The dominant types of tree growth rates at each observation location are as follows: AKGB klinu (*Microcos tomentosa*) IVI 79.35%, TDP kormis (*Acacia auriculiformis*) IVI 277.29%, TLP sengon buto (*Enterolobium cyclocarpum*) IVI 224.69%, AP jati (*Tectona grandis*) IVI 286.18%, ASB sengon buto (*Enterolobium cyclocarpum*) IVI 251.94%, SD kormis (*Acacia auriculiformis*) IVI 237.55%, and APS sengon buto (*Enterolobium cyclocarpum*) IVI 265.28%

Table 5. Tree with the Highest IVI

Location	Type Name	IVI (%)
AKGB	*Microcos tomentosa*	127,78
	Mallotus paniculatus	85,42
	Senna siamea	26,49
	Dalbergia latifolia Roxb	23,46
	Equisetum debile Roxb	11,65
TDP	*Acacia auriculiformis*	173,12
	Albizia procera	35,17
	Delonix regia	33,02
	Reutealis trisperma	28,41
	Melaleuca leucadendra	15,64
TLP	*Enterolobium cyclocarpum*	188,49
	Mangifera indica	68,48
	Pterocarpus indicus	30,30
	Terminalia catappa	6,48
	Tectona grandis	6,21
AP	*Reutealis trisperma*	90,10
	Tectona grandis	70,20

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Location	Type Name	IVI (%)
	Anthocephalus macropyllus	65,19
	Ceiba pentandra varigata	54,35
	Switenia mahagoni	20,14
ASB	*Enterolobium cyclocarpum*	169,88
	Reutealis trisperma	84,47
	Acacia auriculiformis	29,08
	Samanea saman	8,52
	Acacia tomentosa	8,02
SD	*Acacia auriculiformis*	221,15
	Enterolobium cyclocarpum	33,11
	Samanea saman	20,25
	Dalbergia latifolia	16,97
	Ceiba pentandra	8,50
APS	*Enterolobium cyclocarpum*	121,65
	Reutealis trisperma	98,31
	Mangifera indica	80,03

Description: AKGB = Mount Blindis Conservation Area, TDP = Plant Stands Inside the Factory, TLP = Plant Stands Outside the Factory, AP = Buffer Area, ASB = Shrub Area, SD = Around the Lake, APS = Rice Field Area.

Plant diversity

The type of understory plant in AKGB with the highest diversity index is rumput bermuda (*Cynodon dactalyon*) with a value of 0.24 and the lowest value is the jarak merah (*Jatropha gossypiifolia*) with a value of 0.02. At the TDP observation location, the type with the highest diversity index is the landep (*Barleria prionitis*) with a value of 0.35 while the lowest value is the takokak (*Salanum torvum*) with a value of 0.02. At the TLP location, the highest diversity index is the jalatrang (*Laportea aestuans*) with a value of 0.29 and the lowest value is the rumput palem (*Setaria palmifolia*) with a value of 0.03. The diversity index of rumput peking (*Agrostis stolonifera*) with a value of 0.32 is the highest value at the AP location while the sulangkar (*Leea indica*) type has a value of 0.004. Meanwhile, for the nampong species (*Chromolaena odorata*) with a value of 0.35 is the highest diversity value at the ASB location while the serai wangi (*Cymbopogon nardus*) is the species with the lowest value of the diversity index. At the SD location, the highest diversity value is found in the rumput peking (*Agrostis stolonifera*) with a value of 0.36 while the sancang (*Premna*) is the lowest value, namely 0.009. Furthermore, at the AP location, the species with the highest diversity is rumput tussock (*Heteropogon contortus*) with a value of 0.35 and the pulutan (*Urena lobate*) has the lowest value, namely 0.002.

In the seedling level, the species with the highest diversity index at each observation location were lamtoro (*Leucaena leucocephala*) (0.36) in AKGB and TLP, flamboyan (*Delonix regia*) (0.26) in TDP, nangka (*Artocarpus heterophyllus*) (0.35) in AP, kormis (*Acacia auriculiformis*) (0.35) in ASB, and klampis (*Acacia tomentosa*) (0.36) in SD.

The diversity index of species at the sapling growth level at the TLP and APS locations has a value of 0 (zero) while at the TDP location it has the highest value of 1.32. The TDP, AP, and AKGB observation locations have the highest values in sequence, namely 1.32; 1.29; and 0.96. The species with the highest diversity index in TDP is lamtoro (*Leucaena leucocephala*) at the AP location, the teak type (*Tectona grandis*) and at the AKGB location, the highest diversity index is found in the bintaos type (*Wrightia pubescens*). The sapling phase is the stage of plant development after the seedling phase, where the plant has grown larger, but has not yet reached adult size or tree size.

The diversity index of species for the growth rate of poles at each observation location has a varied index. The AKGB and TDP locations are the locations with the highest diversity index, namely (2.06). Meanwhile, ASB and APS do not have a diversity index. Klinu (*Microcos tomentosa*) (0.36) is a plant species with the highest diversity index in AKGB. At the TDP location, the highest is cormis (*Acacia auriculiformis*) with a value of (0.35). Kemiri sunan type (*Reutealis trisperma*) (0.33) is the type with the highest diversity index in AP and the sengon buto type (*Enterolobium cyclocarpum*) with an index of 0.31 is the plant species with the highest index at the SD location.

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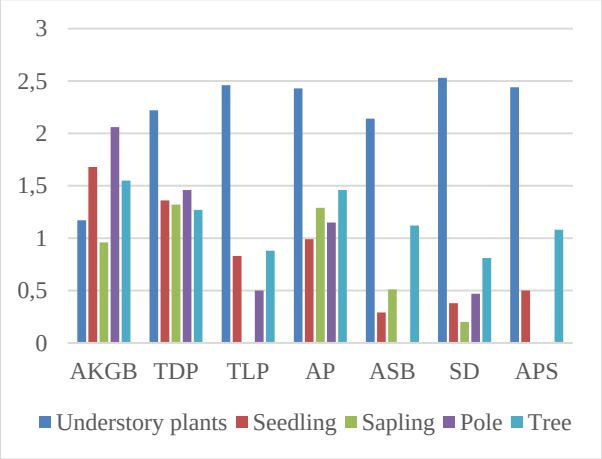


Figure 3. Diversity index in each ecosystem

At the tree meeting level, the AKGB location is the location with the highest diversity index (1.15), and SD is the observation location with the lowest diversity index (0.81). The types of plants at the tree growth level with the highest diversity index at each observation location are klinu (*Microcos tomentosa* Sm) (0.36) at AKGB, Kormis (*Acacia auriculiformis*) (0.31) at TDP, sengon buto (*Enterolobium cyclocarpum*) (0.26) at TLP, kemiri sunan (*Reutealis trisperma*) at the AP location, sengon buto (*Enterolobium cyclocarpum*) (0.34) at the ASB location, Kormis (*Acacia auriculiformis*) (0.20) at the SD location and Sengon buto (*Enterolobium cyclocarpum*) (0.37) at the APS location. In general, understory plants have the highest diversity index value compared to the growth rate of seedlings, saplings, poles and trees because understory plants found in all PT ATP locations have more species and individuals compared to other locations, this is in line with the research of Rasiska *et al*., (2023).

Potential of Medicinal Plants

The potential of medicinal plants in the entire PT ATP area identified is 29 species for understory plants and 31 species for tree habitus. The number of species in various ecosystem locations varies greatly both in understory plants and in plants with tree habitus. In the AKGB there are 13 species of understory plants recorded in the observation plot and 23 species for tree habitus. In the TDP area there are 15 species of understory plants recorded in the observation plot and 9 species for tree habitus. In the TLP area there are 16 species of understory plants recorded in the observation plot and 12 species for tree habitus. In the Buffer Area (AP) there are 26 species of understory plants recorded in the observation plot and 12 species for tree habitus. In the Shrub Area (ASB) there are 15 species of understory plants recorded in the observation plot and 8 species for tree habitus. In the Around the Lake (SD) area there are 21 species of understory plants recorded in the observation plot and 7 species for tree habitus. In the rice field area (APS) there are 27 types of undergrowth recorded in the observation plot and 6 types of tree habitus.

Table 6. Potential of Medicinal Plants

Name Type	Habitus	Location
Acacia auriculiformis	Tr	TDP, AP, ASB, SD
Achyranthes aspera	Up	SD
Albizia procera	Tr	TDP, TLP, SD
Alstonia scholaris	Tr	AKGB
Alternanthera sessilis	Up	TLP, AP, SD, ASB
Amorphophallus muelleri	Up	TDP
Andrographis paniculata	Up	AP
Annona squamosa	Tr	APS
Asystasia gangetica	Up	AKGB, TLP, AP
Calophyllum inophyllum	Tr	AP
Calotropis gigantea	Up	AP
Chromolaena odorata	Up	TDP, TLP, ASB, SD
Clitoria ternatea	Up	AP
Cynodon aactylodon	Up	TLP
Cynodon dactalyon	Up	AKGB, TDP
Dalbergia latifolia	Tr	SD, AKGB
Delonix regia	Tr	TDP, TLP
Dioscorea alata	Up	AP
Enterolobium cyclocarpum	Tr	TLP, ASB, SD, APS
Erioglossum rubiginosum	Tr	AKGB
Ficus benjamina	Tr	TDP
Ficus callosa	Tr	AP
Ficus hipsida	Tr	TDP, AKGB
Ficus septica	Tr	AKGB
Imperata cylindrica	Up	TLP, AP, ASB, SD, APS

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Jurnal Pendidikan dan Biologi

p-ISSN 1907-3089, e-ISSN 2615-5869
Vol 17, No. 2, 2025, pp 126 - 135
Available online https://journal.fkip.uniku.ac.id/quagga
DOI: 10.25134/quagga.v17i2.388

Name Type	Habitus	Location
Ipomomea obscura	Up	AP, APS, TDP, TLP, ASB
Ipomoea carnea	Up	ASB, SD,AP
Jatropha gossypiifolia	Up	AKGB, SD
Lantana camara	Up	AP
Leea indica	Up	AP
Leea sambucina	Up	AKGB
Leucaena leucocephala	Tr	AKGB, TLP, AP
Manihot esculenta	Up	APS
Manilkara zapota	Tr	ASB
Melaleuca leucadendra	Tr	TDP
Mimosa pudica	Up	AP, ASB, SD, APS
Morinda citrifolia	Tr	ASB
Muntingia calabura	Tr	AKGB, TDP, SD
Pandanus tectorius	Up	AKGB
Parderia foetida	Up	TDP
Passiflora foetida	Up	TDP, SD
Phyllanthus emblica	Tr	AKGB
Phyllanthus niruri	Up	APS
Pterocarpus indicus	Tr	TLP
Reutealis trisperma	Tr	TDP, AP, ASB, APS
Ruellia tuberosa	Up	TDP, TLP, AP, ASB, SD, APS
Scoparia dulcis L.	Up	APS
Senna siamea	Tr	AKGB
Spigelia anthelmia	Up	APS
Streblus asper	Tr	AKGB
Switenia mahagoni	Tr	AP
Syzygium aqueum	Tr	TLP, AKGB
Syzygium polyanthum	Tr	AKGB
Tectona grandis	Tr	TLP, AP
Urena lobata	Up	AP, APS
Vanguieria spinosa	Tr	AKGB
Waltheria Indica	Up	AP, SD
Wrightia pubescens	Tr	AKBP, TDP

Description: Up= Understory plant, Tr= Tree, AKGB = Mount Blindis Conservation Area, TDP = Plant Stands Inside the Factory, TLP = Plant Stands Outside the Factory, AP = Buffer Area, ASB = Shrub Area, SD = Around the Lake, APS = Rice Field Area

The types of understory plants with the highest potential for medicine are in the Acanthaceae (*Andrographis paniculata, Asystasia gangetica, Ruellia tuberosa*) and Poaceae (*Cynodon aactylodon, Cynodon dactalyon, Imperata cylindrical*) families which are spread across all ecosystem/land cover locations at PT ITP, because the Acanthaceae family can be found in various ecosystems including primary forests, secondary forests, shrubs, moist soils, coastal ecosystems, marine and mangroves (Amirul-Aiman *et al*., 2017; Hendrayana *et al*., 2023). Meanwhile, the Poaceae family is a plant family known as cosmopolitan because it is able to grow and develop in various regions of the world. Many cultivated plants are included in the Poaceae family and are often planted as the main food source for animals. This makes Poaceae one of the most dominant plant groups (Al Izzati *et al*., 2024).

4. CONCLUSION

The diversity of plants in the PT ITP area varies in each type of ecosystem/land cover, but in general, the AKGB location has a high diversity value compared to other locations. Likewise, the potential for medicinal plants in all locations with a total of 63 species and the highest number of species in the same location compared to other locations.

5. ACKNOWLEDGEMENTS

We would like to thank PT. Indocement Tunggal Prakarsa Palimanan Cirebon for the cooperation and funding of the research that has been running so far and also to Universitas Kuningan which has given us the opportunity to be able to collaborate with external parties.

6. REFERENCES

Adnan, B. A., Supriatna, G. S., & Kurniawati, T. (2023). Vegetation Structure and Composition in the Nusa Gede Panjalu Nature Reserve Area, Ciamis, Indonesia. *Quagga: Jurnal Pendidikan Dan Biologi*, *15*(2), 157-164.

Al Izzati, K., Efendi, M. H., & Purwati, N. (2024). Analisis Karakteristik Morfologi Famili Poaceae (Gramineae) di Kawasan Lembuak Kebon, Kecamatan Narmada Kabupaten Lombok Barat. *Bioindikator: Jurnal Biologi dan Pendidikan Biologi*, *1*(1), 20-31. https://doi.org/10.71024/bioindikator/2024/v1i1/4

Quagga
Jurnal Pendidikan dan Biologi

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Vol 17, No. 2, 2025, pp 126 - 135
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DOI: 10.25134/quagga.v17i2.388

Amirul-Aiman, A. J., Noraini, T., & Nurul-Aini, C. A. C. (2017). Morfologi trikom pada petal dan sepal spesies terpilih Acanthaceae di Semenanjung Malaysia. *Sains Malaysiana*, *46*(10), 1679-1685.

Atika, M. (2021). Pengaruh Keberadaan Kawasan Industri Terhadap Keberlanjutan Kelembagaan Usaha Dan Kesejahteraan Rumah Tangga Petani. *Jurnal Sains Komunikasi dan Pengembangan Masyarakat [JSKPM]*, *5*(6), 796-808.

Awuchi, C. G. (2019). Medicinal plants: the medical, food, and nutritional biochemistry and uses. *International Journal of Advanced Academic Research*, *5*(11), 220-241.

Chhetri, N. B. K., & Shrestha, K. K. (2019). Floristic diversity and important value indices of tree species in lower Kanchenjunga Singhalila ridge Eastern Nepal. *American Journal of Plant Sciences*, *10*(1), 248-263

Fujii, K., Shibata, M., Kitajima, K., Ichie, T., Kitayama, K., & Turner, B. L. (2018). Plant–soil interactions maintain biodiversity and functions of tropical forest ecosystems. *Ecological Research*, *33*, 149-160.

Hendrayana, Y., Karyaningsih, I., & Herlina, N. (2020). Populasi dan Asosiasi Marga Ficus di Gunung Tilu Kabupaten Kuningan Provinsi Jawa Barat. *Quagga: Jurnal Pendidikan dan Biologi*, *12*(2), 163-169.

Hendrayana, Y., Adhya, I., Herlina, N., Nurlaila, A., Syahban, F. S., Wijaya, A. J. R., & Wendra, W. (2023). Kajian Potensi Tumbuhan Sumber Pangan dan Pemanfaatannya di Gunung Tilu Kabupaten Kuningan. *Quagga: Jurnal Pendidikan dan Biologi*, *15*(1), 94-100.

Hutasuhut, M. A. (2018). Keanekaragaman tumbuhan herba di cagar alam Sibolangit. *Klorofil: Jurnal Ilmu Biologi* dan *Terapan*, *1*(2), 69-77.

Ismail, A. Y., Aminudin, S., Adhya, I., Nurlaila, A., & Nurdin. (2023). Identification of Diversity of Medicinal Plants in Bukit Mayana Forest Area, Kuningan Regency. *Quagga: Jurnal Pendidikan Dan Biologi*, *15*(2), 207–213. https://doi.org/10.25134/quagga.v15i2.47.

Jamshidi-Kia, F., Lorigooini, Z., & Amini-Khoei, H. (2017). Medicinal plants: Past history and future perspective. *Journal of herbmed pharmacology*, *7*(1), 1-7.

Karyaningsih, I., & Hendrayana, Y. (2021). Keanekaragaman makrofauna tanah di zona rehabilitasi Taman Nasional Gunung Ciremai Blok Pasirbatang Desa Karangsari Kabupaten Kuningan. *Quagga: Jurnal Pendidikan dan Biologi*, *13*(1), 60-67.

Larasati, A., Marmaini, M., & Kartika, T. (2019). Inventarisasi tumbuhan berkhasiat obat di sekitar pekarangan di kelurahan Sentosa. *Indobiosains*, 76-87.

Magurran, AE. 1988. Ecological Diversity and Its Measurment. Princeton University Press, USA

Miharjo, E. S. R., Nugroho, A. S., & Kaswinarni, F. (2025). The Wealth of Medicinal Plant Species in the Protective Forest Area of Mount Ungaran, Ngesrepbalong Village, Kendal Regency. *Quagga: Jurnal Pendidikan dan Biologi*, *17*(1), 64-71.

Notosoedarmo, S., & Fauzi, M. R. (2020). Studi etnobotoni di kawasan kars Bukit Bulan untuk mendukung studi arkeologi. *Jurnal Pengelolaan Sumberdaya Alam dan Lingkungan (Journal of Natural Resources and Environmental Management)*, *10*(2), 270-283.

Parmar, T. K., Rawtani, D., & Agrawal, Y. K. (2016). Bioindicators: the natural indicator of environmental pollution. *Frontiers in life science*, *9*(2), 110-118.

Prakash, S., & Verma, A. K. (2022). Anthropogenic activities and Biodiversity threats. *International* Journal *of Biological Innovations*, *IJBI*, *4*(1), 94-103.

Rasiska, S., Sudarjat, S., Asdak, C., Parikesit, P., & Gunawan, B. (2023). Keanekaragaman Tumbuhan Bawah dan Implikasinya terhadap Serangga di Kawasan Budi Daya Tanaman di Kawah Kamojang, Kecamatan Ibun, Kabupaten Bandung, Jawa Barat. *Agrikultura*, *34*(2), 293-305. https://doi.org/10.24198/agrikultura.v34i2.46186.

Saranani, S., Himaniarwati, H., Yuliastri, W. O., Isrul, M., & Agusmin, A. (2021). Studi Etnomedisin Tanaman Berkhasiat Obat

Quagga
Jurnal Pendidikan dan Biologi

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DOI: 10.25134/quagga.v17i2.388

Hipertensi di Kecamatan Poleang Tenggara Kabupaten Bombana Sulawesi Tenggara. *Jurnal Mandala Pharmacon Indonesia*, *7*(1), 60-82.

Soerianegara, I. & A. Indrawan. (2005). Ekologi Hutan Indonesia. Bogor: IPB Press.

Wang, Y., Cadotte, M. W., Chen, Y., Fraser, L. H., Zhang, Y., Huang, F., ... & Loreau, M. (2019). Global evidence of positive biodiversity effects on spatial ecosystem stability in natural grasslands. *Nature communications*, *10*(1), 3207.

Widiastuti, T. C., Kiromah, N. Z. W., & Ledianasari, L. (2017). Identifikasi etnobotani tanaman obat yang dimanfaatkan oleh masyarakat kecamatan Sempor kabupaten Kebumen. *Jurnal Ilmiah Kesehatan Keperawatan*, *13*(2).

Yulisma, A., & Fathiya, N. (2023). Studi literatur keanekaragaman hayati tumbuhan asli rawa tripa yang berpotensi sebagai tumbuhan obat. *Jurnal Serambi Engineering*, *8*(3), 6654-6663.