

Ethno-medicinal Plants Used by the Temuan Villagers in Kampung Jeram Kedah, Negeri Sembilan, Malaysia

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ABSTRACT This report is based on information obtained through general conversation with elderly villagers of Kampung Jeram Kedah. A total of 56 species of medicinal plants with various uses was recorded. The plants are used to treat many types of ailments ranging from simple ones such as joint aches and pains to serious ailments such as diabetes, malaria and tumors. The most frequently used plant part in term of percentage of total number of species was the root (51.8%). This was followed by stem (17.9%), leaf (16.1%), whole plant (5.4%), root and leaf (3.6%), fruit (1.8%), inflorescence (1.8%), and rhizome (1.8%). Knowledge and usage of medicinal plants is decreasing due to various factors such as modern medicines are easily available, the younger generation are less interested in folk medicine, changes in habitat causing certain medicinal plants to be unavailable or less available.

INTRODUCTION

Medicinal plants play a central role, not only as traditional medicines used in many cultures, but also as trade commodities which meet the demand of often distant markets (Schippmann et al. 2006). Consequently, medicinal plants have faced tremendous threat of over-harvesting. Destructive harvesting practices have threatened many species of medicinal plants (Caniago and Siebert 1997). Domestication and subsequently cultivation of medicinal plants have been suggested for their conservation. Logging activity in the tropics such as in Malaysia and Indonesia has threatened local floras including medicinal plants. Logging alters soil and hydrologic regimes, raised ground and interior forest illumination levels, increases intensity and variability of diurnal temperature and humidity conditions. These have profound effect on the survival of medicinal plants because many of them are habitat-specific. Caniago and Siebert (1997) studied occurrence and distribution of medicinal plants in logged and unlogged forests in Kalimantan, Indonesia. They discovered that regrowth in logged forest, species of medicinal plants were less diverse when compared with unlogged forests. Modernization has threatened the usage of medicinal plants in many parts of the world. The usage of medicinal plants has been affected by modernization as early as the first contact of native tribes with the westerners. Some European explorers, game hunters, railroad surveyors and even colonial officials, in humanitarian spirit, provided medical supplies to some native com-

munities in Peninsular Malaysia that they visited (Nicholas and Baer 2007). Modernization has resulted in the introduction of western medicine that gradually replaces traditional medicine practices. This is evident from the study by Caniago and Siebert (1997) on a village of Kalimantan, Indonesia whereby young folks do not possess as much knowledge of medicinal plants as the older folks.

The natives (Orang Asli) of Peninsular Malaysia are grouped into 3 different ethnic groups; the Negritos (Semang), the Senoi and the Proto-Malays. The Temuan tribe is in the Proto-Malay ethnic group. The Temuan are a comparatively large tribe and well-known for their knowledge and usage of medicinal plants (Carey 1976; Ong 1994). The Temuan are agriculturists as well as hunters and gatherers. Thus, they make use of the biological diversity available to them for fulfilling various needs (Carey 1976; Ong 1991). As modernisation creeps towards the doorstep of the native tribes, knowledge and usage of biodiversity decreases and eventually become adulterated or lost to humanity. Thus, it is imperative that the scientific community records and publishes this knowledge.

MATERIAL AND METHOD

This study was conducted in a Temuan native village named Kampung (Malay word for village) Jeram Kedah, in the state of Negeri Sembilan, Malaysia. The latitude is 2° 54.33' N while the longitude is 101° 57.46' E. This is a traditional native village with the houses built in

clearings surrounded by vegetation and with a stream nearby. There are 50 households with a total of approximately 700 persons living in an area of about 30 ha. Most of the houses are built in the native style using materials obtained from the surrounding forests. A few houses are more modern, being built using bricks and mortar. Information was obtained through general conversation with elderly villagers guided by a predetermined set of questions during each visit using the method of ethnobotanical enquiry (Chin 1981; Martin 1995). The sessions were recorded and transcribed later. Plant specimens were collected using standard taxonomical procedures, taking specimens with flowers and fruits whenever possible (Womersley 1981). Photographs of every specimen were also taken and used together with the plant specimens for identification and record. Identification was carried by referring to various references such as Henderson (1974 a, b) and Ng (1989).

RESULTS

This study has recorded a total of 56 species of medicinal plants used in the selected Temuan native village. The Temuan in this village walk up to 25 km from their village to search for medicinal plants. Most of the species in Table 1 are native plants that are collected from the jungle nearby (91%) for use when needed. Very few species are cultivated plants such as *Aloe barbadensis*, *Carica papaya*, *Cocos nucifera*, *Psidium guajava* and *Zingiber spectabile*. The 56 species are used to treat various kinds of ailments and other health problems normally faced by these people. The common mode of administration is oral with a total of 38 species (67.9%) with only 12 species used externally (21.4%) while 6 species are used both externally and internally (10.7%). Decoction is the most common method of preparing herbal medicine to be taken orally (82.6%).

DISCUSSION

The results show that the Temuan in the village surveyed still use a large number of native plants as ethno-medicine. This may not be the case in the future as modern medicines are being made easily available to them and habitat degradation will result in many species becoming less available or not available within walking dis-

tance. The knowledge of medicinal plants itself may become diluted or lost as the young natives are less keen to learn and use medicinal plants. In cases where villagers do not have the knowledge or availability of plants from the forests, domesticated plants become the major ethnomedicinal plants (Ong and Nordiana 1999; Ong and Norzalina 1999). The results show that the natives treat many types of medical problems using plants, ranging from simple problems such as aching joints and constipation to chronic diseases such as diabetes, malaria and tumors. Such knowledge can provide leads for further scientific studies on efficacy and search for novel active compounds. It is important not only to record such ethno-medico knowledge and conduct further studies but also to take steps to conserve these medicinal plants before they are lost to human kind forever. According to Veeman (1987), diseases inflicting the Orang Asli are infectious and parasitic such as tuberculosis, malaria, leprosy, cholera, typhoid, measles, and whooping cough. A study at another locality in Peninsular Malaysia by Norhayati et al. (1998) indicated that skin problems such as scabies are prevalent among the Orang Asli. Table 1 suggests that all of the illnesses can be treated traditionally by villagers in the present study. However, it is not unexpected that the villagers also seek modern medical treatment from nearby clinics or hospitals for any of their health problems and illnesses as the Kampung Jeram Kedah is not remotely isolated. The nearest government-run rural clinic, which is about 5km away from the village, can be reached by motor vehicles. There is no detailed information on medicines or drugs that are available in government-run rural clinics but believed to be mostly those which are used to treat diseases or ailments common to rural folks. These may include aspirin and paracetamol (for treating headaches, stomach-aches, and fevers), anti-histamine (for treating allergies, rashes, and food poisoning), quinine (for treating malaria) and albendazole (for treating parasitic infection).

The most common part of medicinal plants used by the Temuan in this study is the root with a total of 29 species which is 51.8% of the total number of species. This is followed by the stem with 10 species (17.9%), leaf with 9 species (16.1%), whole plant with 3 species (5.4%), root and leaf with 2 species (3.6), and the fruit, inflorescence and rhizome with only 1 species each

Table 1: List of medicinal plants used by villagers in Kampung Jeram Kedah

Series No.	Botanical name	Native name	Part used	Ailment treated	Method of usage
1	<i>Aeschynanthus pulcher</i> (Bl.) Don	Pertap	Plant	Hyperactivity	Decoction taken orally
2	<i>Allomophia malaccensis</i> Ridl.	Akar penghong	Root	Aching joints	Decoction taken orally
3	<i>Aloe barbadensis</i> Mill.	Lidah buaya	Leaf	Constipation	Juice taken orally
4	<i>Alpinia conchigera</i> Griff.	Tepus balak	Stem	Dandruff, hair loss, burns, scalds	Leaf gel applied topically
5	<i>Ampelocissus gracilis</i> Planch.	Akar sebuih	Leaf	Heat rash, tongue pain	Juice applied topically
6	<i>Ancistrocladus tectorius</i> (Lour.) Merr.	Merian kayu	Root	Burns, scalds	Pounded with coconut oil and applied topically
7	<i>Apostasia nuda</i> R.Br.	Parisika	Root	Post-partum flatulence	Decoction taken orally
8	<i>Carica papaya</i> L.	Kepayo	Leaf	Diabetes	Decoction with <i>Rourea concolor</i> taken orally
9	<i>Cinnamomum mollissimum</i> Hk.f.	Medang rawang	Root	Malarial fever	Decoction taken orally
10	<i>Cocos nucifera</i> L.	Kelapo	Young fruit	Fever, body heat	Decoction taken orally
11	<i>Coptosapelta griffithii</i> Hk.f.	Sampu bertut betina	Root	Fever	Coconut water taken orally
12	<i>Costus speciosus</i> (Koenig.) Smith	Belung tawar	Stem base	Fever, influenza	Scraping mixed with CaCO ₃ applied topically
13	<i>Cynanchum ovale folium</i> Wight.	Daun penebal	Leaf	Fever prevention	Infusion taken orally
14	<i>Cyrtandra pendula</i> Ridl.	Ranyis	Root	Cough	Decoction taken orally
15	<i>Dracaena robusta</i> Ridl.	Nyuwah	Root	Lower back pain, weak muscles	Decoction taken orally
16	<i>Dracaena umbratica</i> Ridl.	Sampu landak	Root	Fever due to eating porcupine meat	Decoction taken orally
17	<i>Elephantopus scaber</i> L.	Tutup bumi	Leaf	Cuts, wounds, skin diseases	Pounded and applied topically
18	<i>Elephantopus tomentosus</i> L.	Sembung	Leaf	Cuts, wounds	Pounded and applied topically
19	<i>Eugenia valdevenosa</i> Duthie.	Yuri	Root	Body heaty, fever	Decoction taken orally
20	<i>Eurycoma longifolia</i> Jack	Januari putih	Leaf	Diarrhea, vomiting	Decoction taken orally
21	<i>Garcinia scortechinii</i> King	Akar sebenas	Stem	Cuts, wounds, sores	Pounded and applied topically
22	<i>Globba leucantha</i> Miq.	Merian darah	Root	Malaria, men low sexual energy	Decoction taken orally
23	<i>Globba patens</i> Miq.	Merian biasa	Root	Joint pain, weak bones	Decoction taken orally
24	<i>Globba pendula</i> Roxb.	Puah gemur	Root	Post-partum flatulence	Decoction taken orally
25	<i>Gomphandra lanceolata</i> King	Sampu merisik	Root	Post-partum flatulence	Decoction taken orally

Table 1: Contd.....

Series No.	Botanical name	Native name	Part used	Ailment treated	Method of usage
26	<i>Hedyotis philippensis</i> (Willd.) Merr.	Sampu pucat	Root	Juvenile fever with weak joints	Decoction taken orally
27	<i>Hodgsonia capnio carpa</i> Ridl.	Akar khadam	Root	Fever, paleness	Decoction taken orally
28	<i>Iguanura geonomae formis</i> Mart.	Muring	Root	Fever due to food intake	Decoction taken orally
29	<i>Labisia pumila</i> (Bl.) F.-Vill.	Bombong	Root	Weak, fatigue, tired	Decoction taken orally
30	<i>Limacia oblonga</i> (Miers.) Hk.f. et. Thoms.	Akar sinik	Stem	Hemafecia	Decoction taken orally
31	<i>Luvunga scandens</i> (Roxb.) Buch.-Ham.	Mengkurat jakun	Stem	Fever, tired	Decoction taken orally
32	<i>Paederia foetida</i> L.	Sampu bertut jantan	Root	Malarial fever	Scraping mixed with CaCO ₃ applied topically
33	<i>Paramignya scandens</i> (Griff.) Craib.	Pokok sirin	Root	Fever	Pounded and applied topically
34	<i>Parkia speciosa</i> Hassk.	Petai	Root	Toothache	Decoction taken orally
35	<i>Pericampylus glaucus</i> (Lamk.) Merr.	Akar chuping	Root	Diabetes	Decoction taken orally
36	<i>Peucedanum japonica</i> Thunb.	Akar rejan	Root	Influenza, fever	Pounded and applied topically
37	<i>Phyllagathis rotundifolia</i> (Jack.) Bl.	Serau malam	Leaf	Juvenile stomach discomfort	Placed on the bed
38	<i>Piper muricatum</i> Bl.	Pokok sani	Leaf, root	Juvenile fever	Infusion taken orally
39	<i>Piper umbellatum</i> L.	Kiambai	Stem	Lung diseases	Boiled with meat or goat's leg and taken orally
40	<i>Pleocnemia irregularis</i> (Presl.) Holtt.	Paku kunyit	Stem	Lack stamina, weak muscles	Mucilage applied topically
41	<i>Poikilospermum suaveolens</i> (Bl.) Merr.	Sentawan	Stem	Sore eyes	Juice taken orally
42	<i>Polyalthia bullata</i> King	Januari hitam	Root	Stomach tumor Men low sexual energy	Decoction taken orally
43	<i>Psidium guajava</i> L.	Jambu batu	Leaf	Diarrhea, stomachache	Decoction taken orally
44	<i>Rourea concolor</i> Bl.	Akar semelit	Root	Kidney disease, diabetes	Decoction taken orally
45	<i>Rourea rugosa</i> Planch.	Akar pelasan	Root	Kidney disease, lung tumor, stomach tumor	Decoction taken orally
46	<i>Schefflera subulata</i> (Seem.) Ridl.	Lebang	Stem	High fever with debility	Decoction used as bath
47	<i>Smilax calophylla</i> Wall.	Tepus layang	Plant	Weak muscles in new born baby	Decoction used as bath
48	<i>Stauranthera grandiflora</i> Benth.	Landay	Plant	Chills, colds	Pounded and applied topically
49	<i>Staurogyne kingiana</i> Clarke	Pokok pemadam	Leaf	Skin diseases	Decoction taken orally or used as bath
50	<i>Tabernaemontana corymbosa</i> Roxb. ex Wall.	Pokok gading	Root	Fever	Decoction taken orally
51	<i>Tarenna longifolia</i> Ridl.	Pokok penajam	Root	Chest pain, chest congestion	Decoction taken orally
52	<i>Tetracera scandens</i> (L.) Merr.	Akar mempelas	Stem	Weak due to fever or influenza	Decoction taken orally
53	<i>Thottea grandiflora</i> Rottb.	Akar seburut	Root	Lower back pain, lung tumor, stomach tumor Body heaty, fever	Decoction taken orally or used as bath

Table 1: Contd.....

Series No.	Botanical name	Native name	Part used	Ailment treated	Method of usage
54	<i>Urophyllum umbellu latum</i> Miq.	Sampu nonas	Root	Body heaty, fever	Infusion added sugar taken orally
55	<i>Zingiber officinale</i> Rosc.	Halia	Rhizome	Influenza	Water collected by the bracts taken orally
56	<i>Zingiber spectabile</i> Griff.	Pokok chadak	Inflorescence	Conjunctivitis	Water collected by the bracts used topically

(1.8) The practice of mainly using the roots in herbal medicine is in agreement with previous studies on the Temuan (Ong 1994) Malay villagers (Ong and Nordiana 1999; Ong and Norzalina 1999).

Extraction of entire plants, roots or other underground parts, are destructive to the plants result in low regeneration of medicinal plant species because of the trampling of habitat soil. Rai et al. (2000) reported similar practice among native tribes in Sikkim Himalaya. In this region, several medicinal plant species such as *Acontium heterophyllum* Wall, *Podophyllum haxandrum* Royle, and *Nardostachys jatamansi* DC were threatened because the part of the plants that is medicinal is the root. They also noted that majority of traders collect wild medicinal through untrained and unskilled laborers.

With more than half the total number of medicinal plant species used in this village being based on harvesting of the roots, it places pressure on the survival of such species if they are commercially exploited. When native herbal medicine is used by natives only, the pressure on species survival is much less compared to when these species become commercialized as demand may exceed supply and this will in turn threaten the survival of the species that are widely marketed. The main threat to the survival of local medicinal plants, however, is habitat loss rather than overharvesting. Most of species of local medicinal plants have not found their place in mainstream market whereas habitats to the plants has continued to be disturbed to make way for development and human settlements. Habitat loss threatens the continued existence of medicinal plants that grow in the forests and other natural habitats. Habitat loss is mainly associated with development activities such as clearing habitats for the purpose of timber harvesting, conversion into agricultural lands, land being flooded with the building of dams for water supply or for gen-

erating hydro-electric power, land for industries, housing, roads and various other amenities associated with human urban or sub-urban habitation (Ong 1995). Such problems have not only threatened the survival of medicinal plants in the region but also in many parts the world (Hamilton 2004).

The results also show that 82.6% of the medicinal plant species are made into decoctions to be taken orally. This indicates that they use much less plant species for topical application. The main treatment is internal medicine prepared as decoctions. This is in agreement with the types of ailments treated shown in Table 1 which shows that mostly involve the internal parts of the body. Decoction is mainly used in the preparation of medicines derived from barks or any underground parts of medicinal plants.

Noteworthy findings from this study are: 1) existence of knowledge on traditional uses of medicinal plants among villagers at Kampung Jeram Kedah to treat their ailments and health problems; and 2) the frequent use of roots to treat ailments and health problems, to an extent, may pose threat to the survival of medicinal plants. This study will be extended to more villages and market survey of local medicinal plants to gather more information before these plants can be exploited commercially and sustainably.

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