

## Traditional Knowledge and Usage of Medicinal Plants among the Semai Orang Asli at Kampung Batu 16, Tapah, Perak, Malaysia

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**ABSTRACT** A study was carried out on the traditional knowledge and usage of medicinal plants among the Semai at a village in the state Perak, Malaysia. Information was obtained from talking with adults guided by a predetermined set of questions, and also by observing and participating in their activities during each visit using the method of ethno-botanical enquiry. A total of 37 species was recorded of which most of the species are native. Most species are herbs, followed by trees, climbers and shrubs. Plant parts most commonly used are leaves, roots, flowers, sap, stems. More species are used as external medicine than internal medicine. Many species of plants are used in rituals for healing and protection followed by herbal medicines for restoring and protecting post partum mothers.

### INTRODUCTION

The Semai tribe is one of six tribes in the Senoi ethnic group of Orang Asli (aborigines) found in Peninsular Malaysia (Carey 1976). In term of population size the Semai is the largest among all 18 Orang Asli tribes from 3 ethnic groups in Peninsular Malaysia (Dentan 1979). The population size of the Semai in 2007 was about 43,500 (Edo et al. 2009). Despite being the largest among the Orang Asli tribes, there have been very few studies on natural resources utilization by the Semai tribe. Most previous studies on the Semai focused on their social or anthropological aspects. Among the few studies on the natural resource utilization by the Semai were reported by Ave (1988), Dentan and Ong (1995) and Zainon and Ong (1997). Ave (1988) described the uses of rattan by the Semai. Dentan and Ong (1995) described the Semai practice of adopting useful trees in the forests. Zainon and Ong (1997) described plant resource utilization by two Semai communities in the state of Perak of the Peninsular Malaysia.

The Semai practice hunting, gathering and agriculture within the home garden and also in plots some distance away from their habitation (Dentan 1979). Such life-style is vulnerable and unsustainable as the land and forest that they inhabit may be converted to various uses. In Malaysia, conversion of land-use into housing and new urban areas and industrial estates has often intruded into forest area as well (Abdullah

and Nakagoshi 2007). There are too few studies on natural resource utilization by the Semai to be used to assess the impact of such development to their life-style and livelihood. This paper describes traditional usage and knowledge of medicinal plants among the Semai at a village in the state of Perak, Malaysia. It serves to add to the existing records of plant resource utilization of the Semai that is currently still lacking. The status of medicinal plant species are noted in order to anticipate impediments on the future survival of medicinal plant species and the traditional usage of medicinal plants by the Semai.

### MATERIALS AND METHODS

This study was conducted in a Semai village named Kampung Batu 16 (Malay words for village at the 16<sup>th</sup> mile), Tapah, Perak, Malaysia. The latitude at the main entrance to the village is 4° 20'N while the longitude is 101° 20' W. This village is located on the Batang Padang River valley. The houses were built on the slopes not too near the river to avoid damage and injuries when the water level rises after heavy rainfall. The villagers practiced swidden cultivation and jungle arboriculture. Parts of forest land within the vicinity of the village are cleared through 'slash-and-burn' to cultivate subsistence crops such as hill-paddy and tapioca. Lands are allowed to fallow for several years before they are re-cultivated. Jungles that develop in fallows also harbor trees that are useful to the villagers. The tending of these trees for the harvest of their fruits, timber or medicinal parts is

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a salient feature of jungle arboriculture of the Semai at Kampung Batu 16. There are 28 households in the village with a population of 278 persons when this study was conducted. Most of the houses were built in the native style using plant materials obtained from the surrounding forests. Few houses were built using industrial materials such as planks, beams, bricks and mortar.

Initial stage of this study involved identification of key informants whom the villagers at Kampung Batu 16 considered knowledgeable about traditional usage of medicinal plants. This was carried out through face-to-face conversation on medicinal usage of plants with several adults from the village. All the conversation invariably indicated that two traditional medicine practitioners as the most knowledgeable and competent with medicinal usage of plants in the village. Semi-structured interviews were subsequently carried at appointed dates and times with the informants. Field visit was carried out simultaneously at each appointment during which medicinal plants in and around the village were shown by the informants. Plant specimens were collected using standard taxonomical procedures, taking specimens with flowers and fruits whenever possible (Womersley 1981). Identification was done using various references on the local flora such as Henderson (1974) for herbs and shrubs, Ng (1995) and Whitmore (1983) for trees, Ridley (1967) for general flora, Piggott (1988) for ferns. The species recorded are listed in a table according to alphabetical order of the binomial names.

## RESULTS

This study recorded a total of 37 species of plants used as medicine by the Semai villagers in the village surveyed (Table 1). Table 1 displays the information on the botanical names, family names, Semai names, plant status whether occurring wild, planted or both and the uses. Under the column on uses is recorded the part or parts of the plants used, preparation method and ailments treated. The Semai villagers in this study used medicinal plants from their home garden, agricultural plot, wild plants within and surrounding their villages, riverbank plants and also forest plants. Status of the medicinal plants are given as one of three categories, wild, planted, or both wild and planted.

This study recorded a total of 37 species of medicinal plants used by the Semai villagers in the survey. These 37 species are in 36 genera and 30 families. This shows that these villagers use a wide variety of plant taxa for medicinal purposes. There is no dominant plant family of medicinal plants as 23 families have only a single medicinal species each and 7 families have two species each. Of the 37 species of medicinal plants, 31 species (84%) are wild native plants with the remaining 6 species (16%) are planted non-native species. This shows that the Semai in this village depend largely on wild native species of medicinal plants and that only 16% of the medicinal plants they use are acquired knowledge and resource originating from outside of the country. It also shows that the wild native medicinal plants are still available from the natural habitats as not a single native species is planted. As for plant habit, 18 species (48.6%) are herbs, 8 species are trees (21.6%), 5 species (13.5%) are shrubs and 6 species (16.2%) are climbers of which 4 species are woody climbers while 2 species are non-woody climbers. In terms of parts used, leaf is the most commonly used with a total of 13 species (35.1%) followed by root with 5 species (13.5%), flower, sap and stem with 3 species (8.1%) each, bark, leafy branch, rhizome, seed and whole plant with 2 species (5.4%) each. A total of 27 species (73%) are used externally while only 10 species (27%) are used as internal medicine. In terms of preparation, 16 species (43.2%) are used directly, 9 species (24.3%) are used in the form of decoction, 8 species (21.6%) are used as infusion, 3 species (8.1%) as incense, 1 species (2.6%) as poultice. They tend to associate their health, illness and well-being with the spiritual realm as a total of 14 species (37.9%) are used in rituals (mainly healing, also protective, harvest). Another major category consist of post-partum mothers with 8 plant species (21.6%), followed by fever with 5 species (13.4%), flatulence and stomachache with 2 species (5.4%) each, the rest of the ailments recorded having only 1 species (2.6%) each, namely abscesses, diabetes, jaundice, kidney problems, running nose, ulcer, yellow fever.

## DISCUSSION

This study recorded a total of 37 species of medicinal plants for one Semai village. This figure is more than the totals recorded for two other

**Table 1: List of medicinal plants used by the Semai in Kampung Batu 16**

S. No.	Names (binomial, family, Semai)	Plant status	Uses
1	<i>Acorus calamus</i> L. Araceae (jerangau)	Planted non-native herb	Rhizome used as talisman in healing rituals
2	<i>Aquilaria malaccensis</i> Lamk. Thymelaeaceae (galu')	Wild native tree	Sliced bark in compound infusion used to bath post-partum mothers
3	<i>Bixa orellana</i> L. Bixaceae (sumbe)	Planted non-native shrub	Red color from seeds used to make designs on bamboo used in healing rituals
4	<i>Blechnum orientale</i> L. Blechnaceae (tabar bubu)	Wild native herb	Crushed leaves applied on abscesses to promote healing
5	<i>Calamus ornatus</i> Bl. Arecaceae (coonk bantak)	Wild native woody climber	Sap from cut stem taken orally to treat fever
6	<i>Costus speciosus</i> Smith. Costaceae (tabar)	Wild native herb	Leafy branch used as healing wand and to chase away spirits
7	<i>Cyclea laxiflora</i> Miers. Menispermaceae (coonk kemas)	Wild native non-woody climber	Whole plant used in harvest rituals
8	<i>Dianella ensifolia</i> Red. Liliaceae (kasai)	Wild native herb	Roots mixed with resin of <i>Styrax</i> used as incense in healing and other rituals
9	<i>Dicranopteris linearis</i> (Burm.) Underw. Gleicheniaceae (tebok)	Wild native herb	Leaves used as cockroach repellent
10	<i>Eurycoma apiculata</i> Benn. Simaroubaceae (jelai)	Wild native tree	Sliced leaves in compound infusion used to bath post-partum mothers
11	<i>Goniotalamus macrophyllus</i> Hk.f. Annonaceae (senggut)	Wild native tree	Bark burnt as incense in healing and other rituals
12	<i>Hedyotis capitellata</i> Wall. Rubiaceae (cencureuk)	Wild native herb	Root decoction taken orally to treat fever and stomachache
13	<i>Homalomena griffithii</i> Hk.f. Araceae (birtliir)	Wild native herb	Inhale aroma from cut stem to relieve running nose
14	<i>Iguanura geonomiformis</i> Mart. Araceae (kemerlok)	Wild native palm shrub	Leaf used as wand in healing and other rituals
15	<i>Jatropha curcas</i> L. Euphorbiaceae (jarak)	Planted non-native shrub	Sap of plant applied on ulcers
16	<i>Labisia pothoina</i> Lindl. Myrsinaceae (mem)	Wild native herb	Root decoction taken orally by post-partum mothers
17	<i>Lasianthus villosus</i> Ridl. Rubiaceae (birdekoh)	Wild native shrub	Sliced leaves in compound infusion used to bath post-partum mothers
18	<i>Lindera lucida</i> (Bl.) Boerl. Lauraceae (perawas)	Wild native tree	Sliced leaves in compound infusion used to bath post-partum mothers
19	<i>Lophatherum gracile</i> Brogn. Poaceae (se'ep)	Wild native herb	Root decoction taken orally to treat flatulence
20	<i>Luvunga scandens</i> Buch.Ham. Rutaceae (bengkeras)	Wild native woody climber	Sliced leaves in compound infusion used to bath post-partum mothers
21	<i>Lygodium microphyllum</i> (Cav.) R.Br. Schizaceae (coonk ribu')	Wild native non-woody climber	Leafy branch used in harvest ritual
22	<i>Marumia nemorosa</i> Bl. Melastomataceae (coonk karoh)	Wild native woody climber	Infusion of crushed leaves used for bathing to treat fever
23	<i>Millettia sericea</i> Benth. Papilionaceae (coonk bale')	Wild native woody climber	Stem decoction taken orally to treat stomachache
24	<i>Orchidantha longiflora</i> Ridl. Lowiaceae (serbok)	Wild native herb	Leaves used in healing and other rituals
25	<i>Oryza sativa</i> L. Poaceae (ba')	Planted native herb	Grains used in healing and other rituals
26	<i>Parkia speciosa</i> Hassk. Mimosaceae (betar)	Wild native tree	Root decoction taken orally to treat diabetes, kidney ailments
27	<i>Peliosanthes violacea</i> Wall. Liliaceae (kelawir)	Wild native herb	Leaf used as talisman for new-born babies to protect from evil and promote good health
28	<i>Pellacalyx saccardianus</i> Scort. Rhizophoraceae (leng'am)	Wild native tree	Sliced leaves in compound infusion used to bath post-partum mothers
29	<i>Phyllanthus urinaria</i> L. Euphorbiaceae (dukong anak)	Wild native herb	Plant decoction taken orally to treat jaundice, yellow fever
30	<i>Piper muricatum</i> Bl. Piperaceae (lerher)	Wild native herb	Leaf decoction taken orally to treat fever
31	<i>Plumeria obtusa</i> L. Apocynaceae (kemboja)	Planted non-native tree	Flower used in healing and other rituals

**Table 1: Contd.....**

S. No.	Names (binomial, family, Semai)	Plant status	Uses
32	<i>Rafflesia cantleyi</i> Solms.-Laub. Rafflesiaceae (pat mah)	Wild native herb	Decoction of sliced flower taken orally by post-partum mothers
33	<i>Styrax benzoin</i> Dryand. Styracaceae (kemian)	Wild, native tree	Resin mixed with roots of <i>Dianella</i> used as incense in healing and other rituals
34	<i>Tagetes patula</i> L. Asteraceae (bengi)	Planted non-native herb	Flower used in healing and other rituals
35	<i>Urena lobata</i> L. Malvaceae (bercuk)	Wild native shrub	Stem in compound decoction taken orally to treat flatulence
36	<i>Zingiber griffithii</i> Baker. Zingiberaceae (berdak)	Wild native herb	Rhizome used in healing and other rituals
37	<i>Zingiber spectabile</i> Griff. Zingiberaceae (cadak)	Wild native herb	Leaf infusion used for bathing to treat fever

Semai villages in Perak (Zainon and Ong 1997) with 29 species in Kampung Musoh and 23 species in Kampung Gedong. When compared to other indigenous communities, the total recorded in this study is more than the total of 16 species recorded by Lin (2005) for a Jah Hut village, the total of 31 species used by the Rungus people in Sabah (Ahmad and Holdsworth 1995) and the total of 35 species recorded for the Temuan in Kampung Tering (Ong et al. 2011a). The total recorded in the present study is less than the 56 species recorded for the Temuan villagers in Kampung Jeram Kedah (Ong et al. 2011b) and the 62 species of medicinal plants recorded for the Semang villagers in Kampung Bawong (Samuel et al. 2010). The Semai and many other indigenous tribes depend mainly on gathering medicinal plants from natural habitats and much less on agriculture to obtain their needs for medicinal plant species. The Semai in this study is still very dependent on native wild species for medicine as they use 31 species (84%) that are native compared to 6 species (16%) that are planted non-native. This suggests that the forest is still an important source of medicine for the Semai. The Orang Asli in general still utilize mainly wild native species for medicinal purposes (Lin 2005; Ong et al. 2011a; Ong et al. 2011b; Samuel et al. 2010; Zainon and Ong 1997) as compared to Malay villagers where studies show that they utilize more non-native and planted native species (Ong et al. 2011c; Ong and Nordiana 1999; Ong and Norzalina 1999; Ong et al. 2011d). This situation will change as the Orang Asli face the challenges of development and industrialization coming towards their habitation and the forests thus putting pressure on

them to change with the times and adopt modern medicine while at the same time the natural resources available to them become less as land are developed in line with the nation's development (Nicholas 2000). The younger generations are also less interested in practicing this type of medicine and in acquiring such knowledge. Thus the importance for publishing research papers in this discipline before such knowledge disappears cannot be over emphasized.

The Semai will need to adopt strategies in order to sustain their traditional usage of medicinal plants, however. Firstly, the Semai should rely more on cultivated plants so as to reduce pressure on the species population in the wild. Attempts should be made to cultivate or domesticate as many species of medicinal plants. Secondly, the collection or harvesting practices of medicinal plants in the wild need to be improved. This includes the collection or harvesting of medicinal plants at selective sites and using methods of collection or harvesting that minimize adverse effects on their habitats. The latter is especially needed for species which are collected or harvested for their underground parts.

## CONCLUSION

Although not the highest among all the villages that have been studied in Malaysia, the present study records the highest number of medicinal plant species among the Semai villages studied so far. This study also shows the thriving of traditional knowledge on medicinal plant usage among the Semai in Kampung Batu 16 who depend mainly on wild native plant species.

### RECOMMENDATIONS

Information of traditional knowledge on usage of medicinal plants among native communities in Malaysia is still lacking for the conservation of both the knowledge and medicinal plants. Such information is important to assess the extent of vulnerability of the knowledge and the plants. For this purpose more extensive and in-depth future studies are needed.

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