

Full Length Research Paper

Traditional knowledge and usage of edible plants among the Semai community of Kampung Batu 16, Tapah, Perak, Malaysia

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A study was carried out on the traditional knowledge and usage of edible plants among the Semai community at a village in the state of Perak, Malaysia. Information was obtained through verbal communication 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 ethnobotanical enquiry. A total of 66 species was recorded of which most of the species are native. Edible plant parts were shoots, leaves, stems, rhizomes, fruits, and seeds. Plant parts were eaten raw, cooked, fermented or salted.

Key words: Tribe, swidden, arboriculture, status, habit, uses.

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 terms 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 having the largest among population size among the Orang Asli tribes, very few studies had been done on natural resources utilization by the Semai tribe. Most previous studies on the Semai focused on social or anthropological aspects. Among the few studies on the natural resource utilization by the Semai were Ave (1988) and Zainon and Ong (2000). Ave (1988) described the uses of rattan by the Semai, while Zainon and Ong (2000) described plant resource utilization by two Semai communities in the state of Perak from Peninsular Malaysia.

The Semai practices hunting, gathering and agriculture within the home garden and also in plots some distance away from their habitation (Dentan, 1979). The Semai are also known to practice arboriculture in village clearings and the forests whereby they plant seeds or adopt

seedlings of useful trees in the forests and took care of these trees by clearing the surroundings such that the trees will face less competition (Dentan and Ong, 1995). Such vulnerable life-style is unsustainable as the land and forest that they inhabit may one day be converted to various uses. In Malaysia, conversion of land-use into housing and new urban areas and industrial estates often encroached into forest areas (Abdullah and Nakagoshi, 2006). There are too few studies on natural resource utilization by the Semai community to be used to assess the impact of such development to their life-style and livelihood. The paper describes traditional usage and knowledge of edible plants among the Semai community from a village in the state of Perak, Malaysia. It serves to add to their existing records of plant resource utilization that is currently still lacking.

MATERIALS AND METHODS

This study was conducted in a Semai village named Kampung Batu 16 (Malay words for village at the 16th mile), Tapah, in the state of Perak, Malaysia at 4° 20'N, 101° 20' W. This village is located on the Batang Padang river valley. The houses are built on the slopes not too near the river to avoid damage and injuries when the water level rises after heavy rainfall. The villagers practice swidden cultivation and jungle arboriculture. There are 28 households in the

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Table 1. List of edible plants and their uses by the Semai community of Kampung Batu 16, Tapah, and Perak.

Series no.	Names (Binomial, family, Semai)	Status	Habit	Uses
1	<i>Aglaia gamopetala</i> Merr. Meliaceae. Bernyieng	Wild, native	Tree	Young leaves with stalk eaten raw or cooked
2	<i>Archidendron jiringa</i> (Jack) Nielson. Mimosaceae. Jerik	Planted, wild, native	Tree	Young seeds eaten raw or cooked
3	<i>Areca catechu</i> L. Arecaceae. Blurk	Planted, native	Tree	Young or ripe nuts chewed raw in betel quid
4	<i>Artocarpus elasticus</i> Reinw. ex Bl. Moraceae. Terap	Wild, native	Tree	Flesh of the ripe fruits eaten raw
5	<i>Artocarpus integer</i> (Thunb.) Merr. var. <i>sylvestris</i> Cor. Moraceae. Dekah	Wild, native	Tree	Seeds in the ripe fruits eaten cooked
6	<i>Artocarpus lanceifolius</i> Roxb. Moraceae. Seriik	Wild, native	Tree	Flesh of the ripe fruits eaten raw
7	<i>Baccaurea brevipes</i> Hk.f. Euphorbiaceae. Rami	Wild, native	Tree	Flesh of the ripe fruits eaten raw
8	<i>Baccaurea griffithii</i> Hk.f. Euphorbiaceae. Larah	Wild, native	Tree	Flesh of the ripe fruits eaten raw
9	<i>Baccaurea lanceolata</i> (Miq.) Mart. Euphorbiaceae. Terhik	Wild, native	Tree	Flesh of the ripe fruits eaten raw
10	<i>Baccaurea malayana</i> King. Euphorbiaceae. Knep	Wild, native	Tree	Flesh of the ripe fruits eaten raw
11	<i>Baccaurea ramiflora</i> Lour. Euphorbiaceae. Perpel	Wild, native	Tree	Flesh of the ripe fruits eaten raw
12	<i>Benincasa hispida</i> Thunb. Cucurbitaceae. Kunur	Planted, non-native	Herb	Flesh of mature fruits eaten cooked
13	<i>Bouea macrophylla</i> Griff. Anacardiaceae. Star	Planted, wild, native	Tree	Flesh of the ripe fruits eaten raw
14	<i>Brassica chinensis</i> L. Brassicaceae. Teruk sawi	Planted, non-native	Herb	Leaves with stalk eaten cooked
15	<i>Capsicum annum</i> L. Solanaceae. Lada'	Planted, non-native	Herb	All stages of fruit maturity used raw or cooked as spice
16	<i>Capsicum frutescens</i> L. Solanaceae. Lada' ceep	Planted, wild, non-native	Herb	All stages of fruit maturity used raw or cooked as spice
17	<i>Carica papaya</i> Griff. Caricaceae. Betik	Planted, non-native	Herb	Flesh of the ripe fruits eaten raw
18	<i>Cocos nucifera</i> L. Arecaceae. Jeer	Planted, non-native	Tree	Flesh of the young fruits eaten raw, juice is drunk, milk used in cooking
19	<i>Cucumis sativus</i> L. Cucurbitaceae. Timun	Planted, non-native	Herb	Flesh of the young and mature fruits eaten raw or cooked
20	<i>Curcuma longa</i> L. Zingiberaceae. Remek	Planted, non-native	Herb	Rhizome and leaf used as spice for cooked dishes
21	<i>Cymbopogon citratus</i> (DC) Stapf. Poaceae. Srai	Planted, non-native	Herb	Leaf base used as spice for cooked dishes
22	<i>Dendrocalamus asper</i> Backer. Poaceae. Betung	Wild, native	Woody climber	Shoots eaten cooked
23	<i>Diplazium esculentum</i> (Retz.) Sw. Athyriaceae. Paku'	Wild, native	Herb	Young leaves with stalk eaten cooked
24	<i>Durio lowianus</i> Scort. ex King. Bombacaceae. Sempak toh	Wild, native	Tree	Flesh of the ripe fruits eaten raw or salted
25	<i>Durio oxyelanus</i> Griff. Bombacaceae. Sempak penaklak	Wild, native	Tree	Flesh of the ripe fruits eaten raw or salted
26	<i>Durio zibethinus</i> Murr. Bombacaceae. Sempak	Wild, planted, native	Tree	Flesh of the ripe fruits eaten raw or salted
27	<i>Dysoxylum cauliflorum</i> Hiern. Meliaceae. Cerikei	Wild, native	Tree	Flesh of the ripe fruits eaten raw
28	<i>Elateriospermum tapos</i> Bl. Euphorbiaceae. Prah	Wild, native	Tree	Seeds eaten after being boiled, roasted and left to ferment and age for weeks
29	<i>Etlingeria fulgens</i> (Ridl.) K. Lim. Zingiberaceae. Tapik	Wild, native	Herb	Flesh of the ripe fruits eaten raw
30	<i>Etlingeria venusta</i> (Ridl.) Sm. Zingiberaceae. Lempo' up	Wild, native	Herb	Flesh of the ripe fruits eaten raw
31	<i>Garcinia hombroniana</i> Pierre. Guttiferae. Tebar	Wild, native	Tree	Flesh of the ripe fruits eaten raw
32	<i>Garcinia prainiana</i> King. Guttiferae. Cupu'	Wild, native	Tree	Flesh of the ripe fruits eaten raw

Table 1. List of edible plants and their uses by the Semai community of Kampung Batu 16, Tapah, and Perak.

33	<i>Gomphandra quadrifida</i> (Bl.) Sleum. Icacinaceae. Belhau	Wild, native	Tree	Young leaves eaten cooked
34	<i>Ipomoea batatas</i> Lam. Convolvulaceae. Ubi cook	Planted, non-native	Herb	Leaves and tuber eaten cooked
35	<i>Lansium domesticum</i> Correa. Meliaceae. Langsat	Planted, native	Tree	Flesh of the ripe fruits eaten raw
36	<i>Lindera pipericarpa</i> (Meissn.) Boerh. Lauraceae. Kruit	Wild, native	Tree	Leaf used as spice for cooking fish dishes
37	<i>Luffa acutangula</i> (L.) Roxb. Cucurbitaceae. Metolak	Planted, non-native	Herb	Young fruits eaten cooked
38	<i>Luffa aegyptiaca</i> Mill. Cucurbitaceae. Metolak	Planted, non-native	Herb	Young fruits eaten cooked
39	<i>Mangifera macrocarpa</i> Bl. Guttiferae. Sperp	Wild, native	Tree	Flesh of the ripe fruits eaten raw
40	<i>Manihot esculenta</i> Crantz. Euphorbiaceae. Galeh	Planted, non-native	Shrub	Tuber and young leaves eaten cooked
41	<i>Momordica charantia</i> Desc. Cucurbitaceae. Priyei	Planted, non-native	Herb	Fruit and leaves eaten cooked
42	<i>Musa balbisiana</i> L.A.Colla. Musaceae. Telei embun	Planted, native	Herb	Flesh of the ripe fruits eaten raw
43	<i>Musa paradisiaca</i> L. Musaceae. Telei tanduk	Planted, native	Herb	Flesh of the ripe fruits eaten raw
44	<i>Musa sapientum</i> L. Musaceae. Telei emas	Planted, native	Herb	Flesh of the ripe fruits eaten raw
45	<i>Nephelium lappaceum</i> L. Sapindaceae. Legos	Planted, native	Tree	Flesh of the ripe fruits eaten raw
46	<i>Nephelium maingayi</i> Hiern. Sapindaceae. Likoit	Wild, native	Tree	Flesh of the ripe fruits eaten raw
47	<i>Nicotiana tabacum</i> L. Solanaceae. Bako	Planted, non-native	Herb	Strips of dried leaves chewed raw or smoked
48	<i>Oncosperma horridum</i> Scheff. Arecaceae. Palei	Wild, native	Tree	Shoots eaten raw or cooked
49	<i>Oryza sativa</i> L. Poaceae. Ba	Planted, native	Herb	Dehusked grains eaten cooked
50	<i>Parkia speciosa</i> Hassk. Mimosaceae. Betar	Wild, planted, native	Tree	Seeds eaten raw or cooked
51	<i>Phaseolus vulgaris</i> L. Papilionaceae. Kacak	Planted, non-native	Herb	Young fruits eaten cooked
52	<i>Phrynium hirtum</i> Ridl. Marantaceae. Lempo' gertakhor	Wild, native	Herb	Flesh of the ripe fruits eaten raw
53	<i>Piper betle</i> L. Piperaceae. Sireh	Planted, native	Herb	Young leaves chewed raw in betel quid
54	<i>Piper caninum</i> Bl. Piperaceae. Sireh pacat	Wild, native	Herb	Young leaves chewed raw in betel quid
55	<i>Piper muricatum</i> Bl. Piperaceae. Lerher	Wild, native	Herb	Young leaves chewed raw in betel quid
56	<i>Piper ribesoides</i> Wall. Piperaceae. Cawi	Wild, native	Herb	Young leaves chewed raw in betel quid
57	<i>Pleocnemia irregularis</i> (Presl.) Holtt. Aspidiaceae. Ber'ai	Wild, native	Herb	Young leaves and stalks eaten cooked
58	<i>Psidium guajava</i> L. Myrtaceae. Jambu	Wild, planted, non-native	Tree	Flesh of the mature and ripe fruits eaten raw
59	<i>Saccharum officinarum</i> L. Poaceae. Bus	Planted, native	Herb	Fresh juice of chewed stem swallowed
60	<i>Saraca thaipingensis</i> Cantley ex Prain. Caesalpinaceae. Klaat	Wild, native	Tree	Seeds eaten cooked
61	<i>Solanum melongena</i> L. Solanaceae. Teruk	Planted, non-native	Herb	Young fruits eaten cooked
62	<i>Solanum torvum</i> Swart. Solanaceae. Teruk rimbong	Wild, planted, non-native	Shrub	Young fruits eaten raw or cooked
63	<i>Streblus ilicifolius</i> (Vidal) Corner. Moraceae. Limau nyanik	Wild, native	Tree	Flesh of the ripe fruits eaten raw
64	<i>Vigna unguiculata</i> (L.) Walp. Papilionaceae. Kacak	Planted, non-native	Herb	Young fruits eaten cooked
65	<i>Zea mays</i> L. Poaceae. Jagung	Planted, non-native	Herb	Young and mature fruits eaten cooked.
66	<i>Zingiber officinale</i> Roscoe. Zingiberaceae. Halia'	Planted, non-native	Herb	All stages of rhizome maturity used as spice for cooked dishes

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.

Information was obtained through verbal communication with adults from the community guided by a predetermined set of questions, and also by observing and participating in their activities during each visit using the method of ethnobotanical enquiry (Chin, 1981; Martin, 1995). 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.

RESULTS

The species recorded are listed in a table according to alphabetical order of the binomial names.

This study recorded a total of 66 species of plants used as food by the Semai villagers in the village surveyed (Table 1). This is given in Table 1 with 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, whether eaten raw or cooked. The Semai villagers in this study used edible plants from their home garden, agricultural plot, wild plants within and surrounding their villages, riverine plants and also forest plants. Status of the edible plants are given as one of three categories, wild, planted, or both wild and planted.

The species in Table 1 in the column under 'status' shows that the Semai villagers used slightly more wild species with a total of 31 species (47.0%) as compared to planted species with a total of 28 species (42.4%) and only 7 species being both wild and planted (10.6%). The Semai villagers used twice as many species (44 species, 66.7%) of native edible plants compared with the total species (22 species, 33.3%) of non-native edible plants. As for the plant habit, 32 species (48.5%) were herbs, 31 species were trees (47.0%), 2 species (3.0%) were shrubs and 1 species (1.5%) is a woody climber. In terms of usage, 30 species were eaten raw (45.5%), 23 species were eaten cooked (34.8%), 9 species were eaten both cooked and raw (13.6%), 3 species were eaten raw and salted (4.5%), 1 species was eaten after fermentation (1.5%). Fruits and seeds were the most common parts used with a total of 46 species (69.7%) followed by leafy parts with 12 species (18.2%). Others with much lower numbers were shoots with 2 species (3.0%), tuber and leaf also with 2 species (3.0%), leaf and rhizome with 1 species (1.5%), leaf and fruit with 1 species (1.5%), stem with 1 species (1.5%) and rhizome with 1 species (1.5%).

DISCUSSION

This study recorded a total of 66 species of edible plants

for one Semai village. This figure is more than those of edible plant species recorded by Zainon and Ong (2000) for either two other Semai villages. They recorded a total of 41 and 45 species of edible plant for Kampung Musoh and Kampung Gedong respectively. The total recorded in the present study is slightly less than the 69 species of edible plants recorded for one Temuan village (Ong et al., 2011). Both the Semai and the Temuan practice gathering and agriculture to obtain their needs for edible plant species. The Semai are still very dependent on native species for food as they use 44 species (66.7%) that are native compared to 22 species (33.3%) that are non-native.

A considerable proportion of the plant species in Table 1 are wild and produces edible fruit. This suggests that forest is still an important source of fruits for the Semai. This also explains the relatively high number of species with edible parts that were eaten raw. Hotz and Gibson (2007) suggested several traditional household food-processing and preparation methods that can be used to enhance the bioavailability of micronutrients in plant-based diets. These include thermal processing, mechanical processing, soaking, fermentation, and germination (malting). The study indicates that the Semai do use a diverse methods of food processing and preparation. Further study, however, is needed to ascertain their effectiveness in enhancing the bioavailability of micronutrients.

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