

# Trends of Traditional Postpartum Practices Utilizing Local Medicinal Plants from Kota Belud, Sabah

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## ABSTRACT

Ethnogaecology is a field of study that focuses on managing gynaecological-related issues including postpartum care, through the utilization of traditional healers, tribal communities, and local practitioners. Traditional knowledge of Sabah medicinal plants is insufficiently documented, despite Sabah is home to more than 42 different ethnics and rich in flora diversity. This study aims to record medicinal plants from Kota Belud, that have been used as traditional remedies during postpartum care for mothers. This work also provides brief details of plant parts used as traditional remedies and the administering methods. A total of nine plant species, namely *Aloe vera*, *Bambusa* sp., *Benincasa hispida*, *Cosmos caudatus*, *Curcuma longa*, *Curcuma xanthorrhiza*, *Ficus septica*, *Momordica charantia*, *Zingiber zerumbet*, were traditionally employed for postpartum care, a period spanning 40 to 90 days post-partum. The ethnopharmacological data gathered directly from these communities has the potential to serve as a substantial foundation for future research in natural product development and drug discovery.

**Keywords:** Medicinal plants, postpartum delivery, traditional practices

## INTRODUCTION

The state of Sabah in Malaysia is characterized by its tropical climate and annual rainfall of 4200 mm, which contributes to the preservation of its rich biodiversity. The forested area in Sabah covers approximately 37600 square kilometers, which is considered substantial compared to other regions in Southeast Asia (Reynolds et al., 2011). Sabah's diverse cultural landscape is home to over 40 indigenous ethnic and sub-ethnic groups, each with its own

unique traditions and customs. Among these groups are five main ethnicities: Kadazandusun, Bajau, Murut, Chinese, and Brunei Malay (Madlan et al., 2014). With the exception of the Chinese, the other four main indigenous groups are collectively known as Bumiputra Sabah. Sabah's linguistic diversity is evident in its over 50 languages and 80 dialects (Muhammed & Muthu, 2015). Kota Belud, a developing district on Sabah's west coast, covers an area of 1385.6 square kilometers. The local people of Kota Belud are from various ethnic groups: Sama-Bajau, Bajau Ubian, Dusun, Irranun, Rungus, and Chinese. Sama-Bajau and Dusun communities in Kota Belud were selected due to their enthusiasm for sharing their traditional knowledge. Moreover, the district of Kota Belud has ecological diversity that ranges from coastal area, agricultural land, and the lower montane area around predominantly Dusun villages in Kadamaian. These varied ecological landscapes imply flora and fauna species richness could be present in Kota Belud.

Ethnogaecology is a field of study, that focuses on the utilization of medicinal plants by indigenous communities, local healers, and traditional practitioners to address gynecological-related matters including postpartum care (Surendran et al., 2023; Jamal et al., 2011). The importance of plant-based medicine in the development of drugs has been well-established, as the use of plants for medicinal purposes dates back to ancient times. Plants contain secondary metabolites that serve as defense mechanisms, and these compounds have demonstrated both preventive and curative effects (Li et al., 2020). Traditional knowledge regarding the use of plants is often passed down through generations, and the pharmacological properties of these culturally significant plants form a link between drug discovery research and ethnopharmacology (Patwardhan, 2005). The ethnobotanical survey is among the most reliable approaches to initiate drug discovery (Surendran et al., 2023; Awang-Kanak et al., 2022). The main objective of this paper is to record medicinal plants used during traditional postpartum care in Sabah.

## **MATERIALS AND METHODS**

### **Data collection and identification.**

Semi-structured interviews were conducted with villagers from three villages in Kota Belud district to gather information on the use of locally sourced vegetables as traditional medicine, particularly for postpartum care (Martin, 1995). Thirteen informants were selected using a snowball sampling technique. Informants were chosen based on two criteria: (i) their willingness to share their knowledge about the utilization of freshly eaten vegetables as herbal medicine, specifically for postpartum care, and (ii) their ability to provide descriptions of how the herbal medicine is administered to women during their confinement period. Demographic information on the informants, as well as details on the specific plant parts used for postpartum remedies, were recorded. The identification of species was assisted by Sandakan Herbarium (SAN). Access to Sabah traditional knowledge and plant species is approved by Sabah Biodiversity Council (SaBC) (JKM/MBS.1000-2/2 JLD. 6 (24)) and by Sabah Forest Department (JPHTN/TKKH (PSH) 100-14/18/2 (47)). All data obtained comply with Sabah state laws and regulations on biodiversity resources and access benefit sharing.

### **Ethnobotanical indices analysis**

Frequency of Citation (FC) is a metric used to identify the most commonly used plants. FC is calculated by dividing the number of informants who mentioned a specific plant by the total number of informants interviewed. The Use Value (UV) was calculated using the following formula:  $UV_{is} = \sum U_{is} / n_{is}$ , where  $UV_{is}$  is the use value of species  $s$ ,  $\sum U_{is}$  is the total number of uses reported for species  $s$ , and  $n_{is}$  is the total number of informants.  $UV_{is}$  is the use of value of the species  $s$  mentioned by informant  $i$ ,  $\sum U_{is}$  is the sum number of used of species mentioned by all informants  $i$ ,  $n_{is}$  is the total number of the informants (Silva et al., 2014).

## RESULTS AND DISCUSSIONS

A total of thirteen informants from ethnics Sama-Bajau and Dusun were interviewed for their traditional knowledge. Informants ranged in age from 29 to 67 years old at the time of the interviews. Nine plant species were traditionally used for postpartum care, a period lasting 40 to 90 days. These nine plant species include *Aloe vera*, *Bambusa sp.*, *Benincasa hispida*, *Cosmos caudatus*, *Curcuma longa*, *Curcuma xanthorrhiza*, *Ficus septica*, *Momordica charantia*, *Zingiber zerumbet* (Table 1).

Table 1: Selected medicinal plants used for postpartum care by local people in Kota Belud, Sabah.

Scientific name	Local name	Locality	Part used	Preparation
<i>Aloe vera</i>	Lidah buaya	TG	Leaves (flesh & bud)	Freshly eaten, mixed with drink or soup.
<i>Bambusa sp.</i>	Rebung buluh	M	Young shoot	Boiled before eaten.
<i>Benincasa hispida</i>	Kundur	TG	Fruit	Fruit soaked with water, use as bathing water for jaundice baby.
<i>Cosmos caudatus</i>	Ransa ransa (Bajau)	M	Leaves	Freshly eaten.
<i>Curcuma longa</i>	Kunyit	M, P	Tuber	Decoction, consume as drink for mother
<i>Curcuma xanthorrhiza</i>	Temulawak	TG	Young leaves	Freshly eaten, briefly boiled before eaten.
<i>Ficus septica</i>	Lintotobou (Dusun)	P	Root	Decoction, consume as drink for mother
<i>Momordica charantia</i>	Peria	M	Fruit	Fruit soaked with water, for bathing.
<i>Zingiber zerumbet</i>	Lempoyang	TG	Young leaves	Freshly eaten, briefly boiled before eaten.

Locality: TG = Taun Gusi, M = Menunggu, P = Pinolobu

Various parts of plants have been used in different preparations, including leaves, young shoots, tubers, roots, and fruits. These preparations were consumed orally and used as bathing mixtures for both mothers and newborn infants. The daily dietary intake for new mothers consists of boiled young shoots of *Bambusa sp.*, fresh leaves of *Cosmos caudatus*, fresh cuts of *Aloe vera*, and a decoction made from the tuber of *Curcuma longa*. Consuming fresh leaves

of *Cosmos caudatus* and *Aloe vera*, along with boiled *Bambusa* shoots, will benefit as *Cosmos caudatus* leaves has antioxidative properties, bamboo shoots and Aloe vera also provide dietary fibre that may support easy digestion for mothers during postpartum recovery (Rafi et al., 2023). The utilization of *Curcuma longa* (turmeric) and other species from the Zingiberaceae family, such as *Zingiber aromaticum* and *Zingiber officinale* (common ginger), during postpartum care, is also a traditional practice among the Malay population in the states of Johor and Negeri Sembilan. Ginger species are ground and mixed with hot water, then consumed as a drink, this practice is believed able to improve blood circulation (Jamal et al., 2011). Traditionally drinking ginger decoction may help ease perineal pain (Khusniaty et al., 2023). The recent surge in the development and application of bioactive materials for skin wound healing has seen growing interest in incorporating natural anti-inflammatory and antioxidant components (Zhou et al., 2023). This innovative approach in biomedicine using natural anti-inflammatory elements like ginger extract aligns with traditional practices of consuming ginger decoction for perineal pain relief.

*Curcuma* spp., especially *Curcuma longa*, exhibits various phytochemical properties that are significant in the context of postpartum care. One particularly noteworthy property of the *Curcuma* genus is the presence of curcumin and its derivatives, which have the potential to act as the primary bioactive components responsible for enhancing blood circulation, and relieving pain (Chen et al., 2019). A decoction made from crushed *Curcuma* tuber also shows anti-inflammatory activity through the inhibition of cyclooxygenase and lipoxygenase and also has been shown to possess analgesic properties, which can help alleviate postpartum pain, including pain associated with uterine contractions and perineal tears (Tuntisayawadikul & Sripanidkulchai, 2022; Mutia et al., 2017). *C. longa* extracts contain curcuminoids, including curcumin, desmethoxycurcumin, and bisdemethoxycurcumin (Figure 1). These curcuminoids

have shown scavenging activity against oxygen-free radicals, and also inhibit inflammatory mechanism of action (Tuntisayawadikul & Sripanidkulchai, 2022).

*Ficus septica* is a well-known medicinal plants among the Dusun people in Sabah, apart from being used as a medicinal plant for postpartum recovery, the decoction of *Ficus septica* is also consumed orally to relieve headache, stomach pain, and shivering (Awang-Kanak et al., 2022; Kulip 2014; Kulip 1997). Meanwhile, ethanol extract of *Ficus septica* has shown anti-parasitic activity, by promoting apoptosis to *Trichomonas vaginalis* (Vital et al., 2010). The parasitic protozoan *Trichomonas vaginalis* is the causative agent of trichomoniasis, a sexually transmitted infection (STI) primarily affecting the urogenital tract (Mehriardestani et al., 2017).

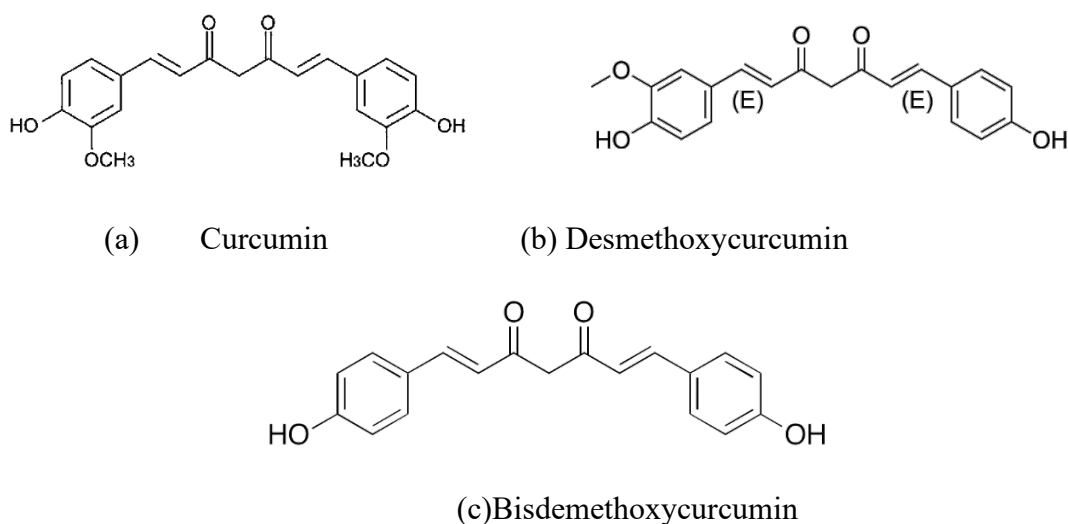


Figure 1: Chemical structures of curcuminoids; (a) Curcumin, (b) Desmethoxycurcumin, (c) Bisdemethoxycurcumin.

## CONCLUSION

This paper reports data on medicinal plants that have been used for ethnogynaecological purposes by local people in Kota Belud, Sabah. It can be concluded that freshly prepared medicinal plants are the preferred traditional remedies for mothers during their confinement period. Meanwhile, species from the ginger family, Zingiberaceae, namely; *Curcuma longa*, *Curcuma xanthorrhiza*, and *Zingiber zerumbet* are the most useful for postpartum care in this

district. The ethnobotanical index for frequency of citation (FC) for these three species of Zingiberaceae family is 0.17, meanwhile the use value (UV) is 0.33. This assertion is also supported by several studies on chemical properties and anti-inflammatory activity shown by Zingiberaceae species extracts that promote the healing process of perineal tears. Ethnogaecological data can provide a valuable foundation for pharmacology and drug discovery research in women's health. It offers a unique perspective on treatments, access to a diverse range of natural resources, and the potential to develop culturally relevant and sustainable solutions for gynaecological conditions. However, it's essential that such research is conducted ethically, respecting the knowledge and practices of local communities, and that rigorous scientific methods are employed to validate and refine traditional remedies into safe and effective pharmaceutical products.

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