

# Survey and Utilization of Wild Plants (Extractivism) in Tengger Society East Java, Indonesia

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**Abstract** This survey was conducted in various wild plants in the Tengger community to documented about useful plant diversity. Exploration surveys conducted in the Tengger society covering four districts such Malang, Pasuruan, Probolinggo and Lumajang city, shows that traditional farmers have good knowledges about wild plants and are utilized in their lives. The research of wild plants was collected through semi-structural interview and open indept interview. To better measuring to the extractive, activities the utilization and strategy development of the wild plants by indigenous people. Some promising wild species of this region are adas (*Foeniculum vulgare*), jinggol (*Erechtites valerianifolia*), alang-alang (*Imperata cylindrica*), tlotok (*Curculigo apiculata*), putihan (*Buddleja indica*), klandingan (*Albitzia lapantha*), paku jangan (*Diplazium esculentum*), gedang alas (*Musa balbisiana*), jamur grigit (*Schizophyllum aineum*), lobak liar (*Brassica rapa*), tanalayu (*Anaphalis javanica*). The results of the research noted total of 92 wild and semi-wild plants species belonging to 83 general and 45 families are being used in these rituals, foods, and conservation. The management of these resources and the preservation of wild biodiversity along with indigenous knowledge is very essential. It should be developed and documented.

**Keywords** Wild plants, Indigenous knowledge, Tengger people, East Java

## 1. Introduction

Indonesia is a Asian tropic country with its mega-biodiversity and has many variant of unique culture. This country is so attractive and also having high potential resources that were not explored yet, known futhermore the whole exploited [5]. This country has many culture, rituals, tribes, traditional knowledge, traditional tecnology, local medicine and local languages. Rituals are part of human life since long time before pre-history. On the other hand, conditions has changed after the modern advent of civilization, the civilized man became religious, although forget cultural his ancestors.

Tengger people occupy the Bromo Tengger and Semeru mountain region since before the era of Majapahit kingdom. They make utilize and using plants around them as foods, medicines, toxic, ritual, local tecnology of the generosity of the biodiversity around their neighborhood. The plant diversity in the forest, is the wealth of *Sang Hyang Widhi Wasa* can be utilized for human livelihood. [15] reported a harmonious relationship between organisms including humans and natural ecosystems.

Now Tengger people spread in 47 villages over four regency, i.e. Malang, Probolinggo, Pasuruan and Lumajang, East Java [1, 7, 5]. Two inclave villages namely Ngadas at Malang Regency and Ranupani at Lumajang Regency. The district Bromo Tengger and Semeru temperature between 10°C-20°C degree, sometime 0°C., e.g. Ranupani village Senduro district and has latitudes between 800 m-1800 m ASL. Perhutani in the external edge suround of Bromo Tengger Semeru National Park (BTS NP) were located in the districts near a few of cities, i.e. Malang, Probolinggo, Pasuruan and Lumajang [5, 8].

Now the variant traditional plants has change and it affects to their mindset, adaptation management, and all of their lives. Indeed the main resource by providing large genetic variation that can be use to daily are mbote, taro (*Calocasia esculenta*), rice (*Oryza sativa*), etc. Exotic food for example, corn (*Zea mays*), potatoes (*Solanum tuberosum*), cabbage (*Brassica oleriva*), leek (*Allium porrum*) etc. Those are a vital resources by providing a pool of genetic variation that can be used. Until recently, the main conservation strategy adopted for CWR has been ex-situ through the maintenance. The writer recommend to all those interested in agro-biodiversity in addition protected area conservation [14]. Wild plants surveys were conducted in the Tengger community for documentation of useful plant diversity.

## 2. Material and Methods

Preservation and Sample Collection

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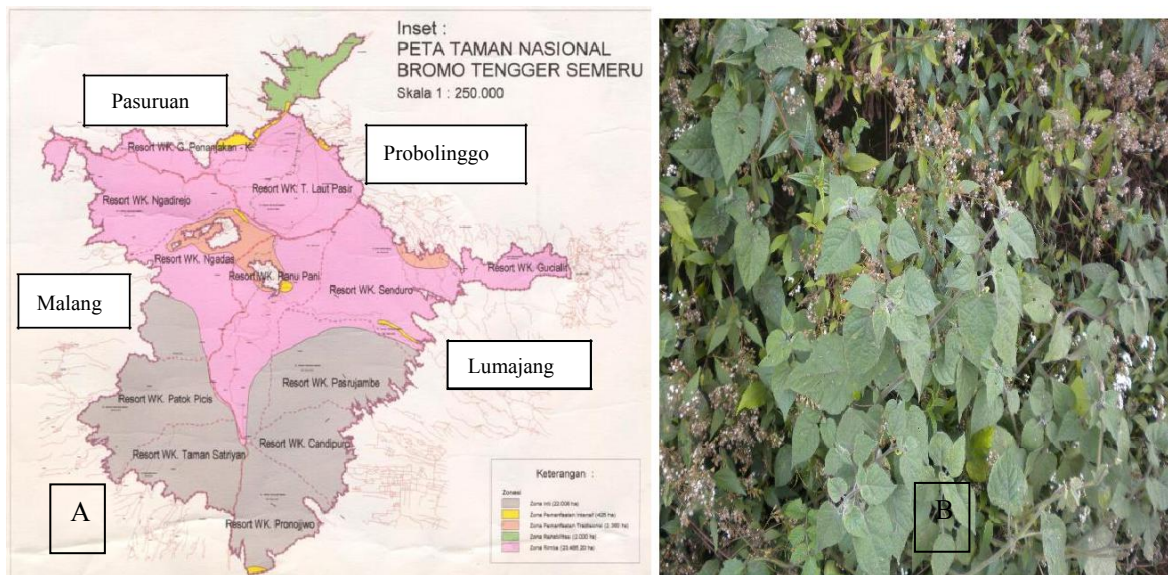
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The research were arranged in order to collect information about the knowledge uses of wild plants by the Tengger people in District Malang, Pasuruan, Probolinggo and Lumajang. Standard methods were followed with regard for collection of plant materials, drying, mounting, preparation and preservation of plant specimens. Herbarium specimens of wild and semi-wild plants were collected, prepared and determined. Plants with their correct nomenclature were

arranged alphabetically by local name, scientific name, family name, part uses and location; habitus: (tree, shrub, liana, herb) uses. Plant specimens collected identified, preseved and mounted were deposited in Herbarium Brawijaya University (MUBR). The identification and nomenclature of the listed plants were based on the Flora of Java, and Flora Malaesiana [1, 11].



**Figure 1.** Map of Malang, Probolinggo, Lumajang and Pasuruan East Java and locations of study sites, B. Ciplukan (*Physalis peruviana*) at Bromo Tengger National Park (BTS NP)

### Botanical Knowledge

A questionnaire method was adopted for documentation of botanical knowledge Tengger society. Traditional people indicated that traditional farmers have vast knowledge about their live fencing practices and the species used [12]. The interviews were carried out from local people to document local name and botanical uses. About 30 informants have been interviewed on random basis [15, 10, 17, 19, 13]. The indigenous use having traditional knowledge (perception and conception) of utilization among the Tengger people have been selected as reference specimens herbarium.

## 3. Results and Discussion

A total of 92 wild and semi-wild edible plant species belonging to 83 genera and 45 families including angiosperm (86), pteridophytes (2), musroom (4), lichens (1) were recorded in the study area (Table 1). Of the reported 45 families, Asteraceae, Poaceae, Fabaceae (11, 10, 8) had the highest number of species, respectively. The largest numbers of edible and utilized wild plant species were found to be trees, followed by herbs, shrubs, and climbers (liana). Wild plants in the yard, fields and forest by the Tengger community are also used to meet the needs of his life. Types of semi-wild plants in the Tengger environment include semi-wild sawi liar, mustard (*Brassica rapa*), bayam (*Amaranthus hybridus*), ganyong (*Canna edulis*) and lobak

liar, daikon (*Raphanus sativus*) (6). Ethnobotanical study of wild and semi-wild food plants in Bali Indonesia, recorded species belonging to 41 families and 68 genera, including angiosperms (82) and pteridophytes (4), are categorized as wild (33) and semi-wild (53), of which 63.64% are native to Malesian, Indian, and Indochinese [18]. [16] reported there were 308 plants belonging to 73 plant families that are being used in indigenous food also nutrition. Edible wild plants are used as delicious vegetables, fruits, companions and spices, in fresh, raw, or dried conditions. The research study of Non-Timber Forest Product (NTFPs) at Perhutani Bromo Tengger and Semeru recorded local knowledge of plants with approximately 184 species, which are food (57 species), medicinal and poisons (40 species), industry wood of Perhutani (23 species), construction, firewood and local technology (21 species), conservation (21 species), forage (30 species), fruit (15 species) and ritual (20 species) [7].

Wild-plant species such as jonggol (*Erechtites valerianifolia*), ciplukan (*Physalis peruviana*), paku jangan (*Diplazium esculentum*), klandingan fruit (*Acacia decurrens*), jamur grigit, mushroom (*Schizophyllum aineum*) can support the economy, so honey forests (*Apis* sp.) family Apidae. Adas (*Foeniculum vulgare*) is the most favored plant species because it has the potential to cure various diseases such as colds, diarrhea and headache. Even though ciplukan (*Physalis peruviana*) by tengger society is used as high blood medicinal, stroke and diabetes. Klandingan fruit (*Albizia lapantha*) has properties such as jengkol (*Archidredon*

*pauciflorum*) and pete (*Parkia speciosa*), increase appetite. Wild and semi-wild edible plants play an important role in providing the Balinese with various essential nutrients [18]. According to pairwise ranking analysis, fruits of *Vitex doniana* and the leaves of *Portulaca quadrifida* are the most preferred plant species because of their sweet taste [9]. The local name krokot (*Portulaca quadrifida*) plant by tengger society is not used as food, sometimes as a mixture of fodder. Customary ritual activities used primarily viz tlotok (*Curculigo capitulata*), ringin (*Ficus benyamina*), gedang alas, banana (*Musa balbisiana*), kananga (*Cananga odorata*), piji (*Pinanga coronata*), putihan (*Buddleja indica*), tanalayu, edelweis (*Anaphalis* spp.), alang-alang (*Imperata cylindrica*),

cemara gunung (*Casuarina junghuhniana*) and bamboo (*Dendrocalamus*, *Gigantochola*). [7] reported index of cultural significance (ICS) medium-high consist of Gedang (*Musa paradisiaca*, *Musa balbisiana*) (54), bamboo (*Dendrocalamus asper*, *Gigantochola apus*) (38), ringin (*Ficus benyamina*) (38), alang-alang (*Imperata cylindrica*) (34), tanalayu (*Anaphalis* spp.) (32), klandingan (*Albitzia lophantha*) (32), putihan (*Buddleja asiatica*) (30), jarak kepyar (*Ricinus communis*) (32).

The different plants used in the five common are tabulated below (Table 1). This table gives correct botanical name of plants, local name, common name, family, part used, location; habitus: (tree, shrub, liana, herb).

**Table 1.** The different plants used in the five common are tabulated below

No	Local name	Common name	Family	Parts uses and benefits	Location; habitus: (tree, shrub, liana, herb)
1	Bayam	<i>Amaranthus hybridus</i> L.	Amaranthaceae	Leaf, young stem; vegetable	Perhutani, fieds; herb; semi-wilds
2	Bayam duri	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Leaf; medicine, toxic	BTS NP, Perhutani, fields; herb
3	Tlotok	<i>Curculigo apitulata</i> O.K. (Lour.) Kunze	Amaryllidaceae	Whole; ritual, wrap	BTS NP, Perhutani, home garden, fields; shrub
4	Kenongo	<i>Cananga odorata</i> Baill.	Annonaceae	Flower; ritual	Kasada, unan-unan, karo; shrub-tree
5	Kayu kembang	<i>Michelia volutina</i> L.	Annonaceae	Stem, flower; ritual; local technology	BTS NP, Perhutani, fields; tree
6	Locari	<i>Michelia champaca</i> L.	Annonaceae	Flower, ritual	Fields, ritual; tree
7	Adas	<i>Foeniculum vulgare</i> Mill.	Apiaceae	Leaf, flower, fruit, seed; medicine	BTS NP, Perhutani, fields, home garden; shrub-herb
8	Pagan	<i>Centela asiatica</i> (L.) Urb.	Apiaceae	Leaf; medicine	BTS NP, Perhutani, field; herb
9	Pule	<i>Alstonia scholaris</i> R.Br	Apocynaceae	Stem; medecine	BTS NP, Perhutani, fields; tree
10	Pulosari	<i>Alyxia reinwardtii</i> Bl.	Apocynaceae	Leaf; medicine	BTS NP, Perhutani; liana
11	Talas	<i>Calocasia esculenta</i>	Araceae	Whole, food	Fields, ritual; herb
12	Aren	<i>Arenga pinatta</i> (Wurmb) Merr.	Arecaceae	Fruit, trichoma; ritual, local technology	BTS NP, Perhutani; tree
13	Jambe	<i>Areca catechu</i> L.	Arecaceae	Fruit; medicine	BTS NP, Perhutani, medicine, ritual; tree
14	Piji	<i>Pinanga coronata</i> Blume	Arecaceae	Fruit, ornamental, flower; ritual and medicine	BTS NP, Perhutani, fields; smal tree
15	Prenjalin	<i>Calamus javanensis</i> Bl.	Arecaceae	Stem, special in ritual (karo; ujung- ujungan), rope	BTS NP, Perhutani; liana
16	Jaringan	<i>Sonchus javanicus</i> Jungh.	Asteraceae	Latex; medicine	BTS NP, Perhutani, fields; herb
17	Jonggol	<i>Erechtites valerianifolia</i>	Asteraceae	Leaf; vegetable, medicine	BTS NP, Perhutani, fields; herb
18	Kuningan	<i>Widelia montana</i> (Bl.) Boerl	Asteraceae	Leaf; food	BTS NP, Perhutani, sayur; herb
19	Menjari	<i>Emilia sonchifolia</i> (L.) DC.	Asteraceae	Sap, medicine	Fields, BTS NP, Perhutani; shrub
21	Putihan	<i>Buddleja indica</i> Lour.	Asteraceae	Whole plant; ritual	BTS NP, Perhutani, fields; shrub

No	Local name	Common name	Family	Parts uses and benefits	Location; habitus: (tree, shrub, liana, herb)
22	Sempretan	<i>Eupatorium</i> sp.	Asteraceae	Radix; medicine	BTS NP, Perhutani; shrub
23	Tanalayu	<i>Anaphalis longifolia</i> (Bl.) DC.	Asteraceae	Whole plants; ornamental, flower; ritual	BTS NP, Perhutani, fields; shrub-herb
24	Tanalayu	<i>Anaphalis javanica</i> (Reinw.) Schultz.	Asteraceae	Whole, flower; ritual, ornamental	BTS NP, Perhutani, fields; shrub
25	Telasih	<i>Eupatorium inulifolium</i> H.B.K	Asteraceae	Leaf; medecine, toxic	BTS NP, Perhutani, fields; shrub
26	Trebah	<i>Tihonia diversifolia</i> Gray	Asteraceae	Leaf, flower; animal feed, firewood, local technology	BTS NP, Perhutani, fields; shrub
27	Aseman	<i>Achyranthes bidentata</i> Bl.	Brassicaceae	Leaf; vegetable, medicine	BTS NP, Perhutani, fields, home garden; herb
28	Lobak liar	<i>Brassica rapa</i> L.	Brassicaceae	Stem; vegetable, medicine	Perhutani, fields; herb; semi-wild
29	Sawi liar	<i>Brassica rapa</i> L.	Brassicaceae	Leaf, stem; food	Perhutani, field; herb; semi-wild
30	Ganyong	<i>Canna edulis</i>	Cannaceae	Stem; food	Perhutani, fields, shrubs; semi-wild
31	Cemara gunung	<i>Casuarina junghuhniana</i> Miq.	Casuarinaceae	Whole plant; conservation	BTS NP, Perhutani, Pedanyangan area, ritual; tree
32	Gewor	<i>Comelina nodiflora</i> L.	Comelinaceae	Leaf; animal feed	BTS NP, Perhutani, fields; herb
33	Ketirem	<i>Ipomoea</i> sp.	Convolvulaceae	Leaf; medecine, vegetable	BTS NP, Perhutani; liana
34	Paku tiyang	<i>Cyathea contaminata</i> (Wall.ex Hook.) Copel.	<i>Cyatheaceae</i>	Whole plant; ornamental, orchids media	BTS NP, Perhutani; tree
35	Teki	<i>Cyperus monocephalus</i> L.	Cyperaceae	Rhizomes; medicine, animal feed	BTS NP, Perhutani, fields; shrub
36	Greges otot	<i>Equisetum debile</i> Roxb.	Equisetaceae	Leaf; medicine, ornamental	BTS NP, Perhutani, fields; shrubs
37	Jarak	<i>Ricinus communis</i> L.	Euphorbiaceae	Fruit; ritual, spices	BTS NP, Perhutani, fields; shrub
38	Dadap	<i>Erythrina variegata</i> L.	Fabaceae	Whole plant; medicine, local technology, conservation	BTS NP, Perhutani; tree
39	Kacangan, empikan	<i>Centrosema pubescens</i> Bth.	Fabaceae	Leaf; animal feed	BTS NP, Perhutani, fields; liana
40	Klandingan	<i>Albizia lophantha</i> (Wild.) Beth	Fabaceae	Stem; firewood	BTS NP, Perhutani, fields; tree
41	Akasia	<i>Acacia decurrens</i>	Fabaceae	Stem; fire-wood	BTS NP, Perhutani, fields, tree
42	Krangean	<i>Abrus rosaeifolius</i>	Fabaceae	Seed; toxic	BTS NP, Perhutani, fields; shrub
43	Orok-orok	<i>Crotalaria striata</i> DC.	Fabaceae	Whole plant; animal feed	BTS NP, Perhutani, fields; shrub
44	Pronojiwo	<i>Euchresta horsfieldii</i> (Lesch.) Benn.	Fabaceae	Fruit, seed; medicine	BTS NP, Perhutani, fields; shrub
45	Senduro	<i>Sindora javanica</i> (K.&V.) Back	Fabaceae	Whole; medicine	BTS NP, Perhutani; fields; shrub

No	Local name	Common name	Family	Parts uses and benefits	Location; habitus: (tree, shrub, liana, herb)
46	Pasang	<i>Lithocarpus, Quercus</i>	Fagaceae	Stem, local technology	BTS NP, Perhutani
47	Rukem	<i>Flacourtia rukam</i> Zoll & Mor	Flacourtiaceae	Fruit; medicine	BTS NP, Perhutani; fields; small-tree
48	Gronggong	<i>Erianthus arundinaceus</i> (Retz.) Jeswiet.	Gramineae	Leaf; animal feed, conservation	BTS NP, Perhutani; fields; grass
49	Danglu	<i>Engelhardia spicata</i> Lech. Ex Bl.	Juglandaceae	Whole plant; local technology; ritual	BTS NP, Perhutani, Fields; Pedanyangan area, sanggar pamujan area; tree
50	Jamur impes	<i>Calvatia borista</i> (L) van Overeem	Lycoperdaceae	Fruit; medicine	BTS NP, Perhutani, fieds
51	Waru gunung	<i>Hybiscus macrophyllus</i> Roxb.	Malvaceae	Stem, local technology	BTS NP, Perhutani, fields; tree
52	Awar-awar	<i>Ficus septica</i> Burm. f.	Moraceae	Fruit, young leaf; medicine	BTS NP, Perhutani, fields; shrub
53	Bendo	<i>Artocarpus elasticus</i> Reinw. ex Bl.	Moraceae	Whole plants, sap; ritual	BTS NP, Perhutani, fields, pedanyangan area, sanggar area; tree
54	Kayu kebek	<i>Ficus grassulasioides</i> Burm. f.	Moraceae	Whole plant; ritual	Fields, Pedanyangan area, sanggar pamujan area; tree
55	Pampung	<i>Uenanthe javanica</i>	Moraceae	Leaf; local technology, ritual (petra)	BTS NP, Perhutani, fields, pedanyangan area; tree
56	Ringin	<i>Ficus benyamina</i> L.	Moraceae	Whole plants; leaf: ritual	Pedanyangan area, fields; tree
57	Pisang alas	<i>Musa balbisiana</i>	Musaceae	Whole plant; ritual, vegetable, medicine	BTS NP, Perhutani; tree-shrub
58	Gigit mantung	<i>Eugenia</i> sp.	Myrtaceae	Fruit	BTS NP, Perhutani; tree
59	Anting-anting	<i>Fuchsia hybrida</i> Hort.	Onagraceae	Whole pant; hias, ritual	BTS NP, Perhutani, fields, ritual; shrub
60	Kacuk bedes	<i>Oxalis corniculata</i> L.	Oxalidaceae	Whole plant; medicine	BTS NP, Perhutani, fields; herb
61	Pandan ri	<i>Pandanus tectorius</i> L.	Pandanaceae	Leaf; ritual	BTS NP, Perhutani ritual; small tree
62	Meniran	<i>Phyllanthus urinaria</i> L.	Phyllanthaceae	Leaf, medicine	BTS NP, Perhutani, fields; herb
63	Daun sendok	<i>Plantago mayor</i> L.s.l.	Plantaginaceae	Leaf, medicine	BTS NP, BTS NP, Perhutani; herb
64	Alang-alang	<i>Imperata cylindrica</i> L.	Poaceae	Whole pant; rope, animal feed, ritual, medicine	BTS NP, Perhutani, fields; shrub
65	Bambu betung	<i>Dendrocalamus asper</i> (Schultes) Backer ex Heyne	Poaceae	Stem, young stem; local technology food, ritual	BTS NP, Perhutani, fields; tree
66	Bambu jajang	<i>Gigantochola apus</i> Kurz.	Poaceae	Stem, young stem; animal feed, ritual, local, technology	BTS NP, Perhutani, fieds; tree
67	Genggeng	<i>Microstegium rufisticum</i> (Steud.) A. Camus	Poaceae	Leaf; animal feed	BTS NP, Perhutani, fields; grass

No	Local name	Common name	Family	Parts uses and benefits	Location; habitus: (tree, shrub, liana, herb)
68	Jlabrangan	<i>Digitaria argyrostachya</i>	Poaceae	Leaf; animal feed	BTS NP, Perhutani, fields; grass
69	Kawatan	<i>Axonopus compressus</i> (Sw.) Beauw.	Poaceae	Leaf; animal feed	BTS NP, Perhutani, fields; grass
70	Lulungan	<i>Eleusine indica</i> Gaertn	Poaceae	Leaf; animal feed	BTS NP, Perhutani, fields; grass
71	Empritani	<i>Eragrostis tenella</i> (L.) Beauv. Ex R. & S.	Poaceae	Leaf; animal feed	BTS NP, Perhutani; grass
72	Paku jangan	<i>Diplazium esculentum</i> Swartz	Poaceae	Young leaf; animal feed	BTS NP, Perhutani, fields; shrub
73	Pariopo	<i>Leersia hexandra</i>	Poaceae	Leaf; animal feed	BTS NP, Perhutani, fields; grass
74	Peketek	<i>Pogonanthum paniceum</i> Hack.	Poaceae	Leaf; animal feed	BTS NP, Perhutani; grass
75	Rumput grinting	<i>Cynodon dactylon</i> Pers.	Poaceae	Whole plant; animal feed	BTS NP, Perhutani, fields; herb
76	Akar Wangi	<i>Polygala paniculata</i> L.	Polygalaceae	Root; medicine	BTS NP, Perhutani, fields; shrub
77	Jamur kayu	<i>Ganoderma cochlear</i> Bl. et Nees	Polyporaceae	Fruit; medicine	BTS NP, Perhutani, fields; herb
78	Grunggung	<i>Rubus rosaefolius</i> J.E. Smith.	Rosaceae	Fruit; medicine	BTS NP, Perhutani, fields; liana-shrub
79	Simbukan	<i>Paederia foetida</i> L.	Rubiaceae	Leaf, vegetable, medicine	BTS NP, Perhutani, fields; liana
80	Jamur grigit	<i>Schizophyllum aineum</i>	Schizophyllaceae	Fruit; food	BTS NP, Perhutani
81	Selaginella	<i>Sellaginella wildenowii</i>	Selaginellaceae	Medicine	Fields, BTS NP, Perhutani
82	Ciplukan	<i>Physalis peruviana</i> L.	Solanaceae	Fruit; food, medicine	BTS NP, Perhutani, fields, home garden; shrub-herb
83	Cubung	<i>Brugmansia candida</i> Pers.	Solanaceae	Whole plant, flower, leaf; decorative, medicine	BTS NP, Perhutani, fields; shrub
84	Pokak	<i>Solanum torvum</i> Sw.	Solanaceae	Fruit; food, medicine	BTS NP, Perhutani, home garden, fields; shrub
85	Ranti	<i>Solanum nigrum</i> L.	Solanaceae	Fruit, leaf; food, medicine	BTS NP, Perhutani, home garden, fields; shrub
86	Jamur pasang	<i>Pleurotus</i>	Trichomataceae	Food	BTS NP, Perhutani
87	Antanan	<i>Centella asiatica</i> (L.) Urb.	Umbelliferae	Leaf; medicine	BTS NP, Perhutani; shrub
88	Purwoceng	<i>Pimpinella pruacan</i> Molkenb.	Umbelliferae	Whole medicine	BTS NP, Perhutani; herb
89	Bedor/dan cukan	<i>Girardinia palmata</i> Gaud.	Urticaceae	Whole plants; ritual bantengan	BTS NP, Perhutani, fields, pedanyangan; shrub
90	Susuh angin	<i>Usnea dasypoga</i> (Acharius) Nylander	Usneaceae	Fruit; medicine	BTS NP, Perhutani, fields, herb-shrub
91	Mentigi	<i>Vaccinium varingiaefolium</i> (Bl.) Miq.	Vacciniaceae	Stem, fruit; local technology	BTS NP, Perhutani, fields; tree
92	Jae wono	<i>Zingiber officinale</i> Rosc.	Zingiberaceae	Rhizome; medicine	BTS NP, Perhutani, fields; herb

## 4. Conclusions

Tengger people have knowledge and wisdom to use wild and semi-wild plants in 92 species belonging to 83 genera and 45 families were recorded. Those are utilized as local technological materials, fruits, custom rituals, vegetables, art, animal feed, medicines and toxins. Wild plant species are taken on a limited basis and according to customary rules, so it is not harm for the environment. Traditional knowledge related to the use of wild and semi-wild vegetable plants is threatened with extinction. Therefore, the management of these resources and the preservation of biodiversity along with indigenous knowledge is essential and should be documented.

## 5. Suggestion

For the further researcher, various utilizations wild plant and semi-wild by Tengger people of a part of fields, Perhutani and Bromo Tengger National Park (BTS NP) must be considered about the positive and negative impact to the area around. Might the positive effects were positive economic, socio-cultural for related communities, Perhutani and BTS NP as well as its own environment.

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