



Ethnobiological Study of Postpartum Ritual Plants and Animals of the Malay Tribe in Semalah Village, Kapuas Hulu Regency

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Received: December 08, 2025

Revised: May 06, 2026

Accepted: June 25, 2026

Published: June 30, 2026

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DOI: [10.29303/jppipa.v12i6.13788](https://doi.org/10.29303/jppipa.v12i6.13788)

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Abstract: The Semalah Malay community in Kapuas Hulu Regency has a rich cultural heritage, including postpartum rituals that involve traditional healing practices using plants and animals. This knowledge is mainly preserved by village shamans, many of whom are elderly and have no successors, making it vulnerable to loss due to limited intergenerational transmission. In addition, scientific documentation of postpartum ritual biodiversity among this community remains limited. Ethnobiological studies are therefore important for recording local knowledge from the emic perspective and interpreting it through etic analysis. This study aimed to document the plant and animal species used in postpartum rituals by the Semalah Malay community in Semalah Village and to determine their relative cultural importance. A descriptive qualitative approach was employed, with data collected through in-depth interviews, participatory observation, and documentation. Descriptive statistics were used to calculate the Species Use Value (SUV). The results showed that the Semalah Malay community used 31 plant species and 4 animal species in 8 types of postpartum rituals. Turmeric (*Curcuma longa*) had the highest SUV among plant species, with a value of 1.78, indicating its central role in several ritual practices. Meanwhile, toman fish (*Channa micropeltes*) had the highest SUV among animal species, with a value of 1.00, reflecting its importance in postpartum recovery practices. These findings provide baseline ethnobiological data for preserving indigenous postpartum knowledge and supporting biocultural conservation in the Semalah Malay community.

Keywords: Postpartum rituals; Semalah Malay tribe; Ethnobiology; Ritual plants and animals

Introduction

Indonesia is widely recognized as a country with rich biological and cultural diversity. Its biodiversity is closely connected to the diversity of local communities that possess unique traditions, rituals, and ecological knowledge. Indonesia's cultural richness is reflected in the existence of approximately 1,340 ethnic groups, each of which has distinctive customs, belief systems, and cultural practices (Rambe et al., 2021). This diversity has given rise to various forms of local wisdom that regulate the relationship between humans, culture, and the surrounding environment. Local

wisdom represents community-based knowledge, values, and practices that are developed through long-term interaction with nature and passed down from one generation to the next (Tondi & Iryani, 2018). Therefore, documenting local wisdom is important not only for preserving cultural identity, but also for supporting biodiversity conservation and preventing the loss of traditional ecological knowledge.

West Kalimantan is one of the regions in Indonesia with strong biocultural diversity. The cultural landscape of this province is strongly influenced by Dayak and Malay communities, which have long established cultural habitats and traditional knowledge

How to Cite:

Ratnasari, D., Aspita, S., Wardhani, H. A. K., & Muliadi, A. (2026). Ethnobiological Study of Postpartum Ritual Plants and Animals of the Malay Tribe in Semalah Village, Kapuas Hulu Regency. *Jurnal Penelitian Pendidikan IPA*, 12(6), 845–857. <https://doi.org/10.29303/jppipa.v12i6.13788>

systems in the region (Batubara, 2017; Supiandi et al., 2019; Satyaningrum et al., 2024). Malay communities in West Kalimantan are commonly distinguished based on their administrative and cultural territories, such as Pontianak Malay, Sambas Malay, Mempawah Malay, Sanggau Malay, Sintang Malay, Ketapang Malay, and Kapuas Hulu Malay. These groups have similarities in cultural identity, but also show differences in dialects, rituals, and local practices (Batubara, 2017). One of the Kapuas Hulu Malay communities lives in Semalah Village, Selimbau District, Kapuas Hulu Regency.

The Semalah Malay community maintains various cultural traditions, including postpartum rituals. Field observations indicate that several postpartum rituals, such as *bempuk* and *bebah*, are still practiced and preserved as part of ancestral heritage. These rituals are not merely ceremonial activities, but are closely related to traditional postpartum care, maternal recovery, newborn care, and the use of local biological resources. In these practices, plants and animals are used as ritual materials, food ingredients, body care ingredients, and symbolic elements. The use of biodiversity in postpartum rituals reflects the community's accumulated knowledge of the surrounding environment and its cultural interpretation of health, recovery, and protection after childbirth.

Postpartum rituals are closely associated with ritualistic healing practices. Ritualistic healing refers to a body of knowledge, skills, beliefs, and practices inherited within a community and used to maintain health, support recovery, and respond to illness based on cultural experience (Lestariningsih et al., 2023). Among the Semalah Malay community, postpartum rituals involve plants and animals that are believed to have health-related benefits and spiritual significance. These rituals are related to the physical and emotional recovery of mothers after childbirth, breastfeeding, infant care, and the restoration of maternal strength (Ningsih et al., 2020; Pradita et al., 2021). However, this knowledge is mostly held by village shamans, many of whom are elderly and have no successors. The limited process of intergenerational transmission creates a serious risk of knowledge loss, especially if the knowledge is not documented scientifically.

Ethnobiology provides an appropriate approach for documenting and analyzing the relationship between local communities and biological resources. Ethnobiology integrates local and scientific knowledge, connects cultural and academic perspectives, and examines the biological and social dimensions of human interaction with the environment (Hardison & Bannister, 2011; Hidayati et al., 2015; Wolverton, 2013; Wyndham et al., 2011; Hoda et al., 2023). Through ethnobiological studies, local knowledge can be recorded from the community's perspective, known as

the emic perspective, and then interpreted through scientific analysis, known as the etic perspective. This approach is particularly relevant for studying postpartum rituals because these practices involve cultural meaning, biological resources, health-related knowledge, and ecological values.

Previous studies have documented the use of medicinal plants and traditional postpartum care among several ethnic groups in Indonesia, including communities in Kalimantan. However, specific documentation of both plant and animal species used in postpartum rituals by the Semalah Malay community remains limited. Most existing studies tend to focus on medicinal plants, while the role of animals, ritual context, species use value, and the integration between symbolic and health-related functions are rarely discussed comprehensively. Therefore, the research gap addressed in this study is the lack of ethnobiological documentation concerning the diversity, use, and cultural importance of plants and animals in postpartum rituals among the Semalah Malay community.

Based on this gap, this study aims to document the plant and animal species used in postpartum rituals by the Semalah Malay community in Semalah Village, Kapuas Hulu Regency. Specifically, this study identifies the local names, scientific names, parts used, ritual types, preparation methods, and perceived benefits of each species. This study also analyzes the cultural importance of the recorded species using Species Use Value. The novelty of this study lies in its documentation of both plants and animals in postpartum rituals, its focus on the Semalah Malay community as a specific cultural group, and its integration of emic and etic perspectives in interpreting local postpartum knowledge. The findings are expected to provide baseline data for preserving indigenous knowledge, supporting biocultural conservation, and encouraging further research on the biological and cultural significance of postpartum ritual species.

Method

Study Area and Research Design

This study was conducted in Semalah Village, Selimbau District, Kapuas Hulu Regency, West Kalimantan Province, from June to August 2025. This research employed a descriptive qualitative ethnobiological approach. This approach was used to document local knowledge of postpartum rituals, particularly the use of plants and animals by the Semalah Malay community. The qualitative approach was applied to explore community knowledge, beliefs, ritual practices, and the perceived benefits of biological resources, while descriptive statistics were used to

determine the cultural importance of each species through Species Use Value (SUV).

Informants and Sampling Technique

The informants in this study were members of the indigenous Semalah Malay community who had knowledge of, or direct experience with, postpartum rituals. Informants were selected using a purposive sampling technique. The key informants were village shamans who actively performed postpartum ritual practices, while supporting informants were mothers who had experienced or were currently undergoing postpartum rituals assisted by village shamans.

The criteria for selecting village shamans were as follows: being at least 40 years old, being recognized by the local community as a village shaman, having experience in performing postpartum rituals, being frequently consulted by community members, and being actively involved in traditional postpartum care practices. Meanwhile, the criteria for postpartum mothers were women who had experienced postpartum rituals or were currently undergoing postpartum rituals and had used the services of a village shaman at least once.

Informant mapping was conducted through preliminary observation and by gathering information from the village head, elders, and community leaders of the Semalah Malay community. Based on this process, three village shamans and fifteen postpartum mothers were identified and involved in this study. The involvement of both village shamans and postpartum mothers allowed data triangulation between ritual practitioners and ritual participants.

Research Instruments and Ethical Considerations

The main instrument used in this study was a semi-structured interview guide. The interview guide contained open-ended questions related to the types of postpartum rituals, plant and animal species used, local names, parts used, preparation methods, methods of use, perceived benefits, and the frequency or importance of species use in rituals. The use of open-ended questions allowed informants to provide detailed explanations based on their own knowledge and experiences.

The interview guide was developed using a five-level scoring system adapted from Rinto et al. (2019) and was validated by five validators. The feasibility of the instrument was assessed using Aiken's V to determine the content validity of each item. After the instrument was considered suitable for data collection, ethical clearance was obtained before fieldwork was conducted. Since this study involved human participants and local cultural knowledge, ethical principles such as informed consent, voluntary

participation, confidentiality, and respect for sociocultural values were applied throughout the research process (Situmorang, 2023).

Before data collection, the researcher conducted a focus group discussion with community members and Semalah Village officials. This activity was carried out to explain the aims and procedures of the study, obtain community permission, and build trust with local participants.

Data Collection Procedures

Data were collected through in-depth interviews, participatory observation, and documentation. In-depth interviews were conducted after informed consent was obtained from each informant. During the interviews, the researcher used audio and video recordings with the permission of the informants to ensure data accuracy. The researcher was also assisted by a local resident who was fluent in both Indonesian and the Semalah Malay language to avoid misunderstanding during the interview process and to ensure that the information obtained was valid (Yineger & Yewhalaw, 2007).

Participatory observation was conducted to verify the information obtained from the interviews, particularly regarding the types of plants and animals used in postpartum rituals. During this process, the researcher directly observed ritual practices performed by village shamans when permitted by the informants. The observation focused on ritual procedures, biological materials used, preparation methods, and the social context of the rituals. This process provided important anthropological data on the relationship between ritual practices and the use of biodiversity in the Semalah Malay community (Heinrich et al., 2009).

Documentation was conducted by recording field notes, taking photographs, and collecting supporting information from local archives or community records when available. Photographs were taken to document the plants, animals, tools, and ritual processes. These data were used to complement interview and observation data.

Identification of Plant and Animal Species

The scientific identification of ritual plants and animals was conducted after their local names were obtained from informants. During fieldwork, the plants and animals used in postpartum rituals were photographed and recorded. Identification was carried out by observing morphological characteristics, including plant habit, leaves, stems, flowers, fruits, rhizomes, roots, and other relevant parts. For animals, identification was based on morphological characteristics and local descriptions provided by informants.

Plant identification was carried out using relevant taxonomic references, including *Flora Malesiana* and *Flora Jawa*. The nomenclature and scientific names of plant species were checked using online databases, including The Plant List and Plantamor. Animal identification was conducted using relevant primary literature and scientific journals.

When a species could not be identified directly in the field, plant specimens were prepared following herbarium procedures based on the *Index Herbariorum Indonesianum* (Girmansyah et al., 2018). Animal specimens that required further identification were preserved using an alcohol solution. The herbarium and preserved specimens were then sent to the Integrated Laboratory of Tanjungpura University, Pontianak, for further identification.

Data Analysis

The data were analyzed using emic and etic approaches. The emic approach was used to describe the knowledge, beliefs, and explanations provided by the informants based on the local perspective of the Semalah Malay community. The etic approach was used to interpret the data using relevant scientific perspectives, including ethnobiology, anthropology, biology, and health sciences.

Qualitative data analysis was conducted through data reduction, data categorization, triangulation, synthesis, and narrative interpretation. Triangulation was carried out by comparing information from village shamans, postpartum mothers, and direct observation

results. The data were then grouped based on ritual type, local name, scientific name, habitat, part used, preparation method, method of use, and perceived benefits of plants and animals in postpartum rituals. The results were presented descriptively and analytically in tables and narratives (Agustini et al., 2023; Heinrich et al., 2009; Kurniasih et al., 2021).

Descriptive statistics were used to calculate the Species Use Value (SUV). SUV was used to determine the relative cultural importance of each plant and animal species used in postpartum rituals by the Semalah Malay community. The SUV was calculated using the following formula:

SUV = ΣU_i / N (1)

Where ΣU_i is the total number of use reports for a particular species mentioned by informants, and N is the total number of informants. A higher SUV indicates that a species has greater cultural importance and is more frequently recognized or used in postpartum rituals.

Result and Discussion

Diversity of Postpartum Ritual Plants and Animals Species of the Semalah Malay Tribe

This research found that the Semalah Malay tribe used 31 plants and 4 animals species in 8 postpartum rituals (Table 1 and Table 2).

Table 1. Postpartum ritual animals of the Semalah Malay Tribe

Ritual Name			Ritual Animals
	Local Name	Scientific Name	Part of used
Buang-Buang	Tengkuyung	<i>Sulcospira testudinaria</i>	Shell
	Manuk potong	<i>Gallus domesticus</i>	Egg
Bebah	Toman	<i>Channa micropeltes</i>	Meat
	Manuk kampung	<i>Gallus domesticus</i>	Meat
	Delak	<i>Chana striata</i>	Meat

Table 2. Postpartum ritual plants of the Semalah Malay Tribe

Ritual Name			Ritual Plants
	Local Name	Scientific Name	Part of used
Bempuk/ Spice bath	Lambang	<i>Scleria sumatrensis</i>	Root
	Temu kunci	<i>Boesenbergia rotunda</i>	Rhizome
	Alang-alang	<i>Imperata cylindrica</i>	Root
	Asam patikala	<i>Etlingera elatior</i>	Rhizome
	Pisang pinang/awak	<i>Musa paradisiaca</i>	Leaf
	Serai wangi	<i>Cymbopogon nardus</i>	Leaf
	Kunyit	<i>Curcuma longa</i>	Leaf
	Cabe jawa	<i>Piper retrofractum</i>	Fruit
	Perawas	<i>Litsea elliptica</i>	Leaf
	Balik angin	<i>Mallotus paniculatus</i>	Leaf
Betungku	Cekur	<i>Kaempferia galanga</i>	Leaf
	Sirih	<i>Piper betle</i>	Leaf
	Serai wangi	<i>Cymbopogon nardus</i>	Stem

Ritual Name	Ritual Plants		
	Local Name	Scientific Name	Part of used
Param	Kunyit	<i>Curcuma longa</i>	Rhizome
	Jahe	<i>Zingiber officinale</i>	Rhizome
	Lengkuas	<i>Alpinia galanga</i>	Rhizome
	Pandan	<i>Pandanus amaryllifolius</i>	Leaf
	Kunyit	<i>Curcuma longa</i>	Rhizome
	Jahe	<i>Zingiber officinale</i>	Rhizome
	Lengkuas	<i>Alpinia galanga</i>	Rhizome
	Sirih	<i>Piper betle</i>	Leaf
	Serai wangi	<i>Cymbopogon nardus</i>	Stem
	Kelapa	<i>Cocos nucifera</i>	Fruit
Pilis	Kapulaga	<i>Elettaria cardamomum</i>	Fruit
	Kunyit	<i>Curcuma longa</i>	Rhizome
	Jahe	<i>Zingiber officinale</i>	Rhizome
	Sirih	<i>Piper betle</i>	Leaf
	Padi	<i>Oryza sativa</i>	Fruit
Besampuk	Pandan	<i>Pandanus amaryllifolius</i>	Leaf
	Kayu kepuak	<i>Artocarpus elasticus</i>	Bark
Buang-buang	Kelapa	<i>Cocos nucifera</i>	Fruit
	Padi	<i>Oryza sativa</i>	Fruit
	Kayu kepuak	<i>Artocarpus elasticus</i>	Bark
	Kunyit	<i>Curcuma longa</i>	Rhizome
	Sirih	<i>Piper betle</i>	Leaf
Tepung tawar	Pinang	<i>Areca catechu</i>	Fruit
	Pisang pinang/awak	<i>Musa paradisiaca</i>	Fruit
	Daun rokok/nipah	<i>Nypa fruticans</i>	Leaf
	Tembakau	<i>Nicotiana tabacum</i>	Leaf
	Tebu	<i>Saccharum officinarum</i>	Stem
	Kelapa	<i>Cocos nucifera</i>	Fruit
	Padi	<i>Oryza sativa</i>	Fruit
	Kunyit	<i>Curcuma longa</i>	Rhizome
	Juaran/ntabar	<i>Cordyline fruticosa</i>	Leaf
	Setawar	<i>Costus speciosus</i>	Leaf
Ebah	Ngkrusa	<i>Coleus atropurpureus</i>	Leaf
	Mali	<i>Lea indica</i>	Leaf
	Kunyit	<i>Curcuma longa</i>	Rhizome
	Jahe merah	<i>Zingiber officinale var. Rubrum</i>	Rhizome
	Jahe padi	<i>Zingiber officinale var. Amarum</i>	Rhizome
	Padi	<i>Oryza nivara</i>	Fruit
	Pisang pinang/awak	<i>Musa paradisiaca</i>	Fruit
	Kelapa	<i>Cocos nucifera</i>	Flower
	Kekendang	<i>Ficus variegata</i>	Leaf
	Abuk putih	<i>Dioscorea alata</i>	Tuber

Postpartum Rituals of the Semalah Malay Tribe Bempuk (Spice Bath)

The postpartum period is a critical phase marked by physical, hormonal, and emotional changes in mothers after childbirth. During this period, levels of estrogen and progesterone, which increase during pregnancy, decline rapidly after delivery. These hormonal changes may influence neurotransmitter regulation, including serotonin and dopamine, which are associated with mood stability and emotional well-being (Kao, 2024). As a result, postpartum mothers may experience physical discomfort, emotional instability, anxiety, fatigue, and other recovery-related conditions.

Postpartum discomfort is commonly experienced by many women after childbirth. In some cases, anxiety and psychological discomfort during the postpartum period may be overlooked, even though maternal mental health is closely related to physical recovery and childcare readiness (Pratiwi et al., 2021). Therefore, various communities have developed traditional care practices to support maternal comfort and recovery. One of these practices is the use of herbal or spice baths, which are believed to provide warmth, relaxation, and freshness to the body. Warm water and aromatic herbal ingredients may help create a calming effect, improve comfort, and reduce muscle tension during the postpartum period (Sartina, 2023).

Among the Semalah Malay tribe, *bempuk*, or spice bathing, is a traditional postpartum ritual performed for mothers after childbirth. This ritual uses several natural ingredients, including nutrush roots, *Boesenbergia rotunda* rhizomes, cogongrass roots, *Etlingera elatior* rhizomes, lemongrass leaves, turmeric leaves, Javanese chili, *Litsea elliptica* leaves, *Mallotus paniculatus* leaves, and *Kaempferia galanga* leaves. These ingredients are boiled together, and the resulting herbal water is used for bathing. The *bempuk* ritual is usually performed for three consecutive days in the afternoon before sunset.

From the emic perspective, the Semalah Malay community believes that *bempuk* helps refresh the body, reduce postpartum discomfort, and support maternal recovery. The use of warm herbal water is also associated with cleansing, restoring body warmth, and providing relaxation after childbirth. This practice reflects local knowledge of postpartum care that combines physical treatment, cultural belief, and the use of surrounding biological resources.

From the etic perspective, several plants used in *bempuk* contain bioactive compounds that have been reported in previous studies to have potential health-related properties. For example, Javanese chili (*Piper retrofractum*) contains piperine, which has been associated with pharmacological activities such as analgesic, warming, and sedative effects (Evizal, 2020). Aromatic plants such as lemongrass and other spices may also produce fragrances that contribute to relaxation and perceived comfort. The combination of warm water and aromatic plant materials may theoretically support blood circulation, reduce muscle stiffness, and create a soothing sensation.

However, the possible physiological effects of *bempuk* should be interpreted carefully because this study did not conduct clinical testing on postpartum mothers. Claims related to reduced cortisol levels, increased endorphin production, or direct therapeutic effects require further biomedical investigation. Therefore, in the context of this study, *bempuk* is best understood as an ethnobiological practice that reflects the integration of local cultural knowledge, maternal care, and the use of plant biodiversity in postpartum rituals. Its potential health benefits remain an important subject for future pharmacological.

Betungku

The *betungku* ritual is routinely performed in the morning during the postpartum abstinence period, usually starting on the third or fourth day after childbirth. This ritual uses several natural ingredients, including betel leaves, lemongrass, turmeric rhizomes, ginger rhizomes, galangal rhizomes, and pandan leaves. These ingredients are ground and then applied

to heated river stones. The coated stones are wrapped in cloth and placed on several parts of the mother's body, particularly the abdomen, waist, thighs, and soles of the feet.

From the emic perspective, the Semalah Malay community believes that *betungku* helps restore body warmth, reduce postpartum discomfort, relieve muscle stiffness, and support maternal recovery. The placement of warm stones on specific body parts reflects local knowledge of postpartum care, especially in maintaining maternal comfort during the recovery period. The use of aromatic and warming plants in this ritual also shows the integration of cultural beliefs, traditional healing practices, and local biodiversity.

From the etic perspective, the application of heated stones in the *betungku* ritual can be interpreted as a form of warm compress therapy. Warm compresses are commonly used as a non-pharmacological approach to help reduce pain, muscle tension, and discomfort. Heat may increase local temperature, promote vasodilation, improve blood circulation, and reduce muscle stiffness. Increased blood flow may also help remove inflammatory mediators associated with pain, such as bradykinin, histamine, and prostaglandins. In addition, warm stimulation may influence pain perception through the descending pain control system, which can reduce the transmission of pain signals to the brain and stimulate the release of endogenous opioids, such as endorphins and dynorphins (Suyani, 2020).

The herbal ingredients used in *betungku* may also contribute to the perceived warming and relaxing effects of the ritual. Ginger, for example, contains essential oils that produce a spicy, bitter, and aromatic sensation. Previous studies have reported that ginger has potential anti-inflammatory properties and may help relieve pain, stiffness, and muscle spasms through its warming effect and possible vasodilatory activity (Purnamasari, 2019). However, since this study did not conduct clinical measurements of pain reduction, blood flow, or inflammatory responses, the potential health benefits of *betungku* should be interpreted as theoretical explanations supported by previous literature rather than direct clinical evidence. Thus, *betungku* can be understood as a traditional postpartum care practice that combines thermal therapy, aromatic plants, and cultural beliefs in supporting maternal comfort after childbirth.

Param

Param is a traditional postpartum preparation used by the Semalah Malay community as part of maternal body care during the postpartum period. The preparation is made by grinding turmeric rhizome, ginger rhizome, galangal rhizome, betel leaves,

lemongrass, coconut oil, and cardamom into a paste. This mixture is then applied directly to several parts of the mother's body, particularly the abdomen, arms, and legs. The application is usually carried out in the afternoon and left until morning during the postpartum period, which may last up to 40 days.

From the emic perspective, the Semalah Malay community believes that *param* helps warm the body, reduce discomfort, restore physical strength, and provide a sense of comfort during postpartum recovery. The warm sensation produced by the ingredients is considered important because postpartum mothers are believed to require body warming to support recovery after childbirth. The fragrant aroma of the ingredients is also perceived to create a calming effect and improve maternal comfort.

From the etic perspective, the use of *param* may be associated with the warming, aromatic, and topical properties of the plants used. During the postpartum period, mothers may experience various forms of discomfort, such as body pain, excessive sweating, breast swelling, constipation, hemorrhoids, and perineal pain (Islami & Noveri, 2012). Ingredients such as turmeric, ginger, galangal, lemongrass, and cardamom are commonly known as aromatic and warming plants. Their application to the skin may produce a local warming sensation that can increase comfort and may theoretically support vasodilation and blood circulation.

Lemongrass is one of the important ingredients in *param* because it contains essential oils that produce a distinctive aroma (Marsiah et al., 2024). Previous studies have reported that lemongrass aromatherapy may contribute to relaxation and stress reduction in maternal care contexts (Jayanti & Patriani, 2025). However, the potential effects of *param* on stress reduction, blood circulation, or postpartum recovery were not clinically tested in this study. Therefore, these effects should be interpreted as possible explanations based on local knowledge and previous literature, rather than direct evidence of clinical effectiveness. In this context, *param* represents a postpartum care practice that combines topical treatment, aromatic plants, and cultural beliefs in supporting maternal comfort.

Pilis

According to the Semalah Malay community, the use of *pilis* indicates that a mother is undergoing the postpartum or abstinence period. *Pilis* is prepared by grinding turmeric, ginger, betel leaves, rice, and pandan leaves into a paste. The mixture is then applied directly to the forehead of postpartum mothers and newborns after childbirth. This practice is believed to provide warmth, reduce headaches, create a calming

sensation, and make the forehead feel lighter and more comfortable.

From the emic perspective, *pilis* has both practical and symbolic meanings. Practically, it is used as a traditional topical preparation to support maternal comfort during the postpartum period. Symbolically, its use marks the mother's postpartum status and reflects the community's cultural system of maternal care. The application of *pilis* to the forehead also shows that the Semalah Malay community associates this body part with symptoms such as headache, heaviness, and physical tension after childbirth.

From the etic perspective, the warming sensation and aromatic properties of *pilis* ingredients may help create a relaxing effect. Previous studies have reported that the use of *pilis* may help reduce headache complaints among postpartum mothers (Kristina & Fadillah, 2024; Safari & Sinaga, 2022; Widaryanti, 2020). However, the statement that *pilis* is effective in reducing cephalgia should be interpreted carefully, because the present study did not measure headache intensity or compare outcomes before and after application. Therefore, the perceived benefits of *pilis* in this study are best understood as community-based knowledge supported by related literature.

The process of childbirth, particularly during pushing, may contribute to physical tension and discomfort in the head area. Headache after childbirth can also be associated with fatigue, changes in circulation, stress, or other postpartum physiological conditions. The warmth produced by *pilis* may theoretically promote local comfort and relaxation. In general, vasodilation can improve blood flow and support oxygen and nutrient distribution to body tissues (Halim, 2012; Sa'adah, 2018). Providing warmth to the body after childbirth is also commonly associated with efforts to improve comfort and circulation (Noorhidayah, 2013). Nevertheless, further clinical research is needed to verify the physiological effects of *pilis* on postpartum headache and maternal recovery. Thus, *pilis* can be understood as a traditional postpartum practice that integrates symbolic meaning, topical application, aromatic plants, and maternal comfort.

Besampuk

Besampuk is one of the traditional postpartum practices performed by the Semalah Malay community during the postpartum abstinence period. In this ritual, kepuak bark (*Artocarpus elasticus*) is burned until it becomes charcoal. The charcoal is then mixed with coconut oil produced from processed coconut and applied to specific body parts, particularly the forehead, the area above the nose between the eyebrows, and the fontanel of both mothers and babies.

This practice is usually carried out in the afternoon or early evening during the abstinence period.

From the emic perspective, the Semalah Malay community believes that *besampuk* provides protection, comfort, and support for mothers and babies after childbirth. The application of the mixture to the forehead and fontanel indicates that this ritual has both bodily and symbolic meanings. It is not only understood as a form of topical treatment but also as part of cultural protection during the vulnerable postpartum phase.

From the etic perspective, the materials used in *besampuk* may have potential biological relevance. *Artocarpus elasticus* has been reported to contain phenolic compounds, which are associated with anti-inflammatory activity (Jagtap & Bapat, 2010). Coconut oil, particularly oil produced through heating, contains lauric acid and other fatty acid components that have been reported to show anti-inflammatory, antipyretic, and analgesic potential (Suparti & Kustiyati, 2023). These findings suggest that the ingredients used in *besampuk* may have potential physiological benefits when applied topically. However, because this study did not conduct laboratory or clinical testing, the possible effects of *besampuk* should be interpreted cautiously as a theoretical explanation supported by previous literature rather than direct evidence of therapeutic effectiveness.

Buang-Buang

The *buang-buang* ritual is performed on the seventh day after childbirth. This ritual uses various plant and animal-derived materials that have symbolic and cultural significance. The materials include four types of colored rice: white, black, yellow, and red rice, each shaped into small oval balls approximately the size of a thumb. The black color is obtained from kepuak bark charcoal (*Artocarpus elasticus*), the yellow color from turmeric, and the red color from a mixture of lime derived from tengkuyung shells (*Sulcospira testudinaria*) and grated turmeric. Other materials used include one nipah leaf cut into three small pieces, three betel leaves shaped like triangular bowls and filled with areca nut, tobacco, and a small amount of betel mixture, one ripe areca banana divided into three pieces, sugarcane cut into three small pieces, and coconut flesh cut into three parts.

From the emic perspective, *buang-buang* is understood as a ritual of protection, purification, and symbolic transition for mothers and babies after childbirth. The use of various colors, plant materials, and animal-derived substances reflects the symbolic complexity of the ritual. Each material is not merely used as a physical object but also carries cultural

meaning related to safety, balance, and the removal of negative influences during the postpartum period.

The presence of tengkuyung shells (*Sulcospira testudinaria*) in the *buang-buang* ritual is particularly interesting from an ethnobiological perspective. This species has been reported in modern ecological studies as a potential bioindicator of water pollution because changes in its hemocyte profile may reflect environmental conditions (Hertika et al., 2021). In addition, chitosan derived from *Sulcospira testudinaria* shells has been reported to function as a natural coagulant and reduce Total Suspended Solids concentration in liquid waste (Zahara, 2022). However, in the context of the *buang-buang* ritual, the use of this species should not be interpreted primarily as an ecological or technological function. Instead, its use demonstrates how the Semalah Malay community incorporates local aquatic biodiversity into ritual practices and assigns cultural meaning to organisms found in their environment. Thus, *Sulcospira testudinaria* has both cultural significance in local ritual practice and scientific relevance in ecological studies.

Tepung Tawar

Tepung tawar is a traditional ritual performed by the Semalah Malay community as a symbol of safety and blessing for mothers and newborns. In Malay cultural traditions, *tepung tawar* is often associated with prayers, protection, and the hope for well-being (Hemafitria, 2019). Among the Semalah Malay community, this ritual is conducted toward the end of the postpartum abstinence period and also functions as a marker that the postpartum period for mothers and babies is nearly or officially completed.

This ritual involves sprinkling rice soaked in water mixed with chopped leaves of *juaran* or *ntabar*, *setawar*, *ngkrusa*, and *mali*. These plants are also tied together and used as a medium for sprinkling the mixture over the bodies of mothers and babies. After that, a small amount of yellow rice is placed on the fontanel and neck of the mother and baby. The yellow rice is also sprinkled over the body as part of the ritual process.

From the emic perspective, *tepung tawar* is believed to provide safety, protection, and spiritual balance for mothers and babies. The use of water, rice, yellow rice, and selected leaves reflects symbolic elements commonly associated with purification, blessing, fertility, and protection. The placement of yellow rice on specific body parts, such as the fontanel and neck, also indicates the community's belief in the need to protect vulnerable parts of the body during the postpartum phase.

From the etic perspective, *tepung tawar* represents an important example of how ritual plants are used not

only for medicinal purposes but also for symbolic and social functions. Unlike rituals such as *param*, *pilis*, or *betungku*, which are more closely associated with bodily comfort and postpartum care, *tepung tawar* emphasizes symbolic protection and the social recognition of the mother's and baby's transition out of the postpartum abstinence period. Therefore, this ritual highlights the broader role of plants in the Semalah Malay postpartum system, not only as biological resources but also as cultural symbols.

Bebah

The *bebah* ritual is performed during the postpartum period, which traditionally lasts for approximately 40 days. Among the Semalah Malay community, this ritual is an important part of postpartum care because it involves the preparation and consumption of selected plants and animals believed to support maternal recovery. In this ritual, the plants used include turmeric, red ginger, ginger rice, rice, areca banana, coconut, kekendang, and abuk putih. The animal species used include toman fish (*Channa micropeltes*), snakehead fish (*Channa striata*), and free-range chicken (*Gallus domesticus*). These ingredients are processed as food and given to postpartum mothers.

From the emic perspective, the *bebah* ritual is believed to restore maternal strength, support recovery after childbirth, and provide nutritious food during the postpartum period. The inclusion of fish, chicken, rice, banana, coconut, turmeric, and ginger reflects the community's understanding of the importance of nourishment, warmth, and recovery-oriented foods. This ritual also shows that postpartum care among the Semalah Malay community is not limited to external body treatments but also includes dietary practices.

From the etic perspective, the nutritional component of *bebah* is highly relevant to postpartum recovery. Postpartum mothers require adequate nutrition, including carbohydrates, protein, fats, vitamins, and minerals, to support energy restoration, breastfeeding, tissue repair, and wound healing. Protein is particularly important because it contributes to tissue regeneration and the healing process. Insufficient protein intake may delay wound recovery in postpartum mothers (Komala, 2017). Therefore, the use of animal-based foods such as fish and chicken in the *bebah* ritual may reflect local nutritional knowledge related to maternal recovery.

Fish is an important source of animal protein. Fish protein consists of several types, including sarcoplasmic, myofibrillar, and stromal proteins. Albumin, one of the sarcoplasmic proteins, has received considerable attention because of its role in maintaining fluid balance, supporting tissue formation,

and contributing to the repair of damaged tissues (Andreeva, 2010). Snakehead fish (*Channa striata*) has been widely studied for its albumin content and its potential role in wound healing (Baie & Sheikh, 2000). Toman fish (*Channa micropeltes*) is also considered a nutritionally valuable freshwater fish. Previous research reported that the protein content of toman fish and snakehead fish was similar, at 0.803 mg/mL (Alviodinasyari et al., 2019). Another study found that toman fish from West Kalimantan waters contained albumin levels of 3.6147 g/dL, which were slightly higher than those reported from other areas, namely 3.3076 g/dL (Fitriyani et al., 2020). These findings may help explain why toman fish holds an important position in the postpartum dietary practices of the Semalah Malay community.

The use of turmeric and ginger in the *bebah* ritual may also have cultural and biological relevance. Turmeric contains phenolic compounds that have been reported to possess antioxidant, antimicrobial, anti-inflammatory, and analgesic potential (Andanawarih & Ulya, 2021). Ginger, including red ginger, contains bioactive compounds such as gingerol, shogaol, and zingerone, which have been associated with anti-inflammatory and analgesic activities in previous studies (Herawati & Septi, 2023). These compounds may theoretically contribute to comfort and recovery during the postpartum period.

However, the possible effects of the ingredients used in *bebah* should be interpreted carefully. This study did not measure nutritional intake, albumin levels, wound healing rates, pain intensity, or other clinical indicators among postpartum mothers. Therefore, the discussion of protein, albumin, turmeric, and ginger should be understood as a scientific interpretation based on previous studies, not as direct evidence that the *bebah* ritual clinically accelerates postpartum wound healing. In this study, *bebah* is best understood as a traditional postpartum dietary practice that integrates local knowledge, nutrition, biodiversity use, and cultural beliefs in supporting maternal recovery.

Species Use Value (SUV)

Species Use Value (SUV) analysis of plants and animals is important for determining which species are commonly used by the Semalah Malay tribe in postpartum rituals. The plant with the highest use value is turmeric (*Curcuma longa*), with an SUV value of 1.78 (Table 3). Turmeric's role in postpartum rituals among the Semalah Malay tribe holds significant cultural and health value, as it is frequently used in various rituals. The community utilizes turmeric in seven postpartum rituals: bempuk/spices bath, betungku, param, pilis, buang-buang, tepung tawar,

and bebah. Other ethnopharmaceutical studies have also reported a high prevalence of turmeric use as a traditional medicine among local communities in Indonesia (Batubara et al., 2017; Bhagawan et al., 2023; Ismiyanti et al., 2021).

Table 3. Postpartum ritual plants

Plant Names	SUV Value
Turmeric (<i>Curcuma longa</i>)	1.78
Betel (<i>Piper betle</i>)	1.50
Coconut (<i>Cocos nucifera</i>)	1.50
Rice (<i>Oryza sativa</i>)	1.50
Ginger (<i>Zingiber officinale</i>)	1.40
Areca banana (<i>Musa paradisiaca</i>)	1.33
Lemongrass (<i>Cymbopogon nardus</i>)	1.28
Galangal (<i>Alpinia galanga</i>)	1.20
Pandan leaves (<i>Pandanus amaryllifolius</i>)	1.20
Kepuak bark (<i>Artocarpus elasticus</i>)	1.20
Nutrush (<i>Scleria sumatrensis</i>)	0.94
Cogongrass (<i>Imperata cylindrica</i>)	0.94
Cardamom (<i>Elettaria cardamomum</i>)	0.94
Areca nut (<i>Areca catechu</i>)	0.94
Nipa palm (<i>Nypa fruticans</i>)	0.94
Tobacco (<i>Nicotiana tabacum</i>)	0.94
Sugarcane (<i>Saccharum officinarum</i>)	0.94
Juaran/ntabar (<i>Cordyline fruticosa</i>)	0.94
Setawar (<i>Costus speciosus</i>)	0.94
Ngkrusa (<i>Justicia gendarussa</i>)	0.94
Mali (<i>Leea indica</i>)	0.94
Red Ginger (<i>Zingiber officinale</i> var. <i>Rubrum</i>)	0.94
Ginger Rice (<i>Zingiber officinale</i> var. <i>Amarum</i>)	0.94
Kekendang (<i>Ficus variegata</i>)	0.94
Abuk Putih (<i>Dioscorea alata</i>)	0.94
Javanese chili (<i>Piper retrofractum</i>)	0.89
Balik angin (<i>Mallotus paniculatus</i>)	0.33
Cekur (<i>Kaempferia galanga</i>)	0.33
Temu kunci (<i>Boesenbergia rotunda</i>)	0.28
Asam patikala (<i>Etingera elatior</i>)	0.28
Perawas (<i>Litsea elliptica</i>)	0.28

Table 4. Species use value of postpartum ritual animals

Animal Names	SUV Value
Toman fish (<i>Channa micropeltes</i>)	1.00
Chicken (<i>Gallus domesticus</i>)	0.94
Delak (<i>Chana striata</i>)	0.89
Tengkuyung (<i>Sulcospira testudinaria</i>)	0.83

Meanwhile, the species with the highest utility value is the toman fish (*Channa micropeltes*), with an SUV value of 1.00 (Table 4). This indicates that all respondents are familiar with and utilize this fish in their daily lives. Fish species in the *Channa* genus have high albumin and essential amino acid content. Albumin functions to accelerate cell regeneration, regulate blood osmotic pressure, increase endurance, and aid in the distribution of hormones and enzymes in the body (Asikin, 2025; Fadhilah & Sari, 2020). This advantage is the basis for empirical knowledge of

society's use of toman fish as a highly nutritious food, especially for postpartum mothers and patients in the recovery period.

Furthermore, toman fish is a readily available freshwater species with high economic value and a popular meat texture. Therefore, its use is not limited to household consumption but also extends to processed products and local trade commodities. The toman fish's identity as part of the culinary tradition and local wisdom also strengthens this species's sociocultural position in local life. This condition explains why toman fish achieved the highest SUV value, as its use reflects a combination of nutritional, economic, and cultural values.

Conclusion

This study documented the ethnobiological knowledge of the Semalah Malay community in Semalah Village regarding the use of plants and animals in postpartum rituals. The findings identified eight postpartum rituals involving 31 plant species and four animal species. Turmeric (*Curcuma longa*) had the highest Species Use Value among plants, with an SUV of 1.78, while toman fish (*Channa micropeltes*) had the highest Species Use Value among animals, with an SUV of 1.00. These findings show that postpartum rituals among the Semalah Malay community represent important biocultural knowledge that integrates traditional healing, maternal care, symbolic practices, and biodiversity use. The high use value of turmeric and toman fish indicates their central role in postpartum recovery practices. This study provides baseline data for preserving indigenous knowledge and supporting biocultural conservation. Further studies are needed to examine the phytochemical, nutritional, pharmacological, and conservation aspects of the species used in these rituals.

Acknowledgements

We would like to thank to all the parties that help to complete the research entitled "Ethnobiological Study of Postpartum Ritual Plants and Animals of The Malay Tribe In Semalah Village, Kapuas Hulu Regency".

Author Contributions

Desi Ratnasari, Surya Aspita, Hilda Aqua Kusuma Wardhani: developing literature study topics and defining literature analysis methodology, writing draft articles, revising, and editing final articles.
Agus Muliadi: analyzing literature related to literature study topics.

Funding

This research received no external funding.

Conflicts of Interest

The authors declare no conflict of interest.

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