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DIVERSITY OF MEDICINAL PLANTS IN THE PRACTICE OF *BERTUNGKU* AMONG MALAY TRADITIONAL PRACTITIONERS (MTPs) IN PENINSULAR MALAYSIA

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Traditional medicinal knowledge has long been practiced in the daily life of the Malay community to maintain body health. Among them is the postpartum practice–*bertungku* (hot compression). However, this practice has gradually been forgotten and replaced by modern medicinal techniques. Therefore, this study aims to explore and describe the practice in more detail and identify the plants used by Malay traditional practitioners (MTPs) and their uses. The analysis is based on the data collected through the 'Comprehensive Documentation of Malay Traditional Knowledge Related to Medicinal Plants in Peninsular Malaysia' project, which has been implemented in Phase 1 (2013–2016), Phase 2 (2016–2019), Phase 3 (2020–2022), and Phase 4 (2022–2023). The data was obtained through semi-structured interviews and a series of plant sample collections with 358 MTPs to gather information regarding the uses and application of the plants. The study revealed that 36 practitioners are still practicing bertungku. A total of 37 medicinal plant species from 24 families have been used by practitioners, which include trees, shrubs, herbs, creeping herbs, rhizomes, climbers, and grasses. Five plant species are commonly used for *bertungku*, such as *Morinda citrifolia* L. (Mengkudu, Kemudu), *Alpinia galanga* (L.) Willd. (Lengkuas), *Jatropha curcas L. (Jarak), Curcuma longa* L. (Turmeric), and *Pandanus amaryllifolius* Roxb. (Pandan). Additionally, the most widely used plant families are Asteraceae (4 species), Zingiberaceae (3 species), Lamiaceae (3 species), Rutaceae (3 species), and Euphorbiaceae (2 species). The uses and applications of medicinal plants by MTPs are discussed as well. These findings show that Malay traditional knowledge and practices are still common among Malays, although gradually been forgotten. The documentation of information on Malay traditional knowledge is a prior art for researchers to scientifically explore the uniqueness of medicinal plants used in the practice of *bertungku* in Peninsular Malaysia. Hence, this will provide additional evidence to support the validity of these traditional claims.

Keywords: *bertungku*, medicinal plants, Malay traditional practitioners, traditional claims.

INTRODUCTION

Before the existence of modern medicine, the Malay community in Peninsular Malaysia relied on traditional medicinal knowledge and used medicinal plants for food and health care purposes (Wan Aminah & Nik Norliza 2017). This traditional medicinal knowledge has been transmitted across generations, originating from ancestors and subsequently passed down to generations of grandchildren (Nik Musa'adah et al. 2017). The development of the national policy on traditional and complementary medicine (T&CM) began in 2001 and underwent further revision in 2007. According to the Traditional and Complementary Medicine Division (T&CMD 2024), T&CM prescription authorization has become increasingly widespread in Malaysia. This is demonstrated by the Malaysian Ministry of Health Malaysia (MOH), which provides T&CM services in 15 government health facilities in Malaysia (Table 1). The six (6) types of T&CM services provided are traditional massage, traditional postnatal care, acupuncture, herbal therapy as a secondary treatment for cancer, Shirodhara treatment, and external Basti therapy. In 2018, MOH developed a transformation plan for

Table 1 15 government health facilities in Malaysia that offer T&CM

No	No Hospital	PT&K services offered
1.	Hospital Sultanah Bahiyah, Kedah	• Traditional massage • Acupuncture
2.	Hospital Kepala Batas, Pulau Pinang	• Traditional massage • Acupuncture • Herbal therapy as a secondary treatment for cancer
3.	Hospital Raja Perempuan Zainab II, Kelantan	• Traditional massage • Acupuncture
4.	Hospital Sultanah Nur Zahirah, Terengganu	• Traditional massage • Acupuncture
5.	Hospital Sungai Buloh, Selangor	• Varmam therapy
6.	Hospital Rehabilitasi Cheras, Kuala Lumpur	• Traditional massage • Acupuncture • Shirodhara • External Basti therapy
7.	Hospital Putrajaya, Putrajaya	• Traditional massage • Acupuncture
8.	Institut Kanser Negara, Putrajaya	• Acupuncture • Herbal therapy as a secondary treatment for cancer
9.	Hospital Port Dickson, Negeri Sembilan	• Traditional massage • Acupuncture • Shirodhara • External Basti therapy
10.	Hospital Jasin, Melaka	• Traditional massage • Acupuncture
11.	Hospital Sultan Ismail, Johor	• Traditional massage • Acupuncture • Herbal therapy as a secondary treatment for cancer
12.	Hospital Umum Sarawak, Sarawak	• Traditional massage • Acupuncture
13.	Hospital Wanita dan Kanak-Kanak, Sabah	• Traditional massage • Acupuncture • Herbal therapy as a secondary treatment for cancer
14.	Hospital Duchess of Kent, Sabah	• Traditional massage • Acupuncture
15.	Hospital Selayang	• Acupuncture

traditional postnatal care (PTC). This plan aims to elevate PTC services in government hospitals to the primary health care level.

The Ministry of Health Malaysia (MOH) has recognised four branches of traditional and complementary medical practices: massage, herbs, cupping, and maternal care after childbirth (Nor 'Asyikin 2021, Sinar Harian 2023). Traditional care for mothers after giving birth is popular among the Malay community because the methods and herbs used can treat various diseases experienced by mothers after giving birth. According to the Ministry of Health Malaysia (MOH 2017), one of the popular treatments for mothers after giving birth is the practice of *bertungku*, also known as massage (point massage), which uses hot stones. Usually, after giving birth, mothers feel cold and weak due to significant blood loss during delivery. This condition makes the body more easily infected with physical diseases and emotional disorders. The warmth from the *tungku* stone helps to warm and comfort the body. Maintaining body warmth is necessary for mothers after giving birth to avoid wheezing or convulsions in any part of the body (Aishah@ Esah & Abd. Aziz 2012).

The most common confinement period is 40 to 44 days, depending on individual needs. The practice of *bertungku* is done during confinement to enhance blood circulation, realign the uterus to its original position, reduce swollen veins, tighten the breasts, and facilitate milk release (Mohamed & Bidin 2011). *Bertungku* is usually performed twice daily, once in the morning and once in the afternoon, typically following traditional massage therapy. Each session generally lasts for approximately one to one and a half hour. Nevertheless, the duration of the *bertungku* session varies based on the mother's body size, resulting in a *bertungku* procedure that lasts approximately two to three hours for women with larger body sizes (MOH 2017).

Among the tools and materials used for *bertungku* are river stones that are usually collected upstream in hilly areas, *tungku besi, tungku peluru besi, tungku batu, tungku herba*, as well as herbs sourced from their natural habitat in the forest or cultivated around the house (Ida Farah et al. 2016, MOH 2017, Mohamed & Bidin 2011). The practitioner heats the stone

over the fire for 15 to 20 minutes, then lines it with various components of medicinal plants, such as leaves, roots, or tubers, before placing it on the mother. Certain practitioners use combinations of several different types of plants as *tungku* linings, while some others use a single type of plant only (MOH 2017).

The Malaysian government's recognition of traditional medical practices and various efforts to improve the dignity of traditional medicinal knowledge have sparked interest among numerous parties in delving deeper into and preserving traditional medicinal knowledge. Forest Research Institute Malaysia (FRIM) has taken several initiatives, including documenting traditional Malay knowledge through the Comprehensive Documentation Project of Malay Traditional Knowledge Related to Medicinal Plants in Peninsular Malaysia (since 2013 until present).

MATERIALS AND METHODS

Data collection

This study utilises data documented through the Comprehensive Documentation of Malay Traditional Knowledge Related to Medicinal Plants project in Peninsular Malaysia, which started with Phase 1 (2013–2016), Phase 2 (2016–2019), Phase 3 (February 2020–March 2022), Phase 4 (June 2022–July 2023), and is currently ongoing with Phase 5 (August 2023–July 2024). Each selected Malay traditional practitioner (MTP) must complete and sign four (4) Prior Informed Consent (PIC) forms to participate in this project before data collection and plant sampling activities. The four PICs are the census activity form (PIC 1), semi-structured interview activity form (PIC 2), sample collection activity form (PIC 3), and the form for obtaining permission from landowners for conducting sample collection activities on private land (PIC 4). During the first phase, 2934 MTPs were identified, and 358 people were shortlisted for semi-structured interviews to record information on the medicinal plants used, their uses, preparation methods, methods of use, and collection restrictions or *pantang larang*.

Plant collection and identification

Census activities and the collection of medicinal plant samples were carried out with 36 MTPs in eight (8) states, namely Perak, Perlis, Pahang, Kedah, Kelantan, Negeri Sembilan, Selangor, and Terengganu (Table 2). Plant collection activities were facilitated by practitioners around the home or village area and in the Piah Permanent Forest Reserve, Kuala Kangsar, Perak (one practitioner only, permit required). Plant samples collected were identified by FRIMS's botanists. As for the authentication of the plant name index and the list of the plant, https://www.ipni.org/ and https://www.worldfloraonline.org/ was used. These samples were intended for use as herbarium specimens and germplasm collections, preserved at the Laman TK (Traditional Knowledge-TK) at Taman Etnobotani, FRIM. The collection of plant samples is also essential for species identification by botanists, especially for plants that cannot be identified in the field, and it will serve as a valuable reference for researchers or scientists in the future.

Table 2 Distribution of MTPs identified in Peninsular Malaysia

No	State	Number of MTPs
1.	Kedah	15
2.	Perak	6
3.	Pahang	4
4.	Kelantan	4
5.	Terengganu	3
6.	Pulau Pinang	2
7.	Perlis	1
8.	Selangor	1
	TOTAL	36 people

Data analysis

The data analysis focused on the use of medicinal plants in the practice of bertungku. It involved identifying the number of practitioners, the number of prescriptions, the scientific name, local names of plants, types of plants, preparation methods, methods of use, and parts of plants used in prescriptions.

RESULTS AND DISCUSSION

The results found that the practice of bertungku in Peninsular Malaysia involved 86 prescriptions and the use of 37 species from 24 plant families (Table 3). The five (5) plant species most often used by practitioners for the practice of bertungku are *Morinda citrifolia* L. (Mengkudu, Kemudu): 19 prescriptions; *Alpinia galanga* (L.) Willd. (Lengkuas): 6 prescriptions; *Jatropha curcas* L. (Jarak): 5 prescriptions; *Curcuma longa* L. (Kunyit): 4 prescriptions; and *Pandanus amaryllifolius* Roxb. (Pandan): 4 prescriptions. Asteraceae family has the most used plant species, which is 26.7%, followed by Zingiberaceae (20.0%), Lamiaceae (20.0%), Rutaceae (20.0%), and Euphorbiaceae (13.3%) (Figure 1). In addition, several other families were recorded: Pandanacea, Araliaceae, Acanthaceae, Araceae, Caricaceae, and Dioscoreaceae. Seven types of plants involved are shrubs (43.2%), trees (18.9%), herbs (16.2%), rhizomes (8.1%), climbers (8.1%), grasses (2.7%), and creeping herbs (2.7%).

The findings of this study align with the observations of the Ministry of Health Malaysia (MOH 2017) regarding traditional Malay medicinal practices for maternal care after childbirth in Kelantan, which listed mengkudu, pandan, lengkuas, kunyit, kapal terbang, and serai leaves as tungku linings. Among its benefits are shrinking the uterus and removing blood and dirty mucus. Salmah et al. (2016) also conducted a comparative study on health care through plant practices and found that Malay and Siamese women in Kedah use the leaves of mengkudu, jarak, and sirih as tungku linings.
In addition, among the 37 plants species recorded, 34 species use the leaf as tungku linings (Table 3). Leaves are the most commonly used part of the plant in traditional medicine because they are available in large quantities and are the easy part to be collected when compared to other parts of the plant such as root, bark and whole plant (Nurshahidah et al. 2022, Mahmoud et al. 2018). According to Wan Aminah and Nik Norliza (2017), most of the medicinal plants used by mothers in confinement consist of their roots, leaves, or stems. Each herbal plant employed possesses unique properties. The leaves of mengkudu and jasmine are used to generate body warmth, remove excess air from the body, shrink swollen veins, and enhance blood flow. Aside from that, plants with hot elements, such as ginger, are highly beneficial for women after childbirth as they promote body warmth and improve blood circulation, while fragrant plants, such as pandan, provide freshness and refresh the body (Salmah et al. 2016). This study also documented the use of other plant parts besides leaves. One practitioner uses the tubers of the Meding, which are then cut thinly and used as linings for bertungku. Another practitioner uses the root of susuh ayam betina and tapak rimau. The root is dried, separated, cooked with oil, and mixed with other ingredients. The resulting oil is applied to the affected area and used only when necessary.

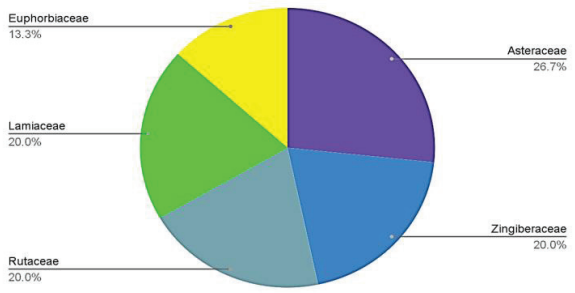

Figure 1 The plant family that is most often used by MTPs in Peninsular Malaysia for the practice of *bertungku*

The study also documented the method of use of the plants as tungku linings. Nine (9) species can either be used as a combination of several different types of plants and alone (single): e.g mengkudu, lengkuas, and jarak. 10 species are used in a combination only: e.g meringan, tembusu, and leban. While 18 species are used alone (single) only: asam gelugur, balik angin, and keladi kemoyang (Table 3).

CONCLUSION

This study shows that MTPs in Peninsular Malaysia are still using medicinal plants in bertungku, either as tungku linings or rubbing oil. Thirty-six (36) practitioners have been identified with prescriptions related to bertungku (86 prescriptions), utilizing 37 species from 24 plant families. This discovery presents an opportunity for researchers to scientifically explore the uniqueness of medicinal plants still used in the practice of bertungku in Peninsular

Table 3 Information on 37 medicinal plants used in the practice of *bertungku* by MTPs in Peninsular Malaysia

No	Scientific name	Family	Vernacular name	Parts of the plant used	Method of use	No. of prescriptions
1	*Morinda citrifolia* L.	Rubiaceae	Kemudu, Mengkudu	Leaf	A combination of several different types of plants, single	19
2	*Alpinia galanga* (L.) Wild	Zingiberaceae	Lengkuas	Leaf	A combination of several different types of plants, single	6
3	*Jatropha curcas* L.	Euphorbiaceae	Jarak	Leaf	A combination of several different types of plants, single	5
4	*Pandanus amaryllifolius* Roxb	Pandanaceae	Pandan	Leaf	A combination of several different types of plants, single	4
5	*Curcuma longa* L.	Zingiberaceae	Kunyit	Leaf	A combination of several different types of plants, single	4
6	*Blumea balsamifera* (L.) DC.	Asteraceae	Capa	Leaf	A combination of several different types of plants, single	3
7	*Justicia gendarussa* Burm.f.	Acanthaceae	Gandarusa	Leaf	A combination of several different types of plants, single	2
8	*Homalomena humilis* (Jack) Hook.f	Araceae	Keladi kemoyang	Leaf	Single	2
9	*Chromolaena odorata* (L.) R.M.King & H.Rob	Asteraceae	Kapal terbang	Leaf	A combination of several different types of plants, single	2
10	*Baccaurea motleyana* (Müll.Arg.) Müll.Arg.	Phyllanthaceae	Rambai	Leaf	A combination of several different types of plants, single	2
11	*Asystasia intrusa* (Forssk.) Blume	Acanthaceae	Kembang pagi	Leaf	Single	1
12	*Polyscias fruticosa* (L.) Harms	Araliaceae	Kuku garuda	Leaf	Single	1
13	*Pluchea indica* Less.	Asteraceae	Beluntas	Leaf	Single	1
14	*Elephantopus scaber* L.	Asteraceae	Tutup bumi	Leaf	Single	1
15	*Carica papaya* L.	Caricaceae	Betik	Leaf	Single	1
16	*Garcinia atroviridis* Griff. ex T.Anderson	Clusiaceae	Asam gelugur	Leaf	Single	1
17	*Tacca integrifloria* Ker Gawl	Dioscoreaceae	Belimbing tanah	Leaf	Single	1
18	*Dioscorea hispida* Dennst.	Dioscoreaceae	Gadong	Leaf	Single	1

continued

Table 3 Continued

No	Scientific name	Family	Vernacular name	Parts of the plant used	Method of use	No. of prescriptions
19	*Mallotus macrostachyus* Müll.Arg.	Euphorbiaceae	Balik angin	Leaf	Single	1
20	*Flemingia strobilifera* (L.) W.T.Aiton	Fabaceae	Meringan	Leaf	A combination of several different types of plants	1
21	*Crytophyllum fragrans* (Roxb.) DC	Gentianaceae	Tembusu	Leaf	A combination of several different types of plants	1
22	*Vitex pinnata* L.	Lamiaceae	Leban	Leaf	A combination of several different types of plants	1
23	*Vitex trifolia* L.	Lamiaceae	Lemuni	Leaf	Single	1
24	*Clerodendrum paniculatum* L.	Lamiaceae	Pepanggil	Leaf	Single	1
25	*Lawsonia inermis* L.	Lythraceae	Inai	Leaf	A combination of several different types of plants	1
26	*Urena lobata* L.	Malvaceae	Pepulut	Leaf	Single	1
27	*Ficus hispida* L.f.	Moraceae	Lempung	Leaf	Single	1
28	*Rhodomyrtus tomentosa* (Aiton) Hassk	Myrtaceae	Kemunting	Leaf	A combination of several different types of plants	1
29	*Piper betle* L.	Piperaceae	Sireh	Leaf	A combination of several different types of plants	1
30	*Cymbopogon nardus* (L.) Rendle	Poaceae	Serai wangi	Leaf	A combination of several different types of plants	1
31	*Carallia suffruticosa* Ridl	Rhizophoraceae	Sirip puyu	Leaf	Single	1
32	*Glycosmis pentaphylla* (Retz.) DC.	Rutaceae	Terapai	Leaf	Single	1
33	*Lantana camara* L.	Verbenaceae	Tahi ayam	Leaf	Single	1
34	*Zingiber zerumbet* (L.) Sm.	Zingiberaceae	Lempoyang	Leaf	Single	1
35	*Paramignya scandens* Craib	Rutaceae	Susuh ayam betina	Root	A combination of several different types of plants	1
36	*Zanthoxylum myriacanthum* Wall.	Rutaceae	Tapak rimau	Root	A combination of several different types of plants	1
37	*Amorphophallus paeoniifolius* (Densst.) Nicolson	Araceae	Meding	Tuber	A combination of several different types of plants	1

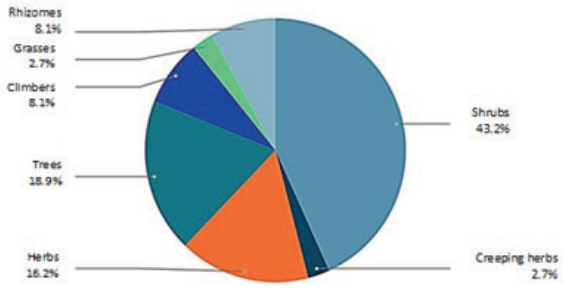

Figure 2 Types of plants used by Malay Traditional Practioners in Peninsular Malaysia for the practice of bertungku

Malaysia, thereby bolstering the effectiveness of traditional claims. With documentation efforts and studies like this, it is hoped to boost the trust and efficacy of medicinal plants in traditional medicine, leading society to prioritize traditional medicine more.

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