



## Ethnobotanical study of the rituals and plant materials used in the traditional Malay midwifery practices during the ‘*lenggang perut*’ ceremony

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### Abstract

‘*Lenggang perut*’ ceremony or ‘swinging the tummy’ is popularly practised during prenatal care and is generally held after the woman has completed 7 months of her pregnancy (particularly first pregnancy). However, there is a long list of tips and taboos that need to be practiced, based on the customs and beliefs of the people belonging to different Malay communities, and formulated according to their practices and experiences regarding good practice. Currently, millions of traditional Malays have started using plants as a primary source of their shelter, food, clothing, medicine and fuel. However, owing to rapid urbanization, the natural resources and related traditional beliefs are being eradicated. This has led to the worry that the huge volume of unrecorded folk information and knowledge would be lost indefinitely. In this study, the researchers have aimed to identify and investigate the ritual process of ‘*lenggang perut*’ and the different plant materials that are used by the traditional midwives during the swinging tummy ceremony conducted in the different states of Peninsular Malaysia. For this purpose, they conducted a qualitative study of 30 traditional Malay midwives, who were selected from Peninsular Malaysia. The data was obtained by observations and conducting face-to-face semi-structured interviews. The results of the study indicated that 23 of the interviewed traditional midwives practiced the ‘*lenggang perut*’ as a form of prenatal care treatment. They used 14 different types of plant materials for the ceremony, which included palm, trees, shrubs, herbaceous matter, zingiber, macrophytes, aroids and climbers. This study indicated the significant differences between the localities, rituals and processes implemented during the ‘*lenggang perut*’ ceremony and also highlighted the composition of various plant materials that were used by the traditional midwives in Peninsular Malaysia. Hence, these findings could be used as an effective tool for understanding the culture and environment of the local people and their efforts in preserving their cultural heritage, especially the Malay customs. The researchers also aimed to discover some novel bioactive compounds by carrying out an in-depth phytochemical and pharmacological study of the resources that were used.

**Keywords:** Malay midwifery, *lenggang perut*, traditional practice, ethnoecology, ethnobotany

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### 1. Introduction

Healthcare in the Malay culture and tradition is based on advice or *petua*. This advice is construed from 2 aspects, i.e., order and prohibition. The order-based advice is associated with the urges and is related to the types of foods to be consumed, their quantity and nutrient composition. This type of advice is needed for balancing the lifestyle and preventing illness [1,2,3]. It is different from the prohibition aspect of advice, which prevents the intake of some types of food during the treatment, called ‘*berpantang*’. This type of

advice is offered to promote a rapid cure for treating illnesses [4,5,6]. Most of the Malay traditional practitioners classify the illnesses as those related to blood and wind (*angin*), as they are important elements in the body. These elements are affected by every food that is consumed. If these elements are in a good condition, the person is said to be healthy [7]. However, there is a long list of different tips and taboos that need to be practiced, based on the customs and beliefs of the people belonging to different Malay communities, and formulated according to their experiences regarding a

practice [8, 9, 10]. Barakbah [11] noted that the different stages included in the Malay pre- and post-natal care treatment were- diet during pregnancy, coconut belly rubs or swinging the tummy ceremony, body spread, point massage, body girdle, forehead treatment, massage, traditional bath, traditional confinement, vaginal heat or herbal treatments, herbal decoctions, heat treatment, confinement and miscarriage. Swinging the tummy is a popular ritual and belief that is carried out during the prenatal care process. It was seen that the traditional Malay midwifery practices were significantly influenced by Hinduism, and were developed when the Hindu culture was introduced in Malaysia in 1400 [12, 13, 14]. The indigenous purpose of performing the *lenggang perut* ritual is to get rid of evil spirits, based on the beliefs in the Hindu culture. However, when Islam was introduced in Malaysia, there was an assimilation of the Hindu and Islamic cultures and beliefs. This led to the development of the traditional Malay healthcare system, based on the Hindu and Islamic cultures. In the Islamic culture, this practice is called the '*syirik*'. *Syirik* is categorized into 2 types, i.e., minor and major. Here, the term *syirik* refers to the major type that uses incantations or '*jampi*'. This practice is associated with supplication, wherein one's supplication is directed to a different being, other than Allah, for gaining provisions, getting cured of an illness, asking for help during some crisis or some other purpose [2, 4, 15, 16].

The perspective of the Malay community changed across the globe because of how the Islamic culture spread throughout Malaya (Malaysia was called Malaya in the past). The primary aim of the *melenggang perut* practice is to check and adjust the baby's position in the mother's womb, where the position is corrected or turned upside down. This practice is also carried out for determining the baby's gender by the Malay midwives [8]. It is generally carried out on pregnant women in their 7th month of pregnancy, particularly if it is the first pregnancy [12]. The number 'seven' is selected because the Malays believe that by the 7th month, the survival chances of the foetus are very high. However, some families perform this ceremony for all pregnancies. Furthermore, it is believed that the '*lenggang perut*' ceremony unites all the members of the family as they come together to pray for the pregnant couple [4, 17]. In this ceremony, the pregnant woman (some families include the husband too) is given a traditional bath or a '*mandi tian*'. Thereafter, an elderly woman or *bidan* gets the expecting mother ready. Then, the woman is asked to lay down on 7 layers of batik-sarung, which is a traditional sarung worn by Malaysian women. The *bidan* along with a few other elderly women then grasp the top layer of the sarung and swing it sideways a few times before pulling it away from beneath the expecting mother. During this process, the *bidan* recites an incantation, a prayer or white magic. This process is repeated until all the 7 layers of the sarung are pulled out. In the traditional practice, after the bath, the *bidan* uses coconut or raw egg for determining the sex of the baby. The coconut (without husk) or a raw egg is placed on the abdomen or chest region of the pregnant woman who is either standing or lying down. Then, the egg/coconut is allowed to roll down the mother's stomach to the ground. A jagged-cut coconut shell or broken egg implies the foetus is a girl, while a clean-cut coconut or an unbroken egg implies a boy. This process involves the use of many plant resources.

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According to Ford [18], ethnobotany is the study of the correlation between plants and humans and how the local plants can be used for spiritual or utilitarian purposes, as a dye/ cosmetic, food/dietetic, medicinal and ritual purposes. Martin [19] observed that society responds differently to the modern and traditional medical systems. However, the fact remains that the traditional knowledge regarding herbal medicines is on a decline, as; (i) The traditional healers are not very respected and are becoming scarce; and (ii) The medicinal plants are over-harvested. Furthermore, urbanisation has significantly eradicated the natural resources and traditional cultural practices, which has increased the probability that the unrecorded folk information and knowledge would vanish forever [20, 21]. In this study, the researchers have attempted to study and identify the ritual process and different plant resources that are used by the traditional Malay midwives during the swinging tummy process in different states of Peninsular Malaysia. Therefore, the preservation of traditional medicinal knowledge and medicinal plant resources must be carried out at the same time.

## 2. Materials and methods

### 2.1. Sample and study area

The methodology used in this study as detailed by [15,22,23,24] were semi-structured interview and observation conducted at different states of Peninsular Malaysia including northern region (Perak, Kedah and Perlis), central region (Kuala Lumpur and Selangor), East coast region (Kelantan, Terengganu and Pahang) and Southern region (Johor and Negeri Sembilan). 30 number of the Malay midwifery had been selected for semi-structured interviewed. Meanwhile for observation mean the involving of researcher to observe the phenomena and behavior in natural setting. Therefore, before there is a need to set up the right time, location and day to do observation.

### 2.2. Ethnobotanical data

Ethnobotanical data were collected as described by [15, 24, 25, 26]. Other than extract an information on plant material used from the Malay midwifery, the researcher also sends the specimens for cross-checking of plant species through various floristic records or secondary data from internet, Rimba Ilmu at Universiti Malaya, Taman Pertanian Universiti at Universiti Putra Malaysia, Makmal Herbarium at Universiti Kebangsaan Malaysia and Forest Research Institute of Malaysia (FRIM) at Kepong.

## 3. Results and discussion

### 3.1. Rituals practised during the '*lenggang perut*' ceremony by traditional Malay midwives

In this study, the researchers interviewed many Malay midwives for understanding the rituals practiced by them during the '*lenggang perut*' ceremony. 23 out of the 30 midwives who were interviewed stated that they practiced the '*lenggang perut*' ceremony as a prenatal care treatment before delivering the baby (Table 1). Mak Bidah binti Rauf and Khadijah binti Wan Mahmud, who were midwives from

the Kota Bharu, Kelantan region, stated that they prepared the *hajat* prayer during the prenatal care process when the woman was in her 7th month of pregnancy, for ensuring the safe and easy delivery of the baby. Mak Bidah stated that there were no cultural practices or rituals were implemented for prenatal care. Interestingly she denied that these rituals were carried out in the past by her great grandmother. She stated that in the last few decades, the '*lenggang perut*' ceremony was based on mystical and spiritual practices. In this ceremony, the pregnant woman is naked while the head of the house or expecting father prepares the coconut and the 7 layers of clothes. These 7 layers are worn by the pregnant woman as it is believed that they ward off all evil and bad intentions. Then, the coconut that is prepared by the expecting father is rolled on the stomach of the expecting mother, before she kicks it as far as she can away from her. If the coconut shell broke cleanly and balanced in equal halves, it implied the birth of a baby girl and vice versa. Sometimes, a boiled egg was also used for preventing evil spirits or bad intentions. For getting a beautiful baby, the midwife used a spoon and rubbed it on the stomach of the mother-to-be as it is believed that this would ensure smooth skin and the beautiful features of the baby. Then, the midwife checked the bare abdomen of the woman for determining the baby's position and corrected the position by massaging the stomach.

However, Khadijah W. Mahmud stated she has been practicing the decades-old traditional midwifery processes. In the '*lenggang perut*' ceremony that she practiced, the pregnant woman is asked to take the '*lenggang perut*' bath, which is a special bath that symbolized the final prenatal stages. During this bath, the midwife uses some special materials like '*tepung tawar*', coconut, limes, '*sarung*', '*mayang pinang*', candles and a jar of water or '*air buyung*', with 7 different types of flowers. A special bench is prepared along with the other ceremonial rituals. The midwife begins the ceremony by reciting the *salawat* or prayer to the Messenger of Allah SWT (May He be praised and exalted) for his blessings. Then, they apply makeup to the mother-to-be and get her ready as a bride, for ensuring that the new baby does not have temper issues. The expecting mother is asked to wear only the *sarung* and is bathed with the help of 3-4 ladies. After her bath, where water was poured onto the woman, an egg is placed under her pregnant belly and a '*sarung*' is flipped and freely released, which symbolises easy delivery. A hen is tied up as a sacrificial symbol after the process. After the bath, the expecting mother is applied makeup and asked to sit facing the mirror, ensuring that the mother and child have similar features and look alike. The interview results also showed that Mak Nah, who was another traditional Malay midwife practised the '*lenggang perut*' ceremony differently. She said that she performed the '*hajat*' prayer between 25th to 30th of Hijrah month calendar and avoided performing the '*hajat*' prayer in the rising months between 1st to 15th of Hijrah month. She would ask the expecting mother to drink plain water or air tawar, while massage oil was rubbed all over the woman's body. Mak Nah also used tawar as air selusuh during her prenatal care process. Air selusuh is used as an effort to facilitate women in giving birth. She made air selusuh using plain water, while reciting some prayers and used some spell oil with the sweet of honey bee, as the symbol for easy delivery during the *lenggang perut* ceremony.

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Belah Ramlah binti Awang said that she made air selusuh using her midwifery knowledge. For this purpose, she used plain water with the permission of Nabi Khaidir or Prophet Khidr for indicating her good intention. Then, she recited a few Quranic verses and *salawat* for seeking the Allah SWT blessings. However, Mak Nik or Rahimah Daud from Kampung Telekom, Machang, used gold, old coconuts and yellow clothes for the ceremony. These objects were placed on the expecting mother's stomach. In this process, initially, a coconut was rolled on the mother's stomach for identifying the baby's gender. A week before the birth, Mak Nik carried out the '*angkat peranakan*' process or strengthening the mother's reproduction system and ensuring easy delivery.

Asiah binti Samad, who was a midwife from Pasir Mas, Kelantan, practised the '*lenggang perut*' and '*menempah bidan*' (reserving a midwife) ceremonies. During the prenatal treatment process, she used 7 layers of sarung, along with a betel box, coconut and eggs. Kak Yah or Asih binti Idrus, who was midwife from the Kuala Terengganu region made '*air*' and '*minyak selusuh*' using plain water and recited the *hajat* prayer, hoping for easy delivery. The midwives practiced a simple prenatal care process for easing the pressure on the expecting mother and establishing a conducive environment for her. Wok binti Talib, who was a midwife from Jengka, Pahang, encouraged the mother-to-be to drink *air selusuh* collected from the rainfall catchment areas (it was previously boiled) while reciting Quranic verses in the early morning from the 7th month onwards for ensuring easy delivery. She did not practice the traditional rituals of the '*lenggang perut*' ceremony. The results of the interviews highlighted the similarities between the ritual processes conducted by the traditional Malay midwives during the '*lenggang perut*' ceremony for ensuring easy delivery, which were as follows:

1. Prayers (*solat hajat*)
2. Use of the coconut fruit
3. Drinking '*air selusuh*', either made by the midwives or collected during the rainfall.

### 3.2. Steps and processes included in the '*lenggang perut*' ceremony conducted by the traditional Malay midwives

During to Malay custom, the mother-to-be cannot scratch an itch with her nails but needs to use a comb. Rohani Mohamad stated that this custom was followed for celebrating the birth or arrival of a new member in the family, and for ensuring easy delivery. It also allowed the midwives to scan the baby's gender. Hence, a thread is cut into 7 pieces and all are separated. On the day of the '*lenggang perut*' ceremony, the mother-to-be is asked to take a series of special baths either in the standing or reclining position. The first bath is prepared using lime essence water for cleaning the mother's body. The second bath is only with plain water that was prepared using prayer incantations for avoiding hardships and problems during or after childbirth. The 3<sup>rd</sup> bath is prepared with coconut water for ensuring that the mother has an easy delivery. The coconut flesh is also used for making the '*minyak selusuh*' oil.

After the complete bath process, the '*lenggang perut*' ceremony was initiated. This process symbolises the booking (*menempah*) of the traditional Malay midwife for taking postnatal care of the mother and child. In this process, the family is asked to prepare 7 sheets of cloths and lay them in a neat pile in one place. These 7 sheets symbolise the fact that the mother is asking for 7 midwives. 7 midwives are needed because if the first midwife cannot take care of the mother and baby during and after the birth due to a personal problem, the second midwife can take over all duties, and so on. The family is also asked to prepare a special type of flour (*tepung tawar*), small knife, rice kernels, comb, coconut and olive oil. For preparing the flour, rice powder or talcum powder is mixed with perfume. Then, the family is asked to prepare a plate containing a betel leaf, i.e., '*tempat sireh*'. The betel leaf that is selected must have a good vein arrangement. They also need to prepare a plate containing *gambier*, 3 areca nuts, a small quantity of camphor and a lot of tobacco. The use of camphor symbolises the fact that the baby is born with clear eyes with a smaller white area. Tobacco is used as a symbol for ensuring that the baby will be born with a thick head of hair. Then, all the items along with the plate are wrapped together and handed to the first midwife as a symbol of booking her services. The first midwife accepts the plate and passes it to the second midwife. The second midwife also accepts to offer her services if the first midwife is unavailable and passes it onwards to the third midwife. This process continues till the plate reaches the 7<sup>th</sup> midwife. Thereafter, the 7<sup>th</sup> midwife passes the plate back to the family, who hands it over to the first midwife. Then, the first midwife accepts the plate and recites some prayers. The plate is rotated 7 times. The plate is unwrapped and the items on the plate are turned over for determining the direction of the betel leaf stem. If the betel leaf stem points to the third midwife, she is selected for taking care of the mother-to-be. The selected midwife then chooses the betel leaf for the '*seluruh prayers*'.

Thereafter, the pregnant woman is asked to lie horizontally on the seven sheets during the '*lenggang perut*' ceremony. The perfumed flour (*tepung tawar*) is then sprinkled over her forehead, stomach and joints of her hand and feet. The flour is sprinkled using either the betel, pandanus leaves or *rumpun sambal dara*. However, the use of lemongrass leaves is not allowed for sprinkling the flour. Then, coconut or olive oil is applied to the tips of the mother's hair and combed 3 times. The hair on the mother's head is left untied which symbolises that no hardships would occur during childbirth. This oil is also applied to the mother's stomach and combed 3 times. Thereafter, the midwife pretends to shave the forehead and stomach region using a small knife 3 times. Then, the midwife calculates the date of childbirth by placing her fingers on the mother's body. For instance, if 4 fingers are placed from the epigastria, it is said that the mother is in her 7<sup>th</sup> month of pregnancy. Next, all 7 sheets of cloth are rolled 7 times for ensuring that the baby does not change its position in the uterus before birth. Then, the 7 sheets are pulled from under the mother one by one. Each sheet that is pulled is flicked 3 times and quickly thrown towards the mother's feet. Finally, raw rice grains are brandished (*merampat beras*) from the mother's head to feet by all the 7 midwives, one after the other. This signals the end of the '*lenggang perut*' ceremony and the only task that remains is waiting for childbirth.

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After the whole process, the selected midwife is tasked with the job of taking care of the mother. However, if the selected midwife has some problem and cannot take care of the mother, she needs to bring the plate with betel leaves to the next midwife as a symbol of tasking her with the responsibility. It is believed that the old traditional Malay midwifery practices like '*lenggang perut*' help in easing the delivery and determining the baby's gender in the womb. Puan Koma (also called Tok Koma), who is a midwife from Muazam Shah, Pahang, stated that she performed this ceremony using 7 sheets of cloths, taro leaves, egg, and spoon, that were provided by the maternal family. Once the egg is rolled on the mother's body during the '*lenggang perut*' ceremony, it is placed on the spoon and thrown at the place where the ceremony was conducted. This symbolised that the mother would deliver the child with ease. In Merchang, Terengganu, the '*lenggang perut*' ceremony requires a lot of preparation. Before the ceremony, rice flour and water are mixed to form a neutralising rice paste (*tepung tawar*). Then, bath water is prepared where small green limes are squeezed in the water for counteracting the influence of spirits and balancing the heat of the steam with the cooling properties of earth and water. This process was similar to that used by Khatijah Wan Mahmud and Rohani Muhamad. Thereafter, the women threaded *jerangau*, *cekur* and turmeric onto a string. The midwives in Merchang believed that the *cekur* and *jerangau* are important elements that helped in protecting the foetus and could be used for soothing the baby's fever. However, the yellow colour of turmeric acted as the reminder of King Solomon, who was the ancestor of the Malay royalty.

Thereafter, the midwives place some coins on a plate, cover them using raw rice and add a husked coconut. A raw cord is looped around the coconut, and *keras* or rituals are practised as these ritual objects are considered to be essential in healing ceremonies. The coconut with solid and liquid contents symbolises the uterus, while the raw cord that is looped around the nut symbolises the umbilical cord, and is an important component of the *lepas*. After all these preparations are complete, the pregnant woman is asked to remove all her clothes except the *sarung* and lie down on a mat, while the midwife feels her bare stomach to determine if the baby is properly positioned, i.e., with its head down and body in a vertical position. Thereafter, the 7 sheets of cloths are placed below the woman. Then, the midwife and the woman's mother sit on either side of the pregnant woman and tie each sheet loosely over her stomach, and rock her gently. The sheets are then untied and pulled out from beneath the woman as a symbol of releasing the spiritual dangers. Then, the midwife rolls 3 plants as the release symbol, which indicates the successful release of all contents in the womb. She uses *palas* leaves for tying the rice seedlings, *pinang* leaves for brushing the harmful spiritual influences away from the mother and a bamboo joint that symbolises the womb anatomy. Thereafter, she rolls the coconut 3 times around the expecting mother's body and places a *parang* on her abdomen and pretends to cut it. This indicates the end of the ceremony. Rohani Muhamad, a midwife from Muadzam Shah, Pahang practised the above rituals, however, she used a knife to symbolise the successful release of womb contents and ensure easy delivery, without any negative effect of undesirable spirits.

Jam'iah binti Hj. Taib, from Kuala Selangor, stated that she strongly believed in the '*lenggang perut*' ceremony, but practised it according to the Javanese rituals. She stated that this ceremony must be conducted on a Saturday (at night) as she believed that the human bodies were strong on a Saturday, and delivery was easier on this day. According to her, before conducting the '*lenggang perut*', some steps had to be implemented, such as ritual bathing. In addition, 7 pieces of fabric, coconut shell and 7 types of flowers have to be prepared before the ceremony. In the first step, the father and mother-to-be are bathed together as the symbol of blessings and happiness. Then, the father-to-be is asked to get ready for the main ceremony, while the mother-to-be is re-bathed in the presence of 7 mothers, wherein every mother is asked to shower the woman 3 times. After the bath, the woman stands up and an egg is placed on the *kain kembangan* (a large tube or length of cloth, often wrapped around the waist) and allowed to fall onto the ground. The ceremony ends when the father-to-be hits the coconut for determining the baby's gender. According to Jam'iah, if the coconut is cut in even and balanced halves, the baby would be a girl, if not, then it would be a boy. After the ceremony, the pregnant woman's family prepares a *kenduri* or feast, where the guests are offered traditional dishes that include 9 trays of *rojak tingkepan* or *cendol tingkepan*, one tray of *Bujun Keroyot* (i.e., rice is laid on a banana leaf, with 7 bowls of side dishes and one bowl containing cooked eggs), a tray of *Lepat Kelupat* (tray containing boiled cassava or *ubi rebus*, boiled yam or *keladi rebus* and boiled potato or *kentang rebus*), along with 7 trays of *Nasi Ambeng* (it is a Javanese dish, containing 4 portions of rice, *serunding*, fried noodles, chicken, *tempe* and salted fish, all placed onto a tray that was lined with banana leaves. All guests are encouraged to share it). This symbolised the end of the *melenggang perut* ritual and ceremonial practices.

Mariah Haji Taib, a midwife from Tanjung Karang Selangor, practised the ceremony with a few variations. She believed that after the 4<sup>th</sup> month of pregnancy the good news must be spread amongst the neighbours. For this purpose, the family must prepare *Nasi Punar* (rice with turmeric and coconut milk; along with omelette or *telur dadar* that is wrapped in a banana leaf, similar to *kueh sampan*) and distribute it amongst the neighbours near the pregnant woman's house. However, this Javanese culture is no longer practised. Thereafter, after the 7<sup>th</sup> month of pregnancy, the family needs to prepare special feast or *kenduri cendolan* or *doa selamat* or *tingkapan* and *mitoni*. This was similar to the ceremonial practice carried out by Jam'iah Hj Taib and the food was also similar, like *cendol*, *rojak* and 7 types of *ubi*, like *ubi kentang* and *ubi kayu*. They also served 2 types of *ketupat* or rice cake, i.e., *ketupat palas* and *ketupat nasi*. At this stage, the *menempah bidan* ceremony or booking of the midwife is also carried out. After interviewing the midwives from different locations, the researchers concluded that the various steps and processes of the '*lenggang perut*' ceremony have their purpose. In summary, before the ceremony begins, the mother-to-be has to take 3 baths with different ingredients to symbolise the booking of a traditional Malay midwife. Then, the family has to prepare 7 sheets of cloths to symbolise the selection of a Malay midwife who would take care of the mother and child after delivery. The maternal family also has to prepare the flour (*tepung tawar*), and collect rice kernels, a

small knife, comb, coconut or olive oil or an egg (in some cases) with a spoon. The midwife calculates the exact delivery date using her fingers and uses many plants that symbolise the umbilical cord. The plants are also used for releasing the evil spirits or '*lepas*'. Many midwives have their formula of *minyak selusuh* or *air selusuh*, and many of them use water and coconut milk as the primary ingredient of *air selusuh* for ensuring easy delivery.

### 3.3. Composition of plant materials used during '*lenggang perut*' ceremony

In this study, the researchers also investigated the composition of all plant materials that were generally used by the traditional Malay midwives during the '*lenggang perut*' ceremony (Table 2). All information regarding the plant materials was collected from the 23 traditional Malay midwives who were interviewed. The '*lenggang perut*' ceremony is still popular and is practised amongst the Malay community. Though different midwives have their style of conducting the '*lenggang perut*' ceremony, all the approaches are carried out for ensuring the baby's safety and adjusting the baby's position in the womb. The results presented in Table 2 indicated that 14 different types of plant materials were used by the Malay midwives during the *lenggang perut* ceremony, and were divided into 8 classes, i.e., palm, trees, shrubs, zingiber, herbaceous, macrophytes, aroid and climbers. As discussed in the earlier section, the first step in the '*lenggang perut*' ceremony includes the preparation of all materials to be used in the traditional bath, like *tepung tawar* or rice flour that is mixed with betel leaves and pounded; *sarung* or cloth, *mayang pinang* or betel nut palm inflorescence, coconut, limes, candles and a jar of water or *air buyung* containing 7 types of flowers. The '*lenggang perut*' ceremony begins when the mother-to-be wears the *sarung* and bathes with the *air buyung* mixed with '*akar sintok*' and lime, containing 7 types of flowers. After this bath, the women get the pregnant woman ready with make-up and she is then asked to lay on the 7 sheets of batik-*sarung* or 7 pieces of cloths, varying in colour. Then, an egg or dehusked coconut is rolled on her stomach 3-7 times towards her toes, before she is asked to kick it towards the wall, for determining the gender of the baby. A jagged-cut coconut or a broken egg implies the birth of a girl, while a clean-cut coconut shell or unbroken egg implies the birth of a baby boy. In some cases, if the coconut stops rolling and falls with its eyes turned upwards, it indicates the birth of a boy or vice versa. Thereafter, the *bidan* starts pulling the cloth from beneath the prospective mother, one by one, after swinging her belly with both hands. This is repeated 7 times, till all the sheets are pulled, indicating the end of the *lenggang perut* ceremony. Then the *bidan* determines the baby's position after massaging the stomach of the pregnant woman. In Pahang, the mother-to-be is asked to take the traditional bath with water mixed with lime juice. She is asked to take the second bath with plain water, while prayers are recited; while the third bath is with coconut juice. The coconut flesh is used for preparing '*minyak selusuh*' or oil.

**Table 1:** *Lenggang perut*' practices by traditional Malay midwives in Peninsular Malaysia

Regions	States	Name of midwives	Ages	Experiences	'Lenggang perut' practices
Northern region	<i>Perak</i>	Roziah Seman	63	33 years	/
	<i>Perak</i>	Raayah Sunnah	68	20 years	-
	<i>Perak</i>	Hjh Miah Don	Not mentioned	25 years	/
	<i>Perak</i>	Siti Sharifah Ain	30	14 years	-
	<i>Kedah/Perlis</i>	Salmah Shaari	57	37 years	/
	<i>Kedah/Perlis</i>	Sharifah Awang	85	70 years	/
Central region	<i>Kuala Lumpur/Selangor</i>	Jam'iah Hj. Taib	60	40 years	/
	<i>Kuala Lumpur/Selangor</i>	Mariah Hj. Taib	68	21 years	/
	<i>Kuala Lumpur/Selangor</i>	Aishah	50	21 years	-
East Coast region	<i>Kelantan</i>	Bidah Rauf	64	24 years	/
	<i>Kelantan</i>	Khadijah Wan Mahmud	90	50 years	/
	<i>Kelantan</i>	Mak Nah Mat	73	33 years	/
	<i>Kelantan</i>	Belah/Ramlah Awang	60	42 years	/
	<i>Kelantan</i>	Hjh.Mek Hj Awang	57	42 years	/
	<i>Kelantan</i>	Hasnah Che Haron	50	15 years	/
	<i>Kelantan</i>	Rahimah Daud	60	44 years	/
	<i>Kelantan</i>	Asiah Samad	70	51 years	/
	<i>Terengganu</i>	Asih Idrus	55	15 years	/
	<i>Terengganu</i>	Gayah Abd.Rahman	74	33 years	-
	<i>Terengganu</i>	Hindun	88	31 years	-
	<i>Pahang</i>	Wok Talib	68	45 years	/
	<i>Pahang</i>	Asiah Salleh	62	43 years	-
	<i>Pahang</i>	Rohani Muhamad	50	28 years	/
	<i>Pahang</i>	Saudah mamat	64	40 years	-
<i>Pahang</i>	Koma Md. Salleh	90	70 years	/	
Southern region	<i>Johor</i>	Kamisah Hj. Dol Basa	75	54 years	/
	<i>Johor</i>	Rosni Abdullah	54	14 years	/
	<i>Johor</i>	Saridah	64	48 years	/
	<i>Negeri Sembilan</i>	Hjh.Siti Rafeah	70	53 years	/
	<i>Negeri Sembilan</i>	Normahni Ramly	60	40 years	/
<b>Number of traditional Malay midwife practices 'lenggang perut'</b>					<b>23</b>

**Table 2:** List of plant materials used in traditional Malay midwives in Peninsular Malaysia during '*lenggang perut*'

Scientific name	Family	Local name	Plants category
<i>Areca catechu</i>	Arecaceae	Mayang pinang	Palm
<i>Cocos nucifera</i>	Arecaceae	Kelapa	Palm
<i>Entada spiralis</i>	Leguminosae	Akar sintok/ Beluru	Tree
<i>Citrus aurantifolia</i>	Rutaceae	Limau	Shrub
<i>Nicotiana tabacum</i>	Solanaceae	Tembakau	Herbaceous
<i>Pandanus amaryllifolius</i>	Pandanaceae	Pandan	Herbaceous
<i>Proiphys amboinensis</i>	Amaryllidaceae	Sepulih	Herbaceous
<i>Selaginella lepidophylla</i>	Selaginellaceae	Rumput Cik Fatimah	Herbaceous
<i>Curcuma longa</i>	Zingiberaceae	Kunyit	Zingiber
<i>Kaempferia galanga</i>	Zingiberaceae	Cekur	Zingiber
<i>Piper betle</i>	Piperaceae	Sireh	Climber
<i>Uncaria gambir</i>	Rubiaceae	Gambir	Climber
<i>Acorus calamus</i>	Acoraceae	Jerangau	Macrophyte
<i>Oryza sativa</i>	Poaceae	Beras	Macrophyte

Additionally, the prospective mother's family is asked to prepare a plate containing *gambier*, 3 areca nuts, *akar sintok* and a lot of tobacco which is handed while booking the midwife for postnatal care. During the ceremony, perfumed flour (*tepung tawar*) is sprinkled using betel or pandanus leaves over her forehead, stomach and the joints of her hand and feet. However, in Johor, the midwife asks for betel leaves and lime as a symbol of booking her services. Then, the pregnant woman is asked to drink water that is immersed with '*rumpit cik fatimah*'. In Perak, the midwife asks for coconut and *herbs* before the ceremony. Thus, it was concluded that midwives in different localities followed different cultures, beliefs and rituals that indirectly affected the plant materials that were used. In a similar study, Rauhan [8] and others [27] stated that coconut was mainly used in the '*lenggang perut*' ceremony. They described 2 ways of using the coconut fruit based on the different rituals and practices. Firstly, coconut is placed on the expecting mother's stomach and allowed to fall. Some midwives believed that if the fruit fell on the left side of the mother, she would give birth to a son, however, if it fell on the right side, she would birth a daughter. Secondly, in some rituals, the mother was asked to lie horizontally on her back and the coconut was rolled from her stomach to her toes. If the coconut fell with its eyes towards the sky, the baby was believed to be a boy, and vice versa. Thereafter, the coconut is cut and its water is offered to the mother and also some of it was poured onto her feet. This ritual can be conducted before or after predicting the gender of the baby. The midwife then observes the mother's feet after she gets up from her sitting position. If she takes the first step using her right foot, it implied the birth of a baby boy, while if she took her first step with her left foot, it implied a baby girl. In a different ritual described by [28], a dehusked coconut was rolled gently 3-7 times on the prospective mother's stomach towards her toes and she is asked to kick the coconut away from her towards the wall as hard as she can for determining the baby's gender. If the coconut breaks with a jagged cut, it is believed that the baby would be a girl, while a clean-cut coconut shell indicated the probable birth of a baby boy. The information and knowledge regarding the traditional plants used in the rituals and practices that form an important component of the cultural heritage can be used for ecological conservation and sustainable development, based on the principles of ethnobotany. Any scientific and personal (like traditional) knowledge could be effectively compared for improving the efforts for sustainable development and conservation [29]. Abe & Ohtani [20] observed that various plant species played a vital role in the local healing practices and the knowledge related to traditional medicine was still used and played an important role in the Batan Islands. Additionally, folk and traditional medicines act as an immediate therapy for improving the health of the people [30, 31,32].

#### 4. Conclusions

The results in this study indicated that there were a few significant differences between the rituals and processes involved in the '*lenggang perut*' ceremony. Additionally, different plant materials were used by the Malay midwives in Peninsular Malaysia for this ceremony. The '*lenggang perut*' ceremony was conducted for the same purpose, i.e., identifying the gender of the baby; protecting the mother and

new-born baby from the evil eye and uniting all the members of the family by reciting prayers and hosting a feast ceremony for celebrating the arrival of a new member in the family. Some of the plant materials that were used were: trees, shrubs, palm, zingiber, herbaceous, macrophytes, aroid and climbers. The choice of the plant materials that were used in the different processes involved in the traditional Malay midwifery practices was based on the availability of the plant resources in the specific environment and the origin of knowledge that was transferred. Hence, these findings could be regarded as an effective tool for studying the local environment and cultural factors, along with preserving the cultural heritage, particularly related to the Malay customs.

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