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Ethnobotanical study of postpartum medicinal plants used by the Dayak Kalis in Nanga Danau, West Kalimantan, Indonesia

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Abstract. *Panjaitan RGP, Sandra KM, Wahyuni ES, Karmadi RMD, Ningsih K, Titin, Harsono T, Ali SS. 2025. Ethnobotanical study of postpartum medicinal plants used by the Dayak Kalis in Nanga Danau, West Kalimantan, Indonesia. Biodiversitas 26: 5989-5999.* The Dayak Kalis community in Nanga Danau Village, West Kalimantan, Indonesia, continues to rely on traditional medicine, particularly for postpartum care. However, no previous study has documented their specific practices. This research aimed to document medicinal plants used for postpartum treatment by the Dayak Kalis. Data were collected through interviews, observations, and documentation, and analyzed using Use Value (UV) and Frequency of Citation (FC). Three key informants (two traditional birth attendants and one customary elder) were selected purposively as knowledge holders. The study identified 10 species from 6 families, with the Zingiberaceae being the most dominant family. Leaves were the most frequently used plant part, typically prepared by boiling. Plants with the highest cultural importance included *kunyit* (*Curcuma longa*), *daun tonton* (*Phyllanthus androgynus*) and *laia* (*Zingiber officinale*), valued for cleansing the uterus, enhancing breast milk, and restoring stamina. Cross-cultural comparison revealed both similarities and variations in postpartum ethnomedicine across other Dayak Sub-ethnic Groups. These findings highlight the importance of documenting traditional knowledge to preserve biocultural heritage and support maternal health. Further phytochemical and pharmacological studies are recommended to validate efficacy and ensure sustainable use of these medicinal resources.

Keywords: Dayak Kalis, ethnobotany, medicinal plants, postpartum care, West Kalimantan

Abbreviations: ASI: Breast Milk; FC: Frequency of Citation; UV: Use Value

INTRODUCTION

Kapuas Hulu District is located in West Kalimantan Province, Indonesia, with an area of 29,842 km². This district is divided into 23 sub-districts, one of which is Kalis Sub-district, which consists of 17 villages, including Nanga Danau Village (Badan Pusat Statistik Kapuas Hulu 2024). The village is inhabited by 561 people from various ethnic groups, such as Malay, Javanese, Balinese, Chinese, and Dayak, with the majority of the population being from the Dayak Ethnic Group. The Dayak Ethnic Group consists of many sub-ethnic groups, one of which is the Dayak Kalis sub-ethnic group, which resides in Nanga Danau Village.

The community of the Dayak Kalis in Nanga Danau Village possesses a variety of local wisdom passed down through generations, such as customary law (Sada et al. 2019; Subek et al. 2023; Radhin and Lewoleba 2024), marriage rituals (Stevani et al. 2022), local language, ritual ceremonies, traditional clothing (Sada et al. 2019), and traditional medicine. Regarding traditional medicine, the Dayak Kalis still utilizes traditional healing methods to treat wounds or injuries, fever, headaches, digestive disorders (e.g. stomach pain), muscle aches, and postpartum issues. Based on initial communication with traditional birth attendants and customary elder, it is known that the community of Nanga Danau Village utilizes various types of medicinal plants for postpartum treatment including for cleansing the uterus, eliminating foul odors, speeding up the healing of post-birth wounds, and enhancing breast milk production. Additionally, this treatment also serves to prevent a cold, improve blood circulation, and restore the mother's stamina.

According to Jannah (2022), the postpartum period lasts for six to eight weeks. During this time, the mother's reproductive system undergoes recovery. The postpartum period also involves significant physical, psychological, and social changes for the mother (Gilmour et al. 2025), including alterations in routines, mental state, breasts, female organs, abdominal condition, and body weight (Kilavuz and Topaloğlu 2025). Efforts to ensure the health of the mother during the postpartum period can be made through psychological care, medical care (Misgana et al. 2024), and traditional medicine (Panjaitan et al. 2024a).

Postpartum traditional medicine can utilize medicinal plants (Sibeko et al. 2021). Medicinal plants are various types of plants that contain beneficial compounds and have therapeutic properties to prevent, alleviate, or cure diseases (Nyakudya et al. 2020). Several Dayak's Sub-Ethnic Groups

utilize plants for traditional postpartum treatments, such as the Dayak Paus (Pradita et al. 2021), Dayak Kanayant (Syamswisna and Sepsamli 2022), and Dayak Bakumpai (Hidayat et al. 2020). The Dayak Paus community in Pengadang Village, Sekaya Sub-district, Sanggau District, West Kalimantan, utilizes *Garcinia xanthochymus* Hook.fil. ex J.Anderson, *Uncaria gambir* (W.Hunter) Roxb., and *Curcuma domestica* (W.Hunter) Roxb. to reduce belly size. Additionally, *Curcuma zedoaria* (Christm.) Roscoe is used to cleanse impure blood, *Zingiber officinale* Roscoe to warm the body, and *Areca catechu* L. for cooling powder (Pradita et al. 2021). Furthermore, the Dayak Kanayant community in Tapakng Village, Sompak Sub-district, Landak District, West Kalimantan, uses *Phyllanthus androgynus* (L.) Chakrab. & N.P.Balakr. to smoothen breast milk production (Syamswisna and Sepsamli 2022), and the Dayak Bakumpai community in Lemo II Village, Teweh Tengah Sub-district, Barito Utara District, South Kalimantan, uses *Stenochloena palustris* (Burm.fil.) Bedd. to increase breast milk production (Hidayat et al. 2020).

Although previous studies have documented various uses of medicinal plants by the Dayak Tribe in West Kalimantan, no research has benn conducted on the inventory of medicinal plants traditionally used to treat postpartum by the Dayak Kalis sub-ethnic group in Nanga Danau Village. Ssenku et al. (2022) stated that traditional knowledge regarding the use of medicinal plants is declining due to inadequate documentation. Therefore, it is important to properly document traditional knowledge to preserve it for future generations. There is only one traditional healer among the Dayak Kalis community in Nanga Danau Village, namely the *Tetua adat* or *Toa' Banua'*. Local people seek treatment from the elder for various health-related problems. However, specifically for postpartum care, the community relies on two traditional birth attendants (*dukun beranak*). Thus, there are three individuals recognized as traditional healers in Nanga Danau Village. This study aims to identify the postpartum medicinal plants utilized by the Dayak Kalis sub-ethnic group in Nanga Danau Village. It applies analysis of Use Value (UV) and Frequency of Citation (FC) to measure the usage level of each species within the Dayak Kalis community. This study serves as an initial inventory of knowledge regarding medicinal plants used in postpartum care by the Dayak Kalis community, which is expected to provide a foundation for more in-depth future research.

MATERIALS AND METHODS

Study area

This study was conducted in Nanga Danau Village, Kalis Sub-district, Kapuas Hulu District, West Kalimantan Province, Indonesia (Figure 1) in October 2024. Geographically, Nanga Danau Village is bordered by Samarantau to the North, Nanga Tubuk to the South and West and Rantau Kalis to the East. Nanga Danau Village is situated at the foothills, and the majority of its residents are farmers. During the farming season, the people of Nanga Danau Village cultivate various types of vegetables and rhizomes, including *junak* (*Allium tuberosum* Rottler ex Spreng), *daun tonton* (*P. androgynus*) Chakrab. & N.P.Balakr)), *buak paang* (*Capcisum frutescens* L.), *rare* (*Zea mays* L.), *ranggi* (*Cucurbita pepo* L.), *antimun* (*Cucumis sativus* L.), *kunyit* (*Curcuma longa* L.), *laia* (*Z. officinale*), *langkuas* (*Alpina galanga* (L.) Willd.), and *sangkur* (*Kaempferia galanga* L.).

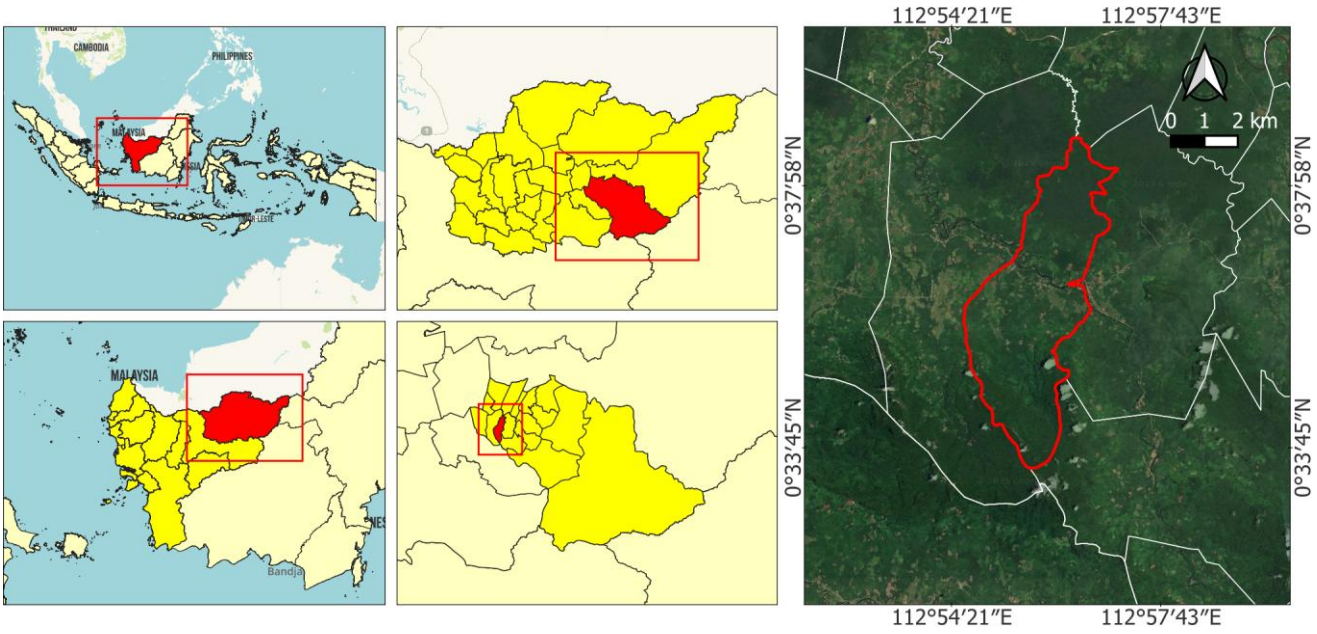

Figure 1. Map of the research area in Nanga Danau Village, Kalis Sub-district, Kapuas Hulu District, West Kalimantan Province, Indonesia

Procedures

Data collection

Data collection was conducted using a triangulation technique, which combines methods of interviews, observation, and documentation to broaden the information obtained, thereby enhancing the accuracy and credibility of the research data (Panjaitan et al. 2024b). The interview was carried out using interview sheets, and informants were selected using purposive sampling based on their skills, experience, and traditional knowledge in postpartum treatment. The informants consisted of two traditional birth attendants and one customary elder, who were deemed appropriate sources of research data as they are the holders of traditional knowledge within the Dayak Kalis community and traditional health practitioners in Nanga Danau Village. Although the number of informants was limited to three, the validity of the interview results was strengthened through triangulation techniques involving interviews, observations, and documentation.

The interview process was conducted in a structured manner with the consent of the informants. Information collected included the types of plants used, the parts utilized, the processing methods, and their use as traditional medicine. During the interviews, the research team included members of the local community of Nanga Danau Village, allowing the interviews to be conducted in both Indonesian and the Dayak Kalis local language. Each interview lasted between 30-60 minutes, and the results were documented through field notes and audio recordings with the informants' consent to ensure data accuracy. Throughout the interview process, the researchers also showed photographs of medicinal plant specimens and asked about their characteristics to confirm the identity of the traditional medicinal plants. The samples of postpartum traditional medicinal plants that were collected were then preserved as herbarium specimens and identified at the Biology Laboratory, Faculty of Mathematics and Natural Sciences, Universitas Tanjungpura, Pontianak, West Kalimantan, Indonesia, with letter number180/A/LB/FMIPA/UNTAN/2024.

Ethical consideration

This study was conducted based on the principles of ethnobotanical research (Laryeafio and Ogbewe 2023). Informed consent was obtained from all informants after they were provided with an explanation of the research objectives and interview procedures. The confidentiality of informants' identities was maintained in the research findings. Research permission was granted by the Head of Nanga Danau Village as formal approval for conducting the study.

Data analysis

This study combined a qualitative descriptive and quantitative methods to analyze the data. For the qualitative analysis, the data obtained from the informants were examined, compared with information from other informants, and then summarized. For the quantitative analysis data was analyzed using descriptive table to determine the most frequently uses spesies, plant parts, and preparation methods. Information regarding the types of plants, the parts used, and the methods of processing medicinal plants is presented in the form of narratives, complemented with images and tables containing the results of the interviews.

Postpartum medicinal plant use was quantified using Use Value (UV) and Frequency of Citation (FC).

The UV value was calculated using the formula:

$$UV = \sum U/N$$

Where U is the number of use reports mentioned by each informant for a species, and N is the total number of informants interviewed.

The FC value was calculated using the formula:

$$FC = (n/T) \times 100$$

Where n is the number of informants who mentioned a species, and T is the total number of informants (Sikuku et al. 2023; Ghosh et al. 2024; Kintoko et al. 2025).

The number of informants (N) in this study was three. For example, if a species was reported to have three uses, then the Use Value (UV) would be calculated as 3/3 = 1. Furthermore, if a species was mentioned by two informants, the Frequency of Citation (FC) would be (2/3) × 100 = 66.66.

RESULTS AND DISCUSSION

Medicinal plants used for postpartum care

Interviews in Nanga Danau Village documented 10 medicinal plant species. Six families of those species are used for postpartum care (Table 1, Figure 2).

Figure 2. The plants used as postpartum medicine in Nanga Danau Village, West Kalimantan, Indonesia. A. *Ara* (*Ficus* sp.), B. *Daun bungkang* (*Syzygium polyanthum* ((Wight.) Walp.), C. *Riribu* (*Nephrolepis biserrata* (Sw.) Desv.), D. *Daun tonton* (*Phyllanthus androgynus* (L.) Chakrab. & N.P.Balakr.), E. *Bunga surau* (*Cymbopogon citratus* ((DC.) Stapf), F. *Tabu tanang* (*Saccharum officinarum* L.), G. *Kunyit* (*Curcuma. longa*), H. *Patikala* (*Etlingera elatior* (Jack) R.M.Sm.), I. *Sangkur* (*Kaempferia galanga* L.), J. *Laia* (*Zingiber officinale* Roscoe)

Table 1. Species, parts used, processing method, benefits, Use Value (UV), and Frequency of Citations (FC) of medicinal plants for postpartum care in Nanga Danau Village, West Kalimantan, Indonesia

Plant name (local names & scientific name)	Family	Part used	Processing method	Use	UV	FC
Ara (*Ficus* sp.)	Moraceae	Leaf	Take 10-15 young leaves, wash them thoroughly and boil with 100 ml of water, then add a pinch of salt, cook until the leaves are soft, then consume as vegetable.	Breast milk booster.	0.33	33.33
Daun bungkang (*Syzygium polyanthum* (Wight.) Walp.)	Myrtaceae	Leaf	Take 10-15 leaves and wash them thoroughly, boil with 600 ml of water and simmer until it reduces to two cups, or 400 ml, then consume once a day after meals.	Eliminate the bad smells of body after childbirth.	0.33	66.66
Riribu (*Nephrolepis biserrata* (Sw.) Desv.)	Nephrolepidaceae	Leaf	Take 20-30 young leaves, wash them thoroughly and boil with 50 ml of water, add a pinch of salt, cook until the leaves are soft, then consume as vegetable.	Breast milk booster.	0.33	66.66
Daun tonton (*Phyllanthus androgynus* (L.) Chakrab. & N.P.Balakr.)	Phyllanthaceae	Leaf	Wash the leaves thoroughly, add a pinch of salt and anchovies (optional), cook until done, then consume as vegetable.	Breast milk booster.	0.33	100
Bunga surau (*Cymbopogon citratus* (DC.) Stapf)	Poaceae	Stem	Crush three stems of flowers and boil them with 200 ml of water, simmer until only one cup remains, then consume once a day after meals.	Prevent a colds, smoothen blood circulation, and restore stamina after childbirth.	1	66.66
Tabu tanang (*Saccharum officinarum* L.)	Poaceae	Stem	Take a 10-15 cm stem, then heat it over a stove fire for 3-5 minutes, place it on the mother's abdomen for 5-10 minutes, then repeat this process twice a day for two uses.	External medicine to break down blood clots and improve blood circulation.	0.66	33.33
Kunyit (*Curcuma longa* L.)	Zingiberaceae	Rhizome	Grate or crush 5-7 segments of *kunyit*, then boil with 200 ml of water and add 1 tablespoon of palm sugar, boil until it is ready, then strain and consume twice a day after meals.	Cleanse impure blood in the womb and aids in the healing process of wounds.	0.66	100
Patikala (*Etlingera elatior* (Jack) R.M.Sm.)	Zingiberaceae	Stem	Take a 10-15 cm young stem, then heat it over a stove fire for 3-5 minutes, place it on the mother's abdomen for 5-10 minutes, repeat this process twice a day for two uses.	External medicine to break down blood clots and improve blood circulation.	0.66	33.33
Sangkur (*Kaempferia galanga* L.)	Zingiberaceae	Rhizome	Clean 2-4 segments of *sangkur* and crush them until fine, boil with 100 ml of water until it boils, and add 1/2 tablespoon of palm sugar, then consume twice a day after meals.	Prevent a colds, smoothen blood circulation, and restore stamina after childbirth.	1	66.66
Laia (*Zingiber officinale* Roscoe)	Zingiberaceae	Rhizome	Take 3-4 segments of *laia*, peel and clean them, then crush until fine, boil with 400 ml of water until it boils, then consume once a day after meals.	Prevent a colds, smoothens blood circulation, and restore stamina after childbirth.	1	66.66

The Zingiberaceae family is the most widely utilized group of plants by the people of Nanga Danau Village due to its abundance and easy cultivation in household yards or gardens. This aligns with the studies of Leksikowati et al. (2020), which state that the Zingiberaceae family is commonly used as traditional medicine due to its availability in home yards, gardens, and forests. Furthermore, the most commonly utilized part of the plant for traditional medicine is the leaves. According to Nomleni et al. (2021), leaves accumulate photosynthetic products rich in organic substances, making them effective in to be used in medicinal treatments. The most common method of processing medicinal plants in Nanga Danau Village is boiling, where the boiled water is consumed as a medicinal concoction. In line with this, Bitwell et. (2023) shows that boiling is a simple and effective method for extracting beneficial compounds from medicinal plants into water.

Table 2. Ethnomedicinal data and cross-cultural comparisons of postpartum medicinal plants in Nanga Danau Village, West Kalimantan, Indonesia

Name	Cross-cultural comparison	
	Other regions	Nanga Danau Village
Ficus sp.	In Leon, Iloilo, Philippines, it is used as a bathing herbal mixture (Tiquio et al. 2024).	Increase breast milk production.
Syzygium polyanthum (Wight.) Walp.	In Gunung Agung, Lampung, Indonesia it serves as a remedy for gout, diabetes, hypertension, cholesterol, and stomach ulcers (Zainaro et al. 2021).	Eliminate the fishy odor after childbirth.
Nephrolepis biserrata (Sw.) Desv.	Among the Dayak Seberuang community, Balai Harapan Village, Tempunak District, Sintang District, West Kalimantan Province, Indonesia, it is used to increase breast milk production (Panjaitan et al. 2024a).	Increase breast milk production.
Phyllanthus androgynus (L.) Chakrab. & N.P.Balakr.	In Sindangsari, Leuwigoong District, Garut District, Jawa Barat, Indonesia it is used to enhance breast milk production (Firdaus et al. 2025).	Increase breast milk production.
Cymbopogon citratus (DC.) Stapf	In Manen Kaleka, Banama Tingang Sub-district, Pulang Pisau District, Central Kalimantan, Indonesia, it is used traditionally as a pain reliever for leg pain and used as a treatment for diarrhea (Anita et al. 2024).	Relieve a colds, improve blood circulation, and restore stamina after childbirth.
Saccharum officinarum L.	Minangkabau Ethnic Group, in three village, namely Guguak Sarai, Taruang Taruang, and Sungai Durian of IX Koto Sungai Lasi Sub-district, Solok District, West Sumatra, Indonesia, use traditionally *tabu tanang* as an antipyretic (Silalahi et al. 2020)	Reduce blood clotting and improve blood circulation.
Curcuma longa L.	Dayak Seberuang community in Balai Harapan Village, Tempunak District, Sintang District, West Kalimantan Province, Indonesia, it is used to relieve menstrual pain (Panjaitan et al. 2024a)	Cleanse impure blood and speed up wound healing.
Etlingera elatior (Jack) R.M.Sm.	People of North Kolaka District, Southeast Sulawesi Indonesia, use *patikala* fruit as a remedy for typhoid fever (Husada and Fadhilah 2025)	Reduce blood clotting and improve blood circulation.
Kaempferia galanga L.	In Rubit Village, Hewokloang Sub-district, Sikka District, Nusa Tenggara Timur Province, Indonesia, it is used to alleviate fever and cough (Baylon et al. 2024).	Relieve a colds, improve blood circulation, and restore stamina after childbirth.
Zingiber officinale Roscoe	Among the Dayak people in Kelurahan Sei Pasah Kapuas Hilir Sub-district, Kapuas District, Central Kalimantan Province, Indonesia, it is used to warm the stomach, prevent colds, boost the immune system, relieve rheumatism, reduce bloating, and treat phlegmy coughs (Adelina et al. 2022).	Relieve a colds, improve blood circulation, and restore stamina after childbirth.

Benefits and phytochemical content in medicinal plants for postpartum care

This study indicates that the community of Nanga Danau Village, Kalis Sub-district, Kapuas Hulu District, West Kalimantan, uses *ara* leaves (*Ficus* sp.) as a postpartum medicine to increase breast milk production. Based on the research findings, a UV value of 0.33 and an FC value of 33.33 were obtained. The low UV value indicates that the use of *ara* leaves among postpartum mothers within the Dayak Kalis community remains limited. Meanwhile, the low FC value was derived from a single informant who reported the use of *ara* leaves, suggesting that knowledge of their application to increase lactation is not widely disseminated among the Dayak Kalis people. A review of the literature revealed no prior documentation of *ara* leaves being used as a postpartum remedy to stimulate breast milk production, which corresponds with the low UV and FC values found in this study. Furthermore, differences in traditional knowledge and cultural variations in postpartum care contribute to the low UV and FC values of *ara* leaves. Nevertheless, the availability of *ara* leaves in Nanga Danau Village remains abundant, as they are not only utilized for postpartum remedies but also for other purposes. Generally, about 10-15 *ara* leaves are boiled and consumed as a vegetable by postpartum mothers. Tiquio et al. (2024) reported that the people of Leon, Iloilo Province, Philippines, use *ara* leaves as a postpartum bath remedy. This bath remedy consists of various plant species, including the leaves or roots of *Justicia gendarussa* Burm.fil., *Blumea balsamifera* (L.) DC., *Clerodendrum quadriloculare* (Blanco) Merr., *Pterospermum pentandrum*, *Clausena sumatranum* Wight & Arn., 1834, *Cymbopogon citratus* (DC.) Stapf, *Annona muricata* L., *Persea americana* Mill., *Theobroma cacao* L., pseudostems of *Musa acuminata* × *balbisiana*, *Psidium guajava* L. leaves, bark or roots of *Artocarpus heterophyllus* Lam., *Pithecellobium dulce* (Roxb.) Benth., roots or stems of *Calophyllum asperum*, *Citrus maxima* (Burm.) Merr., *Bauhinia pauletia* Pers., *Eleusine indica* (L.) Gaertn., *Ficus benjamina* L., *Ficus fiskei* Elmer, *Ficus nota* (Blanco) Merr., *Sida rhombifolia* L., *Neolitsea orientalis*, and *Alstonia scholaris* (L.) R.Br.. The differences in usage and perceived benefits between the Dayak Kalis community and those in the Philippines indicate that *ara* leaves possess medicinal properties as a traditional herbal plant. *Ara* leaves are also used to treat diarrhea (Cheng et al. 2020; Hidayanti and Suryani 2023) and serve as both a food source and traditional medicine (Cheng et al. 2020). Furthermore, *ara* leaves have been reported to exhibit antibacterial and antioxidant activities (Hidayanti and Suryani 2023). The study by Hidayanti and Suryani (2023) found that *ara* leaves contain flavonoid, saponin, steroid, and tannin compounds. Furthermore, for the Dayak Kalis community, *ara* leaves are a traditional food source when going farming, as they are easy to

prepare and readily available due to their abundant presence in the forest.

As a medicinal plant widely used in traditional medicine, *daun bungkang* (*Syzygium polyanthum* (Wight.) Walp.)) has various health benefits. The results of this study indicate that *daun bungkang* is used to eliminate unpleasant odors after childbirth. Based on the research findings, *daun bungkang* obtained a UV value of 0.33 and an FC value of 66.66. The low UV value indicates that the utilization of *daun bungkang* among postpartum mothers is still limited to a single function, namely eliminating postpartum fishy odor. In contrast, the relatively high FC value demonstrates shared traditional knowledge among the two informants interviewed. This suggests that traditional knowledge regarding the use of *daun bungkang* to remove postpartum odor is fairly widespread within the Dayak Kalis community. According to the study conducted by Damayanti et al. (2021), *daun bungkang* is also used in postpartum care to support nutritional needs of pregnant and breastfeeding women. However, no studies have been found that specifically address the role of *daun bungkang* in eliminating postpartum odor. This indicates that cultural consensus on the use of *daun bungkang* for postpartum care remains limited, despite their abundant availability and ease of access in nature. The use of *daun bungkang* for postpartum mothers is carried out by boiling 10–15 leaves, which are then consumed once daily during the postpartum recovery period. In addition, the community in Gunung Agung Village, Langkapura Sub-district, Lampung, uses *daun bungkang* as a traditional remedy to lower uric acid levels (Zainaro et al. 2021). Furthermore, *daun bungkang* is also effective as a traditional medicine for addressing health issues such as gout, diarrhea, diabetes (Syabana et al. 2022), hypertension, high cholesterol, and gastric problems. A study by Abdulrahman (2021)found that *daun bungkang* contains essential oils, flavonoids, tannins, and methyl eugenol, which function as antioxidants, anti-inflammatory agents, and antimicrobials. Additionally, *daun bungkang* has pharmacological activities as an antidote for diarrhea, antidiabetic, antihypertensive, anticancer, and antitumor (Ismail and Ahmad 2019). The use of *daun bungkang* by the Dayak Kalis community as a traditional postpartum remedy, and by the community of Gunung Agung Sub-district as a treatment for gout, demonstrates the existence of traditional medicinal variations that have been preserved across generations.

In addition to *ara* (*Ficus* sp.) and *daun bungkang* (*S. polyanthum*), the community in Desa Nanga Danau also utilizes the young leaves and stems of *riribu* (*Nephrolepis biserrata* (Sw.) Desv. to increase breast milk production. Based on the research findings, *riribu* obtained a UV value of 0.33 and an FC value of 66.66. The low UV value indicates that the use of *riribu* among postpartum mothers in the Dayak Kalis community remains limited, as it is only employed to enhance breast milk production. Meanwhile, the relatively high FC value of 66.66 was derived from two informants who reported its utilization. This aligns with the findings of Julung et al. (2023), who reported that the Dayak Linoh community in Sintang also uses *riribu* to stimulate lactation. Such cultural similarities demonstrate shared traditional knowledge across Dayak Sub-ethnic Groups. Thus, although the UV value remains low, traditional knowledge regarding *riribu* can be considered relatively widespread, even though its dissemination within the Dayak Kalis community is still limited. During the postpartum recovery period, *riribu* is utilized by boiling 20-30 cleaned young leaf shoots with a pinch of salt and consumed regularly throughout the recovery phase. In line with this, Panjaitan et al. (2024a) also reported that the Javanese and Dayak Seberuang Ethnic Groups in Balai Harapan Village, Tempunak Sub-district, Sintang District, West Kalimantan, use the young leaves and stems of *riribu* for the same purpose. Furthermore, Renjana et al. (2021) revealed that traditionally, the leaves of *riribu* are believed to have several benefits, including for treating anemia, cough, fever, colds, menstrual disorders, toothache, and as a natural contraceptive. Additionally, the stems and young leaves of *riribu* are used to treat dysentery, enteritis, cataracts, and tuberculosis. Pharmacologically, *riribu* exhibits antioxidant, antibacterial, and antifungal activities. Phytochemical tests have shown that the methanol extract of *riribu* leaves contains alkaloids, flavonoids, and terpenoids (Renjana et al. 2021), as well as cardiac glycosides, saponins, and tannins (Bassey et al. 2020). The variation in the use of *riribu* across different regions indicates that its ethnomedicinal application is highly diverse. This diversity is influenced by its abundant availability and the continuous transmission of traditional knowledge.

The community in Desa Nanga Danau uses *daun tonton* (*P. androgynus*) to increase breast milk production. The research findings indicate that *daun tonton* obtained a UV value of 0.33 and an FC value of 100. The low UV value suggests that the use of *daun tonton* remains limited, namely as a lactation stimulant for postpartum mothers. Nevertheless, *daun tonton* achieved the highest FC value, demonstrating that all informants reported its use for enhancing breast milk production, thereby indicating that traditional knowledge regarding *daun tonton* is widely disseminated within the Dayak Kalis community. The high FC value reflects a strong cultural consensus concerning the use of *daun tonton*, which has been inherited across generations. Furthermore, its abundant availability, ease of access, and common use as a vegetable further reinforce the high FC value of *daun tonton*. This finding aligns with the research by Firdaus et al. (2025), who reported that the community in Sindangsari Village, Leuwigoong Sub-district, Garut District, West Java, also uses *daun tonton* as a lactagogue. Furthermore, Susandarini et al. (2021) and Suryawan and Lazarosony (2021) also reported the *daun tonton* is utilized to enhance breast milk production. The shared traditional knowledge affirms that *daun tonton* not only holds cultural significance passed down through generations but is also proven to enhance breast milk production in postpartum mothers (Suryawan and Lazarosony 2021; Utaminingrum et al. 2022). Among the Dayak Kalis community, *daun tonton* is utilized by boiling the leaves with a pinch of salt and consuming the decoction during the postpartum recovery period. Furthermore, the extract of *daun tonton* is known to possess various pharmacological activities, including antianemia, anti-

inflammatory, and antibacterial properties. Phytochemical tests have shown that *daun tonton* contains alkaloids, flavonoids, glycosides, saponins, and triterpenoids (Awaludin et al. 2020; Putra et al. 2023).

Anita et al. (2024) reported that in several regions of Kalimantan, the local communities still use *bunga surau* (*C. citratus*) as part of their traditional medicine. Specifically, in Desa Nanga Danau, the stems of *bunga surau* are effectively used to relieve symptoms of a colds, or locally known as "*masuk angin*," improve blood circulation, and restore stamina after childbirth. Based on the research findings, the UV value of *bunga surau* was 1, while the FC value was 66.66. The high UV value indicates that *bunga surau* possesses multiple benefits in postpartum care. Correspondingly, the FC value of 66.66, reported by two informants, suggests a strong cultural consensus regarding its use, although the knowledge has not yet been fully disseminated. This is supported by the findings of Hujjatusnaini et al. (2025), who reported that the Dayak Bakumpai community in Central Kalimantan also utilizes *bunga surau* as a remedy for postpartum bleeding and infection. Such similarities in traditional knowledge demonstrate cultural variation among Dayak groups in the use of *bunga surau* for postpartum care. Furthermore, the high utilization of *bunga surau* by the Dayak Kalis community is reinforced by its abundant availability and its common application as a postpartum remedy. The decoction of *bunga surau* by the Dayak Kalis community is prepared by crushing three stalks of *bunga surau* and boiling them until boiling point is reached. The resulting decoction is then consumed once a day after meals during the postpartum recovery period. Furthermore, the community in Desa Manen Kaleka, Banama Tingang Sub-district, Pulang Pisau District, Central Kalimantan, uses decoctions of *bunga surau* stems to relieve leg pain (Anita et al. 2024). In Desa Pelangsian, Mentawa Baru Ketapang Sub-district, Kotawaringin Timur District, Central Kalimantan, decoctions of *bunga surau* stems are used to treat diarrhea (Qamariah et al. 2018). The differences in the use of *bunga surau* indicate that adaptations based on traditional knowledge have occurred in various regions and are still passed down to this day. Furthermore, pharmacologically, *bunga surau* exhibits analgesic, antidepressant, anti-inflammatory, antioxidant, and antipyretic activities (Asrina et al. 2023). Phytochemical tests conducted by Torres et al. (2023) revealed that *bunga surau* contains alkaloids, phenols, flavonoids, essential oils, saponins, steroids, tannins, and terpenoids.

The community of Nanga Danau Village utilizes *tabu tanang* (*Saccharum officinarum* L.) in traditional postpartum medicine. *Tabu tanang* is reported by traditional medicine as tonic, stimulating and beneficial in increasing resistance to fatigue (Ziroldo et al. 2024). The stem of this plant is used externally to reduce blood clotting and improve blood circulation after childbirth. The research findings indicate that *tabu tanang* obtained a UV value of 0.66 and an FC value of 33.33. The relatively high UV value suggests that *tabu tanang* has diverse benefits in postpartum care. However, the low FC value indicates that only one informant mentioned its use as a postpartum remedy. This finding implies that the utilization of *tabu tanang* for postpartum care in Nanga Danau Village is not yet widely known, and thus cultural consensus regarding its use remains low. In line with this, Silalahi et al. (2020) reported that the Minangkabau community in West Sumatra employs *tabu tanang* as an antipyretic. Similarly, Silalahi et al. (2019) reported that *tabu tanang* has been traditionally used to treat injuries and bone fractures. In general, *tabu tanang* is more commonly used as a food ingredient, meaning its application as an external postpartum remedy is not widely recognized, despite the plant being easy to cultivate and abundantly available. The use of *tabu tanang* as an external treatment for postpartum care can be carried out with the stem of *tabu tanang* into 10-15 cm segments, then heated for 3-5 minutes before being applied to the mother's abdomen for 5-10 minutes. This process is repeated twice daily. Phytochemically, *tabu tanang* contains alkaloids, flavonoids, saponins, and tannins (Widiawati and Qodri 2023). Additionally, Parawansah and Qodri (2023) stated that the stem of *tabu tanang* possesses antiallergic, antibacterial, anti-inflammatory, antioxidant, antithrombotic, antiviral, and vasodilatory activities.

Kunyit (*C. longa*) is a postpartum medicinal plant whose rhizomes are utilized by the community of Nanga Danau Village to cleanse the dirty blood in the uterus and accelerate the healing process of postpartum wounds. Based on the research findings, *kunyit* obtained a UV value of 0.66 and an FC value of 100. The relatively high UV value indicates that *kunyit* has multiple benefits in postpartum care, particularly for cleansing residual blood from the uterus and accelerating the healing of postpartum wounds. Meanwhile, the high FC value demonstrates that all informants reported similar uses, suggesting that traditional knowledge of *kunyit* is widely disseminated within the Dayak Kalis community. This high value also reflects a strong cultural consensus, indicating that nearly the entire community is aware of and utilizes *kunyit* in postpartum care, in line with knowledge transmitted across generations. Furthermore, *kunyit* continues to be extensively cultivated, ensuring its abundant availability and easy accessibility. In addition, the Minangkabau community in Central Kalimantan employs *kunyit* as an antipyretic (Silalahi et al. 2020). Similarly, Susandarini et al. (2021) and Hujjatusnaini et al. (2025) reported that *kunyit* is effective in reducing postpartum bleeding and infection. The use of *kunyit* as a remedy to cleanse residual blood from the uterus and to support postpartum healing is carried out by *kunyit* is used by grating or pounding 5–7 segments of *kunyit* and boiling them, then adding one spoon of palm sugar and continuing to boil until it reaches a boil. It is consumed twice daily after meals during the postpartum recovery period. This aligns with Mutia et al. (2021), who reported that *kunyit* rhizomes are effective in accelerating wound healing and external wounds postpartum bleeding (Supiandi et al. 2024). Variations in the use of *kunyit* have also been reported by Panjaitan et al. (2024b) who noted that the community of Balai Harapan Village, Tempunak Sub-district, Sintang District, West Kalimantan, uses *kunyit* rhizomes as a remedy to smooth menstrual flow and relieve menstrual pain. The

traditionally inherited use of *kunyit* has made it a medicinal plant that is easy to cultivate and commonly found. Phytochemical tests reveal that *kunyit* rhizomes contain alkaloids, anthraquinones, flavonoids, glycosides, essential oils, tannins, and triterpenoids (Jyotirmayee and Mahalik 2022). Furthermore, the pharmacological activities of *kunyit* rhizomes include antibacterial, anti-inflammatory, and antioxidant properties (Tian et al. 2025; Jyotirmayee and Mahalik 2022).

The community of Nanga Danau Village utilizes *patikala* (*Etlingera elatior* (Jack) R.M.Sm.) as an external remedy in traditional postpartum medicine. Based on the research findings, *patikala* obtained a UV value of 0.66 and an FC value of 33.33. The relatively high UV value indicates that *patikala* has multiple benefits in postpartum care. However, the low FC value suggests that only one informant mentioned its use as a postpartum remedy. This finding is consistent with Saudah et al. (2022), who reported that *patikala* stems are generally combined with other traditional preparations to alleviate postpartum fatigue, restore physical stamina, accelerate wound healing, expel blood clots, and reduce abdominal size. Nevertheless, the low FC value in this study indicates that such traditional knowledge has not been widely disseminated among the Dayak Kalis community, and thus cultural consensus regarding its use as an external remedy remains limited. Moreover, *patikala* is more commonly utilized as a food ingredient. Therefore, despite its ease of cultivation and abundant natural availability, its application in postpartum care remains rarely observed within the Dayak Kalis community. The stem is used to reduce blood clotting and improve blood circulation. Its use involves cutting *patikala* into 10–15 cm pieces, heating them for 3–5 minutes, and then applying them to the mother's abdomen for 5–10 minutes. This procedure is repeated twice daily. Furthermore, variations in the use of *patikala* have also been found in the flowers of *patikala* are also utilized as a spice and food coloring as well as for traditional medicine (Sari et al. 2022). According to Aldi et al. (2020), the decoction of *patikala* flowers is effective in treating bad breath and body odor. Additionally, this plant is used to treat fever, cough, ear infections, hypertension, and diabetes (Silalahi 2017) and stomachache (Navia et al. 2022). For the people of North Kolaka District, Southeast Sulawesi, *patikala* fruit is used as a remedy for typhoid fever (Husada and Fadhilah 2025). Asmilia et al. (2025) reported traditional knowledge about *patikala* utilized by various cultures demonstrates that *patikala* continues to be passed down through generations and possesses efficacy in treating various health problems. Pharmacologically, the stem of *patikala* has antihyperglycemic activity, which is beneficial for individuals with diabetes mellitus. Ringgit et al. (2025) reported this activity is related to the content of phenolic compounds, flavonoids, and saponins, which play a role in regulating blood glucose levels.

One of the plants utilized by the community of Nanga Danau Village is *sangkur* (*K. galanga*). The rhizome is used to treat colds, improve blood circulation, and restore stamina after childbirth which is consumed twice daily after meals. Based on the research findings, *sangkur* obtained a UV value of 1 and an FC value of 66.66. The high UV value indicates that *sangkur* has diverse benefits in postpartum care, while the high FC value suggests that traditional knowledge regarding its use is well disseminated among the Dayak Kalis community. This finding aligns with Hujjatusnaini et al. (2025), who reported that among the Dayak Bakumpai community in Central Kalimantan, *sangkur* is effective in wound healing and reducing postpartum swelling. Thus, the high level of *sangkur* utilization is influenced not only by its abundant availability and widely recognized benefits but also reinforced by cultural consensus and traditional knowledge transmitted across generations. Furthermore, Sayuti and Atikah (2023) state that the rhizome of *sangkur* is beneficial in refreshing and warming the body. A study conducted by Baylon et al. (2024) in Rubit Village, Hewokloang Sub-district, Sikka District, East Nusa Tenggara, indicates that this plant is also used in traditional medicine to treat fever and cough. Additionally, the phytochemical activity of *sangkur* rhizomes is known to contain alkaloids, flavonoids, minerals, essential oils, and starch (Wang et al. 2021). Pharmacologically, *sangkur* rhizomes are beneficial as analgesics, antibacterials, antidiarrheals, antihelminthics, anti-inflammatories, antioxidants, insecticides, sedatives, and cytotoxic agents (Wahyuni et al. 2022). Culturally, *sangkur* holds significant value as part of the traditional medicinal heritage that has been continuously preserved and passed down through generations by the local community (Wang et al. 2021).

The use of plants as traditional medicine continues to evolve, including in postpartum care. The community of Nanga Danau Village traditionally uses *laia* (*Z. officinale*) as a postpartum remedy. The rhizome is utilized to prevent colds, improve blood circulation, and restore stamina. Based on the research findings, *laia* obtained a UV value of 1 and an FC value of 66.66. The high UV value indicates that *laia* has diverse benefits in postpartum care, while the high FC value suggests that traditional knowledge regarding its use is widely disseminated within the Dayak Kalis community. Furthermore, traditionally, the Minangkabau people utilize *laia* as an antipyretic and to restore postpartum stamina (Silalahi et al. 2020). In addition, *laia* is effective in accelerating wound healing and reducing postpartum swelling (Supiandi et al. 2024; Hujjatusnaini et al. 2025; Williams et al. 2025). Thus, the high level of *laia* utilization is influenced not only by its abundant availability but also reinforced by cultural consensus and traditional knowledge transmitted across generations. Furthermore, according to Tiani et al. (2024), consuming *laia* rhizome has been shown to be effective in increasing breast milk production. In the Dayak community of Sei Pasah Sub-district, *laia* is used to warm the stomach, prevent colds, boost immunity, treat rheumatism, relieve bloating, and alleviate productive coughs (Adelina et al. 2022). Pharmacologically, *laia* rhizome is known to have benefits as an antidepressant, antidiabetic, anti-inflammatory, anticancer, and antimicrobial (Verma et al. 2025). The anti-inflammatory and antioxidant compounds contained in *laia* rhizome play a role in stimulating milk production, reducing inflammation in the breasts, and facilitating the breastfeeding process (Tiani et al. 2024). For the Dayak

Kalis community, *laia* is utilized by crushing 3-4 cleaned segments, boiling them until boiling, and then consuming the decoction once daily after meals during the postpartum recovery period. Variations in the use of *laia* across different regions demonstrate that *laia* is a cultural heritage that must be preserved.

It can be concluded that there are ten species of plants utilized in postpartum treatment by the Dayak Kalis community in Nanga Danau Village, most of which originate from family Zingiberaceae. Typically, the plant organ most commonly used is the leaf, which is processed through boiling. These traditional medicinal plants include *ara* (*Ficus* sp.), *daun bungkang* (*S. polyanthum*), *riribu* (*N. biserrata*), *daun tonton* (*P. androgynus*), *bunga surau* (*C. citratus*), *tabu tanang* (*S. officinarum*), *kunyit* (*C. longa*), *patikala* (*E. elatior*), *sangkur* (*K. galanga*), and *laia* (*Z. officinale*). Furthermore, the absence of policies regulating the preservation of traditional knowledge and medicinal plants poses a potential threat to the sustainable use of medicinal plant species for future generations. Additionally, further research on phytochemical content is needed to determine the safety and efficacy of traditional medicinal plants. This traditional knowledge can serve as valuable information to support maternal and child health postpartum. Therefore, it is crucial to ensure that this heritage is preserved for future generations.

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