

ORIGINAL ARTICLE

EXPLORING ETHNOMEDICINE PLANTS USED BY THE INDIGENOUS COMMUNITIES IN TERENGGANU, MALAYSIA: HUMAN HEALTH AND THE ENVIRONMENT

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ABSTRACT

Indigenous community in Malaysia practices traditional medicine, particularly from the surrounding plants to cure different diseases and illnesses. This traditional way of life has been practised for centuries and passed down through generations. This study aims to document medicinal plants that have been used by the Orang Asli to treat illness. A qualitative ethnomedical study was done to document the species that were believed to have medicinal value. This study was carried at all three resettlement villages in Terengganu. Eleven informants who were the head of household with the age of over 30 years old were interviewed. Fieldwork surveys, observation and face-to-face communication were methods used in this study. The finding shows that most of the Orang Asli community in Terengganu are still dependent on plants and herbs to cure ailments. A total of 106 species that belong to 55 plant families were used by them. This study will encourage researchers in various fields such as ethnobotanical, ethnozoological, ethnomedicinal and pharmaceutical and toxicological accomplishment of flora and fauna from these areas. As such, these medicinal plants need some more extensive efforts to validate scientifically and clinically were to prove the ethnomedical claims toward them.

Keywords: Indigenous community, ethnomedicine, traditional knowledge, plants, Terengganu

INTRODUCTION

Herb plants can be defined as small, non-woody shrub, which their leaves can be turned into food, medicine, and fragrance. Herbal medicine is the treatment of diseases that use medicinal plants internally and externally to restore the health of the patient. The medical system associated with the use of nutritious plants has improved the ability of patients to recover and currently being strengthened by scientific advances¹. In Malaysia, this source of traditional medicines is available from all parts of the plant. There are at least 1,158 species of tall plants in Malaysia recorded as having a medical value where 1,075 of them are flowering plants, 75 species of ferns and seven species of gymnosperm families². As the evidence of traditional and complementary medicine, particularly the herbal plants become apparent, the Ministry of Health Malaysia has established a Traditional and Complementary Medicine (TCM) division to enhance quality research on this area

and to monitor the use of such TCM therapies so that they are of high quality and safe to be used.

The World Health Organization³ shows that folk medicinal practices all-inclusive with Chinese, Ayurveda by Indian and Greek as well as various forms of traditional medicine. Besides, it commonly refers to complementary and alternative medicine by using various natural resources. This folk knowledge tradition has been widely reported since the British colonial. According to Nordin Lajis⁴, a viable plant is a plant that contains a compound that modifies the physiology of mammal and has been used by humans for this purpose. It is estimated there are nearly 250,000 of these medical plant species where about 60% can be found in the tropical forest.

Plants have multi different functions and use where it providing food, shelter, drugs, timber, wood as well as kitchen fuel especially for vulnerable residents in developing counties.

Besides, it plays a vital role in preserving the ecosystems, maintaining and preserving ecological balance by stabilized the ecosystem. Deniably, plants have been used as traditional medical remedies for centuries⁵. These remedies commonly found within the residencies. However, this ethnomedicinal practice has never been well documented as it is inherited by elders through generation through verbal and hands-on activities. According to Alan⁶, almost 80% of the worldwide community using traditional medicine as an alternative to cure ailments. Thus, it became second and alternative after sophisticated treatment which well used by native people.

The study of tribal knowledge regarding plants is significant toward ethnomedicinal research. To date, there is adequate literature of ethnomedicinal understanding of Orang Asli in Terengganu, though there are some reported on

other regions in Malaysia^{7,8}. Besides, it faces terrible threats such as ecological globalization and cultural homogenization. Thus, aggressive action has to be done before this precious heritage knowledge lost for good. Therefore, this study attempt to document the traditional medicinal plants that have been used by the Orang Asli in Terengganu. It helps the Orang Asli to conserve their traditional knowledge and practices of medicinal plants as well as natural resources that might be useful for the future generation. The finding of this study will give a big impact on further herbs clinical research due to virtuous health values.

METHODS

Sampling

This is exploratory research carried out at three Orang Asli resettlement villages in different



Figure 1: The location of *Orang Asli* villages (Source: Abdullah et al.⁹.)

districts of Terengganu, Malaysia (East Coast of Peninsular Malaysia). The exact location of the study site showed in Figure 1. This study was carried out among the Semaq Beri and Bateq tribes in Sungai Berua village, Hulu Terengganu (5° 04'08.5" N 102°52'19.2" E); Sungai Pergam village, Kemaman (4.0471° N 103.2859° E); and Sungai Sayap village, Besut (5° 27'22.4" N 102° 31'17.3 E).

Data Collection

The interviews began with a brief introduction of the researcher team. The purpose was to gain trust and build a good relationship between the researcher and villagers especially the elderly. Thus, they give the information freely and openly as outlined without any barrier. The Focus Group Discussion (FGD) approach was used to gain brief information about their traditional knowledge, surrounding natural environment and

identified key informants. Then, the informant was selected as required by purposive sampling technique and interview procedure. Besides that, the snowball approach has also been used during the preliminary study to gather more information from the informants. The sampling technique requires, one informant, suggested the others to become the informant whom he or she believed the next person could give the information regarding the traditional knowledge by using natural resources. The informants gave the information needed verbally and through fieldworks study. Most of the plant's samples were handpicked through direct and participant observation. Furthermore, to assure and reliability of data the informants should be the head of household with the age must be over 30 years old as they are experienced and knowledgeable. They were questioned individually by a set of semi-structured interview

with the assistance of the Department of Orang Asli Affairs officer and the headman (Tok Batin). Besides, it is easier for the researcher to get clear information and verify the fact instantly with the existence of local authorities because some of the informants used Orang Asli language

and their accent to give the information needed besides the Malay language where it is used as an intermediate language. The collected data were analysed by cross-checking and referring to the Malaysia Biodiversity Information System (MyBIS) for an accurate plants list.

RESULTS

This study applied qualitative research approach by in-depth interviews and participant observations during fieldworks. Through this method, 11 informants were interviewed. Recent study by Abdullah et al.², distribution population of the villages were 1326 with 182 head of

household as presented in Table 1. Based on the data collections conducted, 130 medicinal plants species that belonging to 62 families used by the Orang Asli of Terengganu were identified and all the plants were presented in Table 2.

Table 1: Distribution of *Orang Asli* in Terengganu

District	Village	Orang Asli Sub-tribe	Head of Household (HoH)	Population
Kemaman	Sungai Pergam	Semaq Beri	8	683
Hulu Terengganu	Sungai Berua	Semaq Beri	95	605
Besut	Sungai Sayap	Bateq	140	38
Total			182	1326

DISCUSSION

The relationship between traditional knowledge and medicinal plants can be seen through indigenous people's livelihood who extensively applied traditional medicine potion to cure various ailments that occurred among their tribes. Malaysia is a multi-racial country where the indigenous people have only contributed a small portion of the Malaysian total population¹⁰. The indigenous people in Malaysia are called 'Orang Asli'. They are also known as the first people who are considered the native community of Malaysia. According to Lee et al.¹¹, Malaysia consists of 90 different groups of indigenous tribes. Nevertheless, the Orang Asli community can only be found in the Peninsular of Malaysia while the others live in Borneo Island. The Orang Asli tribes are distinguished by their geographical, language, and morphological characteristics. In Malaysia, there are three major tribes recognised as Negrito, Senoi and Proto-Malay. Each of these tribes is divided into three other sub-tribes⁹. According to Abdullah et al.¹², Malaysia lives by more than 178,000 Orang Asli community whereby 60% of them are still live deep in the rain forests. This marginalized tribe has a unique cultural heritage, belief and socioeconomic compared to other mainstream races¹³. According to Ong et al.^{7,8}, the Orang Asli community depends on surrounding natural resources for their survival as practised by ancestors before. Despite embraced by ancient

culture and beliefs, the Orang Asli community rely on natural resources especially plant for medicinal purpose. They still depend on phytomedicines in traditional medicinal plant's remedies due to easy availability around the nearby forest, difficult access to modern treatment (clinic) due to remote residencies location, cultural acceptability and poor socio-economic conditions.

The tropical rainforest in Malaysia has about six to seven thousand species of plants that have been widely used as medicinal plants by Orang Asli¹⁴. Some of them are multi-purpose to cure ailments where each part of the plant has its function with different methods of use. Most plants grow naturally wild in the forest nearby Orang Asli village. Thus, they were easily recognized by the informants during the fieldwork. Most of the species are taken internally by eating raw or paste form. Besides, several of the species are commonly consumed and have been commercialized among other races in Malaysia such as *Goniothalamus macrophyllus* (tongkat ali) and *Labisia pumila* (kacip fatimah). Based on this study, the plants that commonly used by the Orang Asli were belonged to rubiaceae (Eight species), zingiberaceae (Seven species) and vitaceae (Five species). The life of a plant-based society is surely discovering many of its surrounding plants for medicine. Their values and knowledge need to be developed and maintained to continue to

be passed on to future generations. Plants are an essential element of human life and have been used for generations in many uses. This is further explained by Ong et al.^{7,8}, who also described the history of herbal medicine that has been used to treat diseases since the beginning of human civilization that began in China. From the historical record of other civilized nations, there is also knowledge of plants that have nutrients. Greeks and Romans like Hippocrates were also recognized as pioneering herbal medicine and Hippocrates was recognized as the Father of Medicine. While contributions by Dioscorides and Theophrastus expand the field of herbal medicine.

Orang Asli's is surrounded by nature and its resources¹⁵ which allows them to use it in their daily routine especially for food and medicine¹⁶. The use of natural resources like herb plants not only exposes knowledge of the health tradition but also explores its scientific understanding and connection to the cultural and historical background of Orang Asli themselves. Orang Asli is among the hundreds of people who have used the plants in the forest as medicines to cure diseases¹⁷. The practice passed down through the generations allowed them to discover and understand the secrets of plants that could be used as herbs to cure diseases until each species was identified for their use. Orang Asli commonly uses herbs to prevent, cure and protect against diseases such as fever, diarrhoea, haemorrhoids, cancer as well as strengthening the body's immune system¹⁸. It is also consumed for health care such as nourishing young and post-natal care. Besides, it used in the ritual ceremony. Although, Orang Asli never receives any formal education they specialize in most species of wild plants. They also ensure the ecological systems of herbs continue to remain in the forests for the benefit of their generation such as maintaining practices and rituals while harvesting forest products¹⁹. They believe that some plants can cure wound and cut, relieve physical pain, boosting inner energy and blood circulation. It is no surprise that the Orang Asli is a community that is rich in knowledge and wisdom for its management of nature. The result of the wisdom of traditional knowledge passed down from previous generations is applied to their lives. This process exposes the existence of a system of informal education and its unique science. Further, it gives meaning to the philosophy of life of the Orang Asli people themselves as manifested in the form of customary systems, religions and beliefs, cosmology, prohibitions and so on that govern the way they act and interact with other people and nature²⁰.

Generally, the practice of Orang Asli folk medicine has two main aspects namely spells and the use of various types of plants. Orang Asli who lives remotely in the forest rely heavily on materials, plants in the wild. Only a few of them

use the edge plant. Mustaffa Omar and Zanisah Man²¹, have documented nearly 100 Orang Asli medicinal plants from the Jakun, Semelai and Bateq communities that are used to treat various diseases. Most of their research is regarding plants for the treatment of women after childbirth, skin diseases, bleeding, colds fever, toothache, stomach aches, children's baths, eye pain, vein, pain, hypertension and improving inner strength and family planning practices. Orang Asli is well-known for its privilege and ability to identify plants that can serve as a cure for many diseases. However, herbs that are extremely rich in nutrients can be used as an alternative to modern medicine as it needs a strict process to be followed to store their nutrients.

Orang Asli's traditional knowledge plays a significant role in the community. Although it does not have any definite definition, traditional knowledge can be described as knowledge, know-how, skill and practices that are developed, sustained and transmitted by oral and discipleship practices through generation within a community, often forming part of its cultural or spiritual identity²². Such knowledge, education and philosophy were passed down directly and indirectly by teachers and herbalists from generation to generation, thus shaping its heterogeneous social practices to enhance the unique cultural values that Malaysia has. Thus, traditional knowledge among Orang Asli is important for the formulation of plant medicine to get the exact prescriptions to cure specific ailments. Furthermore, traditional knowledge does not contribute to any forest damages or species extinction as the Orang Asli only takes nothing more than the plants that used for their remedies²³. Nevertheless, this precious heritage seems not to be applied to buy the younger generation recently. They choose not to believe this folk knowledge due to doubtful efficiency as well as surrounding social development. Furthermore, it is competitively used by advanced synthetic medicines which are scientifically proven. Hence, this unwritten tribal knowledge becomes no more important than before²⁴.

For decades, Orang Asli commonly lives by hunter and gatherer activity as a way of their lifestyle²⁵. It is about utilizing natural resources for survival by various conventional socio-economic activities such as hunting, fishing, building, handicraft and also curing simple ailments. It gives a crystal picture of how close the Orang Asli community with the natural environment²⁶. Therefore, environmental ecological changes (modernization and land development) give a big impact on their sustainable livelihood and symbiotic bond with nature. Mainstream development nowadays has made rapid changes toward the natural environment by boost up economic, political and

cultural changes. Some of the traditional knowledge was diminished from Orang Asli culture. The Orang Asli traditional knowledge or sometimes interchangeable with traditional ecological and environmental knowledge is arguably one of the most important aspects that distinguish Orang Asli management systems from the domain of Western 'scientific' resource management models. The livelihoods of rural households depend on the accessibility of natural resources such as agriculture, livestock, poultry, fisheries and forest as well as the underlying environmental services that sustain these resources²⁷.

To date, the Orang Asli community are still relying on these practices to cure ailments especially for those who live deep in the forest which is far from road access for modern health facilities. This survival ethno-health care has been practised a long time ago among the community and being able to cure their ailments. Thus, herbs and plants used by the Orang Asli are ethno-medically proven. However, those species need to be well documented for clinical test and before they are lost for good due to mess development.

CONCLUSION

Plants are natural drugs where it helping people especially the native community to boost up their health care and livelihood in the traditional way. Normally, it occurred among the tribal who live in remote areas where they have hardly access to modern health care facilities. This ethnomedical study shows that the Orang Asli in Terengganu is still relying on plants and herbs to cure ailments that occurred in their community. They consume 62 families with 130 plants and herbs species for health care purpose. Most of the species can be found easily in the nearby forest. Nevertheless, traditional medicinal plants are not an option anymore. They prefer to have synthetic medicine and going to a nearby clinic for medical treatment. Narratively, the well-organized resettlement that builds by the government which completed with all the basic infrastructures and amenities to uplift their socio status have turned down their ancestral heritage and belief. Furthermore, the death ratio among their people affected by diseases has turned their mind toward modern treatments. Therefore, this traditional knowledge where it put plants as primary remedies to cure ailments become no longer the priority for Orang Asli, especially in the younger generation.

All of the species may have the potential to be test clinically as they been used traditionally by the Orang Asli. These potential natural resources will give new hope for the pharmaceutical industry in creating new drugs for health products and supplements in the mainstream. Yet, it must be consumed in a right prescribe and

by the advice of the professionals. To ensure this traditional knowledge regarding plants and herbs getting far from extinction, well documentation of plants list used by the vulnerable community has to be closely discovered. It will be useful for the next generations to know the species and methods that have been used by folk generations to cure ailments.

Conflict of interest

The authors declare no potential conflict of interest.

Acknowledgements

This study was funded by the Ministry of Higher Education Malaysia through Transdisciplinary Research Grant Scheme (TRGS vote no. 59373) awarded to Professor Dato' Dr. Mohd Tajuddin Abdullah. The authors gratefully acknowledge the Institute of Tropical Biodiversity and Sustainable Development, Universiti Malaysia Terengganu for accommodates the services and facilities. Deep appreciation for the permission and cooperation of the village authorities and Department of Orang Asli Affairs.

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Table 2: Plants used by the *Orang Asli* in Terengganu, Malaysia

Family	Scientific name	*Native Name	Part Used	Ailment Treated	Method
Acanthaceae	<i>Andrographis paniculata</i> (Burm. F.) Wall. Ex Nees	Hempedu Bumi	Whole plants	Hypertension, fever	Infusion taken orally.
				Diabetes	Decoction with <i>Orthosiphon aristatus</i> taken orally.
				Influenza, chest pain, tonsillitis	Decoction taken orally.
				Bites, stings	Poultice applied topically and taken orally.
				Constipation	Leave decoction taken orally.
	<i>Asystasia coromandeliana</i> Nees	Rumput Israel	Leaves	Swellings, cuts, wounds	Poultice applied topically.
				Muscle cramps	Poultice with garlic-applied topically.
				Flatulence	Pounded with lime fruit, applied topically.
				Post-partum, coughs, thrush	Heated and applied on abdomen.
				Coughs	Decoction taken orally.
Amaryllidaceae	<i>Allium cepa</i> L.	Bawang merah	Bulbs	Thrush	Decoction applied topically.
				Fever, flatulence,	Paste mixed with oil applied topically.
				Cuts, sores, pimples, abscess	Poultice applied topically.
				Diarrheal, coughs, influenza, aches	Blended and taken orally.
				Flatulence	Paste mixed with oil applied on abdomen.
	<i>Allium sativum</i> L.	Bawang putih	Bulbs	Stings, bites, cuts	Poultice or juice applied topically.
				Coughs, asthma, abdomen pain	Juice mixed with honey taken orally.
Anacardiaceae	<i>Spondias dulcis</i>	Kedondong	Fruit	Tissue recovery and vitamin	Eat it raw or cook.
Annonaceae	<i>Annona muricata</i> L.	Durian belanda	Leaves	Head lice	Pounded leaves with water applied topically.
				Nightmares	Leaves placed under pillows.
				Sore throat	Infusion of dry leaves taken orally.
				Back pain, joint aches	Decoction taken orally.
			Barks	Infertility for male and female	Decoction taken orally.
			Fruits	Post-partum, diabetes, hypertension	Fruit juice taken orally.
	<i>Goniothalamus macrophyllus</i>	Tongkat ali	Seeds	Intestinal parasites	Decoction or infusion of powdered seeds taken orally.
			Roots	Aches, pains, low sexual energy, hypertension	Decoction taken orally.
			Roots	Inner energy for men, indigestion, strengthens immune system	Decoction taken orally.
			Roots	Fever and post-partum	Decoction taken orally.
	<i>Polyalthia bullata</i> King	Tongkat ali batu	Roots		
	<i>Goniothalamus macrophyllus</i>	Gajah beranak	Root		Decoction and taken orally.

Apiaceae	<i>Centella asiatica</i> (L.) Urban	Pegaga	Leaves	Aging	Juice taken orally.
			Whole plants	Cuts, sores, skin diseases Leucorrhoea Post-partum, headache, hypertension, lip cracks	Poultice applied topically. Decoction with salt added applied topically. Decoction taken orally.
Apocynaceae	<i>Catharanthus roseus</i> (L.) G. Don	Kemuning China	Roots	Abortion and menstrual	Decoction taken orally.
			Barks	Malaria, diabetes, chancres and hypertension	Decoction taken orally.
Arecaceae	<i>Areca catechu</i> L.	Pinang	Fruits	Fever	Soaked in water incantation and taken orally.
	<i>Iguanura</i> sp.	Pokok kura-kura	Leaves	Malaria	Decoction taken orally.
Aristolochiaceae	<i>Thottea grandiflora</i> Rottb.	Perdu beruang	Roots	Asthma	Decoction taken orally.
	<i>Thottea grandiflora</i> Rottb.	Hempedu beruang	Roots	Cough	Decoction taken orally.
Asparagaceae	<i>Peliosanthes lurida</i> Ridl.	Lemba seratus	Roots	Flatulence	Decoction taken orally.
	<i>Peliosanthes violacea</i> Wall	Rambu suntum	Roots	Veins aches	Decoction taken orally.
Asteraceae	<i>Chromolaena odorata</i> (L.) R.M. King & H. Rob.	Kapal terbang	Leaves	Cuts, wounds	Pounded and applied topically.
	<i>Gynura procumbens</i> (Lour.) Merr.	Bayam cina	Leaves	Diabetes, hypertension	Leaves eaten.
	<i>Ageratum conyzoides</i> L.	Rumput pareh jarang/ rumput sekodok	Roots	Fever	Decoction taken orally.
	<i>Pluchea indica</i> (L.) Less.	Beluntas	Leaves	trachoma, cut, stomach ache and cough	Poultice applied topically.
			Roots	Fever	Decoction taken orally.
			Leaves	Fever, heuropathy, menstrual, odor	Poultice applied topically.
			Seeds	Haematuria	Decoction taken orally.
	<i>Blumea balsamifera</i> (L.) DC.	Sembung	Roots	Stomach ache, anorexia, malaria and fever	Decoction taken orally.
			Leaves	Stomach ache, anorexia, menstrual, rheumatism	Decoction taken orally.
Balsaminaceae	<i>Impatiens balsamina</i> L.	Keembung	Leaves	Split nails	Pounded and applied topically.
			Whole plants	Hypertension	Decoction taken orally.
Bignoniaceae	<i>Oroxylum indicum</i> (L.) Kurz.	Pokok bekah	Barks	Family planning for women	Decoction taken orally.
Blechnaceae	<i>Stenochlaena palustris</i> (Burm.) Bedd.	Pucuk miding	Young leaves	Fever	Juice applied topically.
			Stems	Shingles	Chewed and applied topically.

Caricaceae	<i>Carica papaya</i> L.	Betik	Leaves	Amenorrhea	Blended with water and juice taken orally.
			Young leaves	Fever	Infusion in brine taken orally.
			Shoot, flowers	Hypertension	Scalded and eaten.
			Sap of fruits	Pimples, skin blemish, cracks	Latex applied topically.
			Ripe fruits	Constipation	Fruit eaten.
				Cough	Mixed with honey taken orally.
Commelinaceae	<i>Amischotolype</i> (Blume) Hassk. <i>mollissima</i>	Tebu tikus	Leaves	Hearing problem	Decoction used as drops.
Connaraceae	<i>Cnestis palala</i> Griff.	Asam jawa bukit	Roots	Diabetes	Decoction taken orally.
Convolvulaceae	<i>Ipomoea aquatica</i> Fors.	Kangkung	Leaves	Abscess	Pounded with salt and applied topically.
				Rough hair	Mashed in water and liquid used topically.
			Whole plant	Food poisoning	Juice taken orally.
Crassulaceae	<i>Bryophyllum pinnatum</i> (L.) Pers.	Setawar/ Sedingin	Leaves	Headache, abscess	Pounded and applied topically.
				Put in ear	Juice used as eardrops.
			Leaves, roots	Skin itch	Pounded and applied topically.
Dilleniaceae	<i>Tetracera indica</i> (Hout. Ex Chris. & Panz.) Merr.	Mempelas	Leaves	Skin itch	Pounded and applied topically.
			Roots	Hypertension, fever	Decoction taken orally.
Dioscoreaceae	<i>Dioscorea orbiculata</i> Hook.f.	Ubi takop	Tubers	Strengthen energy	Decoction taken orally.
	<i>Dioscorea alata</i> L.,	Huwi/ Ubi Papua	Tuber	Tuberculosis, splintage, haematemesis and boils	Dry it for 4 days. Pounded, soak with water and Taken orally.
Euphorbiaceae	<i>Manihot esculenta</i> Crantz.	Ubi kayu	Leaves	Cuts, bites, stings, abscess	Pounded and applied topically.
			Tubers	Fever, headache, influenza	Pounded and applied topically.
	<i>Chrozophora oblongifolia</i> (Delile) A.Juss. ex Spreng. <i>Elaterospermum tapos</i>	Kayu padang	Roots	Fitness	Decoction taken orally.
		Perah	Latex	Malaria	Rub it on the body.
				Glue	Blow pipe.
			Fruit	Consume	Boiled, grilled or pickled.
	<i>Bridelia monoica</i> (Lout.) Merr.	Kenidai	Leaves	Colic	Poultice applied topically.
	<i>Croton tiglium</i> L.	Changkian	Roots	Oedema and abortion	Decoction taken orally.
				Purgative and fish poison	Dry it for 4 days. Pounded, soak with water.

Fabaceae	<i>Senna tora</i> L.	Gelenggang seni	Shoots	Constipation	Eaten raw.
			Leaves	Skin diseases	Poultice applied.
			Whole plants	Heartburn, post-partum	Decoction taken orally.
	<i>Tamarindus indica</i> L.	Asam jawa	Fruits	Fever, rough palm, swellings	Mixed in water and applied topically.
				Bites, stings	Split fruit applied topically.
				Sore throat	Juice taken orally.
	<i>Parkia speciosa</i> Hassk.	Petai	Barks	Asthma, short of breath	Decoction taken orally.
			Leaves	Cough	Pounded with rice and applied on neck.
			Fruits	Diabetes	Eaten with the skin intact.
	<i>Mimosa pudica</i> L.	Semalu	Roots	Hypertension	Decoction taken orally.
			Whole plants	Post-partum	Decoction taken orally.
				Athlete's foot pain	Pounded and applied topically.
			Roots	Swelling	Pounded and applied topically.
	<i>Derris elliptica</i>	Tuba	Barks, roots, stem	Poison	Dry it for 4 days. Pounded, soak with water.
	<i>Clitoria ternatea</i>	Bunga biru	Roots	Purgative and headaches	Decoction taken orally.
			Leaves	Boils and coughs	Decoction taken orally.
			Flowers	Conjunctivitis and bronchitis	Decoction taken orally.
Fagaceae	<i>Lithocarpus edulis</i>	Mempening	Fruits	Post-partum	Eat it raw or cook.
	<i>Castanopsis inermis</i>	Berangan	Fruits, seeds	Consume	Eat it raw or cook.
Gramiceae	<i>Lophatherum gracile</i> Brongn.	Rumput jarang/ rumput kelurut	Roots	Stomach ache and chancres	Decoction taken orally.
Guttiferae	<i>Garcinia cambogia</i>	Gelugur	Fruits	Consume	Slice and dry it for few days-put it in cook.
				Appetite control, fat loss, digestion, worm, diarrhoea	Consume it raw or make it as oil.
Hypoxidaceae	<i>Molineria latifolia</i> (Dryand. ex W.T.Aiton) Herb. ex Kurz	Nyior lembe	Leaves	Cuts, swellings	Poultice applied topically.
			Rhizome	Coughs, no appetite	Eaten raw.
Lamiaceae	<i>Plectranthus scutellarioides</i> (L.) R. Br	Ati-ati	Leaves	Stomach ache	Leaves mixed with CaCo3 taken orally.
				Flatulence	Poultice mixed with CaCo3 applied topically.
				Cuts, sores, bites, stings	Poultice applied topically.
				Expel placenta, post-partum	Decoction with salt taken orally.
				Stop lactation	Pounded with CaCo3 and water, juice applied on breast but not on the nipples.
	<i>Hyptis brevipes</i> Poit.	Setulang	Leaves	Swollen joints	Poultice mixed with CaCo3 applied topically.

	<i>Orthosiphon aristatus</i> (Blume) Miq.	Misai kucing	Leaves	Sore throat, difficult urination	Decoction taken orally.
			Leaves, flower	Diabetes	Decoction with <i>Andrographis paniculatus</i> taken orally.
			Leaves, roots	Headache	Decoction taken orally.
			Roots	Hypertension	Decoction taken orally.
	<i>Vitex longisepala</i> King & Gamble	Merian	Roots	Love potion	Decoction taken orally.
Lauraceae	<i>Cananga odorata</i> (Lamk.) Hk. f. & Thom	Kenanga	Leaves	Body odor	Blend with lime, sugar and salt. Juice taken orally.
			Flowers	Scalp odor	Infusion in coconut oil applied topically.
			Barks	Skin itch	Grated and applied topically.
	<i>Cinnamomum cuspidatum</i>	Rempah gunung	Roots	Energy	Decoction taken orally.
	<i>Cinnamomum sp.</i>	Kencing manis	Roots	Diabetes	Decoction taken orally.
Lecythidaceae	<i>Cinnamomum cinereum</i> Gamble.	Tajalawang	Whole plants	Flatulence	Decoction taken orally.
	<i>Actinodaphne procera</i> Nees	Huru/ Medang Kunyit	Barks	Tetanus	Decoction taken orally.
	<i>Barringtonia acutangula</i> (L.) Gaertn.	Gajah beranak	Roots	Blood circulation	Decoction taken orally.
	<i>Senna tora</i> (L.) Roxb.	Ketepeng kecil	Leaves	Purgative, cough and ringworms	Decoction taken orally.
			Fruits	Dysentery	Decoction taken orally.
Leguminosae			Seeds	Anthelmintic	Decoction taken orally.
	<i>Strychnos pubescens</i> C.B.Clarke	Tarik gajah	Leaves	Ticks' problem	Decoction taken orally.
	<i>Macrosolen cochinchinensis</i> (Lour.) Tiegh.	Dedalu api	Stems	Diarrhoea	Decoction taken orally.
	<i>Lawsonia inermis</i> (L.)	Inai	Leaves	Dandruff, athlete's foot, weak nails	Pounded and applied topically.
				Scar	Pounded with rice and applied topically.
Malvaceae	<i>Durio zibethinus</i> Murray	Durian	Leaves	Kidney stones	Decoction taken orally.
	<i>Hibiscus rosa-sinensis</i> L.	Bunga raya putih	Leaves	Post-partum	Decoction taken orally.
			Roots	Facial condition	Decoction taken orally.
	<i>Urena lobata</i> L.	Pulut-pulut	Roots	Influenza fever	Mashed in water with leaves from several other spices used as bath.
	<i>Melastoma malabathricum</i> L.	Senduduk	Leaves	Fever, dry hair	Crushed in water and applied topically.
Melastomataceae				Cuts, sores	Grated and applied topically.
				Post-partum	Decoction taken orally.
				Cuts	Pounded and applied topically.
				Diarrheal, leucorrhoea	Decoction with ginger and sugar taken orally.
				Tongue pain	Placed on tongue pain.

			Roots	Travel sickness	Placed in mouth.
			Leaves, roots	Post-partum	Decoction taken orally.
	<i>Neodissochaeta gracilis</i> (Jack.) Bakh.	Cetliot	Leaves	Influenza fever	Mashed in water with leaves from several other spices used as bath.
Meliaceae	<i>Dysoxylum alliaceum</i> Seem	Hatap selaya	Roots	Post-partum	Decoction taken orally.
Menispermaceae	<i>Fibraurea tinctoria</i> Lour.	Pokok kuning	Roots	Jaundice	Decoction used as bath.
Moraceae	<i>Ficus deltoidea</i> Jack	Mas Cotek	Leaves	Water in lungs, hypertension, post-partum	Decoction taken orally.
Musaceae	<i>Musa sapientum</i> L.	Pisang kebatu	Fruits	Scalds	Burned and mixed with oil applied topically.
Myrsinaceae	<i>Mapania cuspidata</i> (Miq.) Uttien	Kacip fatimah ii	Roots	Women's fertility	Decoction taken orally.
	<i>Mapermia custridata</i>	Rumput reluh	Roots	Asthma	Decoction taken orally.
Myrtaceae	<i>Psidium guajava</i> L.	Jambu batu	Leaves	Body odor	Leaves rubbed on body.
				Pimples	Infusion with <i>Piper betle</i> leaves applied topically.
			Leaves and bark	Diarrheal	Young leaves eaten or bark decoction taken orally.
			Fruits	Aging	Grounded and applied topically on face.
	<i>Syzygium polyanthum</i> (Wight) Walp.	Salam	Roots	Skin irritation	Poultice applied topically.
			Barks, Leaves	Abdominalgia	Decoction taken orally.
Olacaceae	<i>Scorodocarpus borneensis</i> Becc.	Kulim	Roots	Haemorrhoids	Decoction taken orally.
Ophioglossaceae	<i>Helminthostachys zeylanica</i> (L.) & Hook.	Tunjuk langit	Whole plants	Post-partum	Decoction taken orally.
			Roots	Diabetes	Decoction taken orally.
Oxalidaceae	<i>Averrhoa bilimbi</i> L.	Belimbing buluh	Leaves	Stomach ache	Young leaves eaten.
				Skin cracks	Poultice with pepper corn and vinegar applied topically.
			Flowers	Coughs	Decoction taken orally.
			Fruits	Diabetes, hypertension	Juice taken orally.
				Pimples, skin diseases	Poultice with salt and applied topically.
			Barks	Goitre	Decoction with onions taken orally.
Pandanaceae	<i>Freycinetia javanica</i> Blume.	Kelawit mantai	Roots	Back pain	Decoction taken orally.
	<i>Pandanus amaryllifolius</i> Roxb.	Pandan	Leaves	Vaginal itch	Infusion applied topically.
				Post-partum	Infusion with leaves of <i>Alpinia galanga</i> , <i>Curcuma longa</i> and <i>Cymbopogon nardus</i> used as bath.

Phyllanthaceae	<i>Phyllanthus acidus</i> (L.) Skeels.	Cermai	Leaves	Diabetes, hypertension, pimples	Decoction taken orally.
	<i>Phyllanthus niruri</i> L.	Dukung anak	Whole plants	Diabetes, hypertension, pain during menses Jaundice	Decoction taken orally. Decoction used as bath and also taken orally.
			Leaves	Coughs Sores	Juice taken orally. Juice applied topically.
	<i>Sauropus androgynus</i> (L.) Merr	Cekok manis	Leaves	Hair growth Hypertension	Pounded with milk applied topically. Decoction taken orally.
Piperaceae	<i>Piper betle</i> L.	Sireh	Leaves	Nosebleed Toothache, sores, abscess, pain, ache Fever	Rolled leaf inserted. Betel quid applied. Infusion applied topically.
				Vaginal itch Flatulence	Decoction used as wash. Heated and applied topically.
				Poor eyesight Bad breath	Decoction taken orally. Infusion used as gargle.
	<i>Piper nigrum</i> L.	Lada hitam	Leaves	Fever	Pounded and applied topically.
			Young fruits	Diarrheal, headache, difficult urination Post-partum, loss appetite	Decoction taken orally. Pounded with anchovies and eaten with rice.
	<i>Piper sarmentosum</i> Roxb.	Kadok	Leaves	Malarial fever	Decoction taken orally.
			Roots	Diabetes, difficult urination	Decoction taken orally.
	<i>Lophatherum gracile</i> Brongn	Cekrek	Roots	Hypertension	Decoction taken orally.
	<i>Cymbopogon citratus</i> (DC) Stapf	Serai	Leaves	Aches and pains Hair loss, mosquito repellent Difficult urination	Pounded and juice applied topically. Decoction applied topically. Decoction taken orally.
			Whole plants	Fever	Decoction used as bath.
Poaceae	<i>Cymbopogon winterianus</i> Jowitt ex Bor.	Serai wangi	Leaves	Stomach ache Swellings	Decoction taken orally. Poultice applied topically.
			Whole plants	Painful menstruation	Decoction taken orally.
	<i>Imperata cylindrica</i> (L.) Raeusch. & P.Beauv.	Lalang	Rhizome	Fever	Infusion taken orally.
				Asthma, short of breath, difficult urination, urinary stones	Decoction taken orally.

Polypodiaceae	<i>Pyrossia piloselloides</i> (L.) M.G.Price	Duit-duit	Leaves	Headache	Pounded and applied topically.
				Skin itch	Pounded with salt and rice, added warm water, applied topically.
	<i>Lignosus rhinocerus</i> Ryvarden	Susu rimau	Tubers	Asthma	Burned and applied on chest.
				Increase energy	Eaten raw
				Breast cancer	Shredded and mixed with water applied topically.
Portulacaceae	<i>Talinum fruticosum</i> (L.) Juss.	Pokok duit RM5	Leaves	Body aches	Decoction taken orally.
				Abscess, sores	Pounded with Curcuma longa and rice, applied topically.
	<i>Ardisia</i> sp.	Kayu membuluh	Roots	Ulcer	Decoction taken orally.
	<i>Ixora</i> sp.	Pokok pengeras	Roots	Men mystic	Decoction taken orally.
	<i>Labisia pumila</i>	Kacip fatimah i	Roots	Women's fertility, Post-partum, Increase the energy	Decoction taken orally.
Rubiaceae	<i>Prismatomeris</i> sp.	Haji samad	Roots	High blood pressure	Decoction taken orally.
	<i>Spermacoce articularis</i> L. f	Susu Kambing	Whole plants	Joint aches and pain	Decoction taken orally.
			Roots	Muscle pains	Decoction taken orally.
	<i>Jasminum sambac</i> (L.) Aiton.	Melor	Leaves	Fever	Mixed with leaves of <i>Canthium chartacea</i> and <i>Gardenia jasminoides</i> , crushed in water, liquid applied topically and taken orally.
				Measles	Mixed with leaves of <i>Psidium guajava</i> , <i>Punica granatum</i> , <i>Tamarindus indica</i> , rhizome of <i>Curcuma longa</i> and rice, pounded and applied topically.
			Flower buds	Pimples, skin infections	Pounded and applied topically.
			Roots	Leucorrhoea, painful menstruation	Decoction taken orally.
	<i>Mitragyna speciosa</i> (Korth.) Havil	Ketum	Leaves	Headache	Pounded with salt applied on forehead.
	<i>Morinda corneri</i> K. M. Wong	Mengkudu hutan	Leaves, fruits	Post-partum	Decoction taken orally.
			Fruits	Hypertension	Flesh eaten.
			Roots	Difficult urination	Decoction taken orally.
	<i>Timonius wallichianus</i> (Korth.) Val.	Patah bawah tangga	Roots	Low sexual energy for man	Decoction with another herb taken orally.
	<i>Myrmecodia pendans</i>	Sarang semut	Bulbs	Cancer, antibiotic, antioxidant, fever, gout, diarrhoea	Slice, wash and Decoction. Make it as tea and taken orally.
	<i>Paederia foetida</i> L.,	Akar sekentut	Roots	Fever and stomach ache	Decoction taken orally.
			Leaves	colds, herpes, conjunctivitis, palsy, dysentery and rheumatism,	Decoction taken orally.
	<i>Canthium borridum</i> Blume	Bulangan	Barks	Dysentery	Decoction taken orally.
			Leaves	Conjunctivitis	Decoction taken orally.

Rutaceae	<i>Murraya koenigii</i> (L.) Spreng.	Pokok kari	Roots	Hemifacial	Decoction taken orally.
	<i>Murraya paniculata</i> (L.) Jack	Kemuning	Roots, barks flowers	Cosmetics	Poultice applied topically.
			Leaves	Gonorrhoea, anthelmintic, obesity, toothache and menstrual	Decoction taken orally.
Sapindaceae	<i>Guioa pubescens</i> (Zoll. & Mor.) Radlk.	Cemenui	Roots	Influenza fever	Decoction used as bath.
			Leaves	Headache	Pounded and applied topically on forehead.
	<i>Nephelium lappaceum</i> L.	Rambutan	Leaves	Vomit	Washed and taken orally.
Smilacaceae	<i>Smilax myosotiflora</i> A.DC.	Ubi jaga	Root	Strength and energy	Decoction taken orally.
	<i>Smilax calophylla</i> Wall. ex A.DC.	Alek tembaga	Roots	Low sexual energy for man	Decoction taken orally.
Solanaceae	<i>Solanum torvum</i> Sw.	Terung pipit	Leaves	Cuts	Pounded and applied topically.
			Fruits	Hypertension	Eaten raw.
				Toothache	Pounded and applied topically.
			Roots	Hypertension, headache, urinary stones	Decoction taken orally.
				Toothache	Decoction used as gargle.
				Skin cracks	Pounded and applied topically.
Sterculiaceae	<i>Melochia corchorifolia</i> L.,	Jaring	Roots	Smallpox, dysentery and dysuria	Poultice applied topically.
Tectariaceae	<i>Tectaria angulata</i> (Willd.) Copel.	Paku bukit	Roots	Asthma	Decoction taken orally.
Turneraceae	<i>Turnera sabulata</i>	Bunga pukul 8	Flower	Pesticide control	Plant/ grow it in yard.
Vitaceae	<i>Ampelocissus gracilis</i> (Wall.) Planch.	Kertas api	Leaves	Large sores	Poultice applied topically.
	<i>Cissus repens</i> Lam.	Ubi kertas	Tuber	Haemorrhoids	Decoction taken orally.
	<i>Leea indica</i> (Burm. f.) Merr.	Kerak nasi	Leaves	Diabetes	Decoction taken orally
	<i>Alpinia galanga</i> (L.) Willd.	Lengkuas	Rhizome	Skin diseases	Juice mixed with garlic juice applied topically
				Flatulence	Juice taken orally
			Leaves	Fever	Infusion of crushed leaves and rice applied topically
			Whole plants	Aches, pains	Poultice applied topically
				Post-partum	Poultice applied on abdomen
	<i>Cheilocostus speciosus</i> (J.Koenig) C.D.Specht .	Tepus putih (bunga)	Stems	Cuts, wounds	Pounded and applied topically
Xanthorrhoeaceae	<i>Aloe vera</i> (L.) Burm. f..	Lidah buaya	Leaves	Burns, fever, pimples, dandruff	Sap and jelly applied topically
Zingiberaceae	<i>Curcuma longa</i> L.	Panau	Leaves	Tine vesicular	Pounded and applied topically.
	<i>Curcuma longa</i> L.	Kunyit	Rhizome	Post-partum	Blended with water, added salt and taken orally.
				Pimples	Pounded, mixed with face powder and applied topically.

			Sores, athlete's foot	Poultice with coconut oil, applied topically.
			Abrasions	Slices applied topically.
		Young rhizome	Facial dermatitis	Eaten raw.
		Old rhizome	Difficulty breathing	Juice applied topically on the chest.
			Aging	Pounded with <i>Centella asiatica</i> , juice taken orally.
<i>Curcuma viridiflora</i> Roxb.	Kunyit emas	Rhizome	Hemafecia, water in lungs	Juice taken orally.
<i>Curcuma zanthorrhiza</i> Roxb.	Temulawak	Roots	Ageing	Decoction taken orally.
<i>Etlingera elatior</i> (Jack) R.M.Sm.	Kantan	Leaves	Cuts, wounds	Decoction used to wash and applied topically.
			Body aches	Decoction used as bath.
		Fruits	Earache	Decoction used as are drops.
<i>Hedychium longicornutum</i> Griff. ex Baker	Ramu akar cacing	Roots	Worms	Decoction used as bath.
<i>Zingiber officinale</i> Roscoe.	Halia	Leaves	Sprain	Pounded and applied topically.
		Rhizome	Flatulence	Decoction taken orally.
			Pain during menses	Juice taken orally.
			Bites, stings, headache	Pounded and applied topically.
			Leucorrhoea	Compounded decoction with roots of <i>Capsicum frutescens</i> , <i>Ricinus communis</i> and cumin seeds taken orally.
			Post-partum	Pounded with pepper, turmeric, eaten with rice.
			Weak teeth	Pounded with salt, juice used as gargle.