International Journal of Academic Research and Development
ISSN: 2455-4197; Impact Factor: RJIF 5.22
Received: 09-04-2019; Accepted: 11-05-2019
www.academicjournal.in
Volume 4; Issue 4; July 2019; Page No. 27-35

Ethnobotany and conservation perspective based on local wisdom in dayak taman tribe, west Kalimantan, Indonesia

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Abstract
Dayak Taman tribe in Ingko' Tambe Village, South Putussibau District, Kapuas Hulu Regency, West Kalimantan, Indonesia has traditional knowledge in utilizing plants. This is reflected in the daily lives of people in utilizing natural products (plants) to fulfill the needs of food, clothing, shelter, traditional rituals, natural dyes, beauty/body care, natural pesticides, ornamental plants, and aromatics. However, at present the traditional knowledge of the community is at risk of being lost due to shifting fields, illegal logging, the influence of foreign cultures, and knowledge of plants that have not been well documented. The purpose of this research is to find out the types of plants, parts used, uses, status of plants in nature and habitat of plants that have potential as food, clothing, shelter, traditional rituals, natural dyes, beauty/body care, natural pesticides, ornamental plants and aromatic. The approach used was descriptive qualitative.The research method used was a survey. The data sources in this research were obtained from the main informants, key informants, and recommendation informants. The main informants were determined by purposive sampling technique. While the determination of key informants and recommendations informants by snowball sampling technique. Collecting data is done by interviews and field observations. The data analysis used by calculating the percentage of families, percentage of plant parts used, percentage of habitat types, percentage of plant status in nature. The results showed that plants used by Dayak Taman tribes in Ingko' Tambe Village was 121 species from 46 families. The highest families were *Zingiberaceae* (7.43%) and *Moraceae* (7.43%). The most used part is fruit (45.45%). The plants that are used are found in the garden (35.53%). The status of plants in nature is cultivation with the highest percentage of 78.51%.

Keywords: etnobotani, conservation, local wisdom, Dayak Taman

1. Introduction
West Kalimantan is the fourth largest area in Indonesia (26.98% of the total area of Indonesia) and the forest reaches 9.125.486 hectares (Sardana *et al*., 2011) [32]. West Kalimantan has tropical rainforests with a high diversity of plants to be used traditionally by the community in fulfill their daily needs. The diversity of plants found in the forest has enormous potential, especially in the preservation and development of natural resources in it. The Dayak tribe in West Kalimantan consists of 151 subethnis (Aloy*et al*., 2008), one of them is the Subethnis Dayak Taman in Ingko' Tambe in Kapuas Hulu Regency. This village has a forest with a diversity of plants that are widely used by Dayak Taman Tribe as a natural resource to fulfill their daily needs. The Dayak Taman tribe also still maintains customs and traditions in the use of forest natural resources.

Customs and traditions in the use of forest natural resources by certain tribes including Dayak Taman Tribe are local wisdom. Local wisdom is all forms of knowledge, belief, understanding, or insight as well as customs or ethics that guide human behavior in life in ecological communities (Keraf, 2002) [17]. Supiandi *et al*., (2019) [36] insight into the use of local plants is obtained by the community through inheritance from parents, and also from relatives and others. One form of local wisdom from Dayak Taman Tribe is traditional knowledge (indigenous knowledge) or termed traditional wisdom about using plant values, such as food sources, clothing, shelter, traditional rituals, natural dyes, body/beauty care, natural pesticides, poisons, ornamental plants, handicrafts and aromatics.

Based on the results of previous studies identified several problems that could threaten the local wisdom of the Dayak tribe, specifically the Dayak Taman tribe, among others: (1) Submission of information about plant species and their use which is only limited to the delivery of previous parents to posterity by a part of the population. (2) Influence of foreign cultures that use these natural resources, which are slowly taking the results of plants that exist in the community (Kustiawan, 2007) [19]. (3) The lack of knowledge of the use of plants for handicraft / woven materials and so on (Anggana, 2011) [4]. (4) Forest degradation in West Kalimantan increases every year due to the extent of land clearing for industrial forest development, oil palm plantations, illegal logging, and shifting fields threatening the sustainability of existing germplasm, rare species and endemic (Setiawan, 2010).

Based on these problems, it is becoming increasingly important to do research on ethnobotany and traditional knowledge in the Dayak Taman tribe. Ethnobotany is one of the fields of science that studies the relationship between local communities and their natural environment which includes a system of knowledge about plant resources (Purwanto, 1999) [28]. Ethnobotany can be used as a tool to document the knowledge of traditional communities, ordinary people who have used various kinds of plant services to support their lives. Ethnobotanical research is

very important for the purpose of biodiversity conservation (Supiandi *et al*., 2019) [36]. Furthermore Diaz (2010) [9] argues that local knowledge or wisdom is an important asset in achieving biodiversity targets, traditional knowledge and practices applied by indigenous peoples or local communities are also key to preventing damage to biodiversity and achieving sustainable development. Meanwhile, Rukeh., *et al* (2013) [30] stated that local cultural practices have contributed to forest conservation. Apart from this, this research will obtain ethnobotany data, the local wisdom of the Dayak Taman tribe community which will later be used as a reference for developing reference books based research.

2. Method

2.1 Time and research location

This research was conducted in May 2019. The research was conducted in Ingko' Tambe village, South Putussibau District, Kapuas Hulu Regency, West Kalimantan Province, Indonesia.

2.2 General conditions of research location

Ingko' Tambe Village is located in South Putussibau District, Kapuas Hulu Regency, West Kalimantan Province, with coordinates $0^{9}43$ 6 28 LS/LU $113^{0}1$ 805 BT/BB. Ingko' Tambe village on the north side is bordered with Paduan Mandalam village, south side is bordered with Nanga Lebangan and Peniung villages, east side is bordered with Sayut village, on the west side is bordered with Malapi village. The area of Ingko 'Tambe village is ±50.400 Ha with forest area ±31.207 Ha. The population of Ingko' Tambe village is 792 people, consisting of 405 men, 387 women. The number of family heads is 228 families. The research location map is presented in Figure 1.

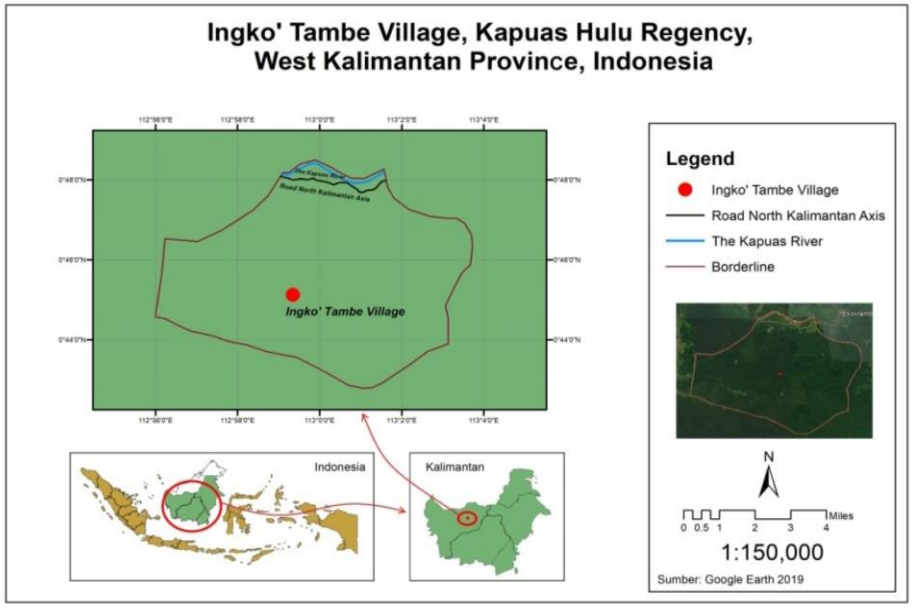

Fig 1: Ingko' Tambe Village Administrative Area, Kapuas Hulu Regency, West Kalimantan Province, Indonesia

2.3 Research data sources

Data in this research were obtained from informants, events or activities, places or locations, objects, pictures, and recordings, written and unwritten documents. In this research, consisted of three types of informants namely: main informants, key informants, and recommendation informants. The main informants were determined by purposive sampling technique. While determining key informants and recommendations informants with the snowball sampling technique. The description of informant determination can be seen in Figure 2.

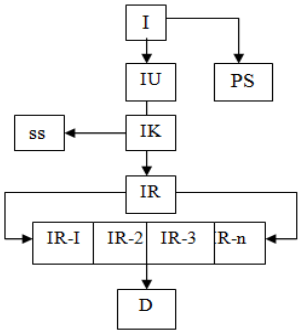

Fig 2: Description of informant determination

Where: I: informant, IU: main informant, PS: sampling with purposive sampling, IK: key instrument, SS: sampling with snowball sampling, IR: recommendation informant, IR-1: 1st person recommendation informant, IR-2: 2nd person recommendation informant, IR-3: 3rd person recommendation informant, IR-N: person recommendation informant to n until the data is saturated, D: data

2.4 Research data collection

2.4.1 Interviews

Ethnobotany data collections on Dayak Taman tribe in Ingko' Tambe Village was conducted through interviews with customs leader, balien (shaman), village head and community leader. Interviews were conducted with the aim of obtaining information relating to plants used in daily life by the Dayak Taman tribe in Ingko' Tambe Village. The numbers of respondents in this research were 12 peoples. The interview conducted was semi-structured because it used a questionnaire to find out the community's knowledge about the types of plants used (food, clothing, shelter, accomplishes the rites of custom, natural dyes, beauty/body care, natural pesticidies, toxins, plants ornamental, crafts, and aromatic).

2.4.2 Field observation

The information obtaioned related to the types of plants used (food, clothing, shelter, accomplishes the rites of custom, natural dyes, beauty/body care, natural pesticidies, toxins, plants ornamental, crafts, and aromatic) by the people of Dayak Taman tribes in the Village Ingko' Tambe through the interview further verified by researchers through field observations. Field observation is done by observing and taking image (photos) in detail herbs which are utilized.

2.5 Research data analysis

Species of plants that have been obtained through the interview and observations the next determined scientific name. The determination of scientific name (identification) do with some way: (a) through the reference associated with the plants, (b) through the results of research published in the journal, (c) through the address of the website: www.theplantlist.org; biodiversitylibrary.org; www. google.co.uk, (d) consultation with the lecturer pundits plants. The data plants derived from the results of an interview and field observation then calculated the percentage of families, percentage of plant parts used, percentage of habitat types, percentage of plant status in nature.

3. Result

3.1 The diversity of plants

Plants obtained based on the results of interviews and field observations with the Dayak Taman community in Ingko' Tambe Village, Putussibau Selatan District, Kapuas Hulu Regency as much as 121 species from 46 families are presented in Table 1.

Tabel 1: Diversity of Plants in the Community of Dayak Taman Tribe in Ingko' Tambe Village

Local name	Scientific name	Family	Plant part	Procedure	Use	Status	Habitat
Abuk	*Ipomoea batatas* L.	Convolvulaceae	Fruit and leafs	Stewed fruit, salad, saute	Food	Cultivation	Field
Antimun	*Cucumis sativus* L.	Cucurbitaceae	Fruit	Sliced and saute	Food	Cultivation	Garden
Antimun balao	*Benincasa hispida* (Thunb) Cogn.	Cucurbitaceae	Fruit	Pounded or sliced, saute	Food	Cultivation	Field
Ase	*Oryza sativa* L.	Poaceae	Seeds	Drying, pounded, cooked	Food	Cultivation	Field
Balubit	*Averrhoa carambola* L.	Oxalidaceae	Fruit	The fruit was eaten immediately	Food	Cultivation	The yard
Balubit wuluh	*Averrhoa bilimbi* L.	Oxalidaceae	Fruit	The fruit was eaten immediately	Food	Cultivation	The yard
Bapang	*Capsicum annuum* L.	Solanaceae	Fruit	Pounded and sliced	Food	Cultivation	Garden
Arosan	*Ananas comosus* (L.) Merr.	Bromeliaceae	Fruit	Peeled the fruit, and the fruit was eaten immediately	Food	Cultivation	Garden
Semangkak balanda	*Annona muricata* L.	Annonaceae	Fruit	Peeled the fruit, and the fruit was eaten immediately	Food	Cultivation	The yard
Kele	*Manihot utilissima* Crantz.	Euphorbiaceae	Fruit	Peeled the fruit, dismembered,boiled/fried/burned	Food	Cultivation	Garden
Paranggi	*Cucurbita muschata* Duch.	Cucurbitaceae	Leafs and fruit	Cleaned up the leafs young, dismembered, saute. Peeled the fruit, dismembered, saute.	Food	Cultivation	Field
Sio	*Nephelium lappaceum* L.	Sapindaceae	Fruit	Peeled the fruit, and the fruit was eaten immediately	Food	Cultivation	The yard
Bumbungkang	*Syzygium polyanthum*.	Myrtaceae	Leafs	The old leafs used to add taste of cooking	Food	The Wild Plant	Forest
Cimadak	*Artocarpus integer* (Thunb.) Merr.	Moraceae	Fruit	Peeled the fruit, dismembered and saute	Food	Cultivation	The yard
Coklat	*Theobroma cacao* L.	Sterculiaceae	Fruit	Split the fruit and the fruit was eaten immediately	Food	Cultivation	Garden
Daruen	*Durio zibethinus* L.	Bombacaceae	Fruit	Split the fruit, and the fruit was eaten immediately	Food	Cultivation	Garden
Arum	*Amaranthus Tricolor* L.	Amaranthaceae	Leafs	Cleaned up the leafs young, saute	Food	Cultivation	Field
Jogo	*Amaranthus spinosis* Linn.	Amaranthaceae	Leafs	Cleaned up the leafs young, saute	Food	Cultivation	Field
Kele	*Manihot esculenta* Crantz.	Euphorbiaceae	Leafs	Dismembered the leafs young, pounded, saute	Food	Cultivation	Field
Nunuk	*Ficus fistulosa* Reinw.	Moraceae	Leafs	Dismembered the leafs young, saute	Food	The wild plant	Forest
Sangkok	*Sauropus androgynus* L.	Euphorbeaceae	Leafs	Saute the leafs young	Food	Cultivation	Garden
Gandis	*Garcinia parvifolia* (Miq).	Guttiferae	Fruit	Cut the fruit, dry, then used to add to the acid on food	Food	The wild plant	Forest
Genjer	*Limnocharis flava* L.	Limnocharitaceae	Stems and leafs	Stems and leafs young dismembered, saute	Food	The wild plant	The edge of the river
Imbawang	*Pangium edule* Reinw.	Achariacae	Fruit	Peeled the fruit, sliced, and then eaten	Food	The wild plant	Forest
Imbung paring	*Bambusa vulgaris* Schrad. Ex J.C.	Poaceae	The young shoots	Peeled the bamboo, sliced	Food	The wild plant	Forest
Jagum	*Zea mays* L.	Poaceae	Fruit	Peeled the fruit and boiled immediately	Food	Cultivation	Field

Jambu ae	*Syzygium aqueum* (Burm. F).	Myrtaceae	Fruit	The fruit was eaten immediately	Food	Cultivation	The yard
Jambu biji	*Psidium guajava* L.	Myrtaceae	Fruit	The fruit was eaten immediately	Food	Cultivation	The yard
Jambu bol	*Syzygium malaccense* L.	Myrtaceae	Fruit	Can be eat directly	Food	Cultivation	The yard
Jambu guru	Anacardium occidentale L.	Anacardiaceae	Fruit	Can be eat directly	Food	The Wild Plant	The yard
Jengkol	*Pithecellobium jiringa* Benth.	Leguminaceae	Fruit	Peel the rind, boiled the fruit, sliced, and fry	Food	Cultivation	The yard
Karam	*Ficus variegate* Blume.	Moraceae	Fruit	Can be eat directly	Food	The Wild Plant	Forest
Kajang panjang	*Vigna unguiculata sesquipedalis* (L.) Verdc.	Fabaceae	Fruit	Sliced, fry	Food	Cultivation	Garden
Kacang tanak	*Arachis hypogaea* L.	Fabaceae	Seed	Boiled, peel the rind	Food	Cultivation	Field
Kalimanting	*Melastoma affine* D. Don.	Melastomataceae	Fruit	Can be eat directly	Food	The wild plant	Forest
Kangkong	*Ipomoea aquatica* Forssk.	Convolvulaceae	Leafs	Sliced the leafs, fry	Food	Cultivation	Garden
Korok	*Colocasia esculenta* L.	Araceae	All the part of plants	Cut, fry	Food	Cultivation	Field
Kucai	*Allium fistulosum* L.	Liliaceae	All the part of plants	Cut, fry	Food	Cultivation	Yard
Kundur	*Artocarpus communis*.	Moraceae	Fruit	Peel, cut, fry	Food	Cultivation	Garden
Kunyit	*Curcuma longa* L.	Zingiberaceae	Leafs	Sliced the leafs, fry	Food	Cultivation	Garden
Kuranjik	*Dialium indum* L.	Fabaceae	Fruit	Split, eat directly	Food	The wild plant	Forest
Labuk	*Lagenaria siceraria*.	Cucurbitaceae	Fruit	Peel, cut, fry	Food	Cultivation	Garden
Lada	*Piper nigrum* L.	Piperaceae	Fruit	Dried, chopped	Food	Cultivation	Garden
Laiya	*Zingiber officinale* Roscoe.	Zingiberaceae	Rhizome	Chopped, fry	Food	Cultivation	Garden
Langkuas ton	*Alpina galanga* L.	Zingiberaceae	Rhizome	Chopped and become ingredient	Food	The wild plant	Forest
Lanjang	*Stenochlaena palustris* (Burm.).	Blechnaceae	Leafs	Fry	Food	The wild plant	Forest
Lenca	*Solanum nigrum* L.	Solanaceae	Fruit	Cut, fry	Food	Cultivation	Garden
Lenset	*Lansium domesticum* Correa.	Meliaceae	Fruit	Peel, eat directly	Food	Cultivation	Garden
Mangkak	*Artocarpus integra* Merr.	Moraceae	Fruit	Peel, cut, fry	Food	Cultivation	Garden
Papaan	*Durio kutejensis*.	Malvaceae	Fruit	Peel, eat directly	Food	The wild plant	Forest
Papari	*Momordica charantia* L.	Cucurbitaceae	Fruit	Cut, fry	Food	Cultivation	Field
Patikala	*Etlingera elatior* (Jack).	Zingiberaceae	Young stem	Peel, cut, chop, fry	Food	The wild plant	Forest
Pau	*Diplazium esculentum*.	Athyriaceae	Leafs	Cut, fry	Food	The wild plant	Bank
Pinang	*Areca catechu* L.	Arecaceae	Fruit	Peel, eat directly	Food	Cultivation	Yard
Kakabu	*Ceiba pentandra* L.	Malvaceae	Seed	Split, seed can be eat directly	Food	Cultivation	Garden
Pusut	*Luffa acutangula* L.	Cucurbitaceae	Fruit	Cut, fry	Food	Cultivation	Field
Rambean	*Baccaurea motleyana*.	Phyllanthaceae	Fruit	Peel, eat directly	Food	Cultivation	Yard
Sampalam	*Mangifera indica* L.	Anacardiaceae	Fruit	Peel, eat directly	Food	Cultivation	Field
Sasawi	*Elephantopus scaber* L.	Asteraceae	Leafs	Sliced the leafs, fry	Food	Cultivation	Filed
Sialam ton	*Garcinia mangostana* L.	Clusiaceae	Fruit	Peel, eat directly	Food	The wild plant	Forest
Sukun	*Artocarpus altilis*.	Moraceae	Fruit	Peel, cut, fry	Food	Cultivation	Garden
Tabu	*Saccharum officinarum* L.	Poaceae	Rod	Peel the bark, squeeze to take the water	Food	Cultivation	Field
Tarap	*Artocarpus sarawakensis*.	Moraceae	Fruit	Peel the bark, cut, fry	Food	Cultivation	Yard

Tarung asam	*Solanum ferox* L.	Solamaceae	Fruit	Peel the bark, cut, fry	Food	Cultivation	Field
Tarung babulu	*Solanum ferox* Linn.	Solamaceae	Fruit	Peel the bark, cut, fry	Food	Cultivation	Field
Tarung perek	*Solanum torvum* Swartz.	Solamaceae	Fruit	Boiled, fried	Food	Cultivation	Field
Tarung sina	*Solanum melongena* L.	Solamaceae	Fruit	Peel, cut, fry	Food	Cultivation	Field
Top-top	*Passiflora foetida* L.	Passifloraceae	Fruit	Can be eat directly	Food	The wild plant	Forest
Tuak	*Arenga pinnata* Merr.	Arecaceae	Tuber	Bark can sliced the fry	Food	The wild plant	Forest
Unjer	*Cocos nucifera* L.	Arecaceae	Tuber, fruit	Bark can sliced the fry, peel, can be eat directly	Food	The wild plant	Yard
Unti	*Musa paradisiaca*.	Musaceae	Fruit	Peel, eat directly	Food	The wild plant	Garden
Unti ban	*Musa acuminata* Red Dacca.	Musaceae	Fruit	Peel, eat directly	Food	The wild plant	Forest
Unti pulang	*Carica papaya* L.	Caricaceae	Leaf, flower, and fruit	Leaf and flower can be sliced, fry. Peel, cut, eat directly)	Food	Cultivation	Yard
Arosan	*Ananas comosus* (L.) Merr.	Bromeliaceae	Leaf	The fiber is taken and weaved	Clothing	Cultivation	Yard
Tarap	*Artocarpus sarawakensis*.	Moraceae	Skin	The bark is thinned and the fiber is taken	Clothing	Cultivation	Yard
Imbulung	*Metroxylon sagu* Rottb.	Arecaceae	Leaf	Dryed to dry, woven	Shelter	The wild plant	Forest
Daruen	*Durio zibethinus* L.	Bombacaceae	Branch	Logs cut, cut open	Shelter	Cultivation	Garden
Pinang	*Areca catechu* L.	Arecaceae	Fruit	The skin of the fruit is split, the flesh of the fruit is eaten	Customary ritual (shaman's food for ritual)	The wild plant	Forest
Arosan	*Ananas comosus* (L.) Merr.	Bromeliaceae	Leaf	Hang around the place of treatment of the sick/treated person	Customary ritual (tools for exorcise spirit)	Cultivation	Garden
Limung	*Citrus aurantifolia*.	Rutaceae	Leaf	Hung in front of the door of the sick person/the person being treated	Customary ritual (to exorcise bad spirit)	Cultivation	Garden
Pinang	*Areca catechu* L.	Arecaceae	Leaf	Young leafs stored in plates containing catches of evil spirits (in the form of stones)	Customary ritual (a catcher a bad spirit of sick people)	The wild plant	Forest
Siri	*Piper betle* L.	Piperaceae	Leaf	Areca nuts are stored in siri, folded, eaten immediately	Customary ritual (shaman's food for ritual)	Cultivation	Garden
Tuak	*Arenga pinnata* Merr.	Arecaceae	Leaf	Hang around the place of treatment for the sick/treated person	Customary ritual (ornamental during the treatment)	The wild plant	Forest
Unjer	*Cocos nucifera* L.	Arecaceae	Leaf	Hang around the place of treatment for the sick/treated person	Customary ritual (ornamental during the treatment)	Cultivation	Yard
Tantamu	*Curcuma xanthorrhiza* Roxb.	Zingiberaceae	Leaf	Mashed, applied to the head of the sick person/the person being treated	Customary ritual (tools for sick man treatment)	Cultivation	Forest
Kudu	*Morinda citriforia* L.	Rubiaceae	Root	Hanging around the home of the sick person/the person being treated	Customary ritual (tools for sick man treatment)	Cultivation	Garden
Bapang dadarak	*Capsicum annum* L.	Solanaceae	Fruit	Mashed, mixed with food/mixture	Natural coloring (food coloring)	Cultivation	Garden
Tarangga	*Impatiens balsamina* L.	Balsaminaceae	Leaf	Pounded, Pasted	Natural coloring (nail cooring)	Cultivation	Yard
Jogo dadarak	*Alternanthera amoena* Voss.	Amaranthaceae	Leaf	Mashed, mixed with drinks	Natural coloring(drink coloring)	Cultivation	Field
Pandan	*Pandanus amaryllifolius*.	Pandanaceae	Leaf	Mashed, mixed with drinks, stirred	Natural coloring (drink coloring)	Cultivation	Garden
Tantamu	*Curcuma xanthorrhiza* Roxb.	Zingiberaceae	Leaf	Pounded, pasted	Natural coloring (nail coloring)	Cultivation	Garden
Jati	*Tectona grandis*.	Lamiaceae	Young shoots	Mashed, soaked for a few days, enter the cloth you want to color	Natural coloring (linen coloring)	Cultivation	Garden
Kunyit	*Curcuma longa* L.	Zingiberaceae	Rhizome	Mashed/grated, mix in food	Natural coloring (food coloring)	Cultivation	Garden
Laiya dadarak	*Zingiber offcinale* var.rubrum.	Zingiberaceae	Rhizome	Mashed / grated, mix in food	Natural coloring (food coloring)	Cultivation	Garden

Mangkak	*Artocarpus integra* Merr.	Moraceae	Bark	Mashed, soaked for a few days, enter the cloth you want to color	Natural coloring (linen coloring)	Cultivation	Garden
Sangkok	*Sauropus androgynus* L.	Euphorbeaceae	Leaf	Mashed, soaked, take the water, mix it with food	Natural coloring (food coloring)	Cultivation	Garden
Sio	*Nephelium lappaceum* L.	Sapindaceae	Rind	Sliced, dried in the sun, soaked for a few days, enter the cloth you want to color	Natural coloring (linen coloring)	Cultivation	Garden
Unti pulang	*Carica papaya* L.	Caricaceae	Leaf	Mashed, soaked, take the water, mix it with food	Natural coloring (food coloring)	Cultivation	Garden
Kudu	*Morinda citriforia* L.	Rubiaceae	Root	Mashed, soaked for a few days, enter the cloth you want to color	Natural coloring (food coloring)	Cultivation	Garden
Ase	*Oryza sativa* L.	Poaceae	Seed	Mashed until smooth, applied to the body	Beauty/body treatment (to smooth body and face)	Cultivation	Garden
Kele	*Manihot utilissima* Crantz.	Euphorbiaceae	Bulbs	Mashed until smooth, applied to the body	Beauty/body treatment (to smooth body and face)	Cultivation	Garden
Jambu biji	*Psidium guajava* L.	Myrtaceae	Young leafs	Mashed, apply to face	Beauty/body treatment (to smooth body and face)	Cultivation	Yard
Pau	*Diplazium esculentum.*	Athyriaceae	Young stem	Pounded, apply to face or body	Beauty/body treatment (to smooth body and face)	The wild plant	Bank
Bapang	*Capsicum annuum* L.	Solanaceae	Fruit	Pounded	Natural pesticides (for ants)		Garden
Limung	*Citrus aurantifolia*.	Rutaceae	Rind	His skin was immediately burned	Natural pesticides (for mosqitos)	Cultivation	Yard
Anggrek	*Phalaenopis amabilis* Blume.	Orchidaceae	Flower	Planted	Ornamental plants	Cultivation	Yard
Bunga bintang	*Zinnia elegans* Jacq.	Asteraceae	Flower	Planted	Ornamental plants	Cultivation	Yard
Bunga dewa	*Euphorbia.*	Euphorbiaceae	Flower	Planted	Ornamental plants	Cultivation	Yard
Bunga jala	*Ipomoea quamoclit* L.	Convolvulaceae	Flower	Planted	Ornamental plants	Cultivation	Yard
Mawar	*Rosa* sp.	Rosaceae	Flower	Planted	Ornamental plants	Cultivation	Garden
Tarangga	*Impatiens balsamina* L.	Balsaminaceae	Flower	Planted	Ornamental plants	Cultivation	Forest
Teratai	*Nymphaea alba* L.	Nymphaeaceae	Flower	Planted	Ornamental plants	Cultivation	Forest
Bunga tik asu	*Tagetes erecta* L.	Asteraceae	Flower	Planted	Ornamental plants	Cultivation	Yard
Dung jogo dadara	*Celosia argentea* L.	Amaranthaceae	Flower	Planted	Ornamental plants	Cultivation	Garden
Dung paring	*Ruellia tuberosa* L.	Acanthaceae	Leafs /flowers	Planted	Ornamental plants	Cultivation	Forest
Puring	*Codiaeum variegatum.*	Euphorbiaceae	Leaf	Planted	Ornamental plants	Cultivation	Yard
Pandan	*Pandanus amaryllifolius.*	Pandanaceae	Leaf	Young leafs are included in boiled water	Aromatic	Cultivation	Yard
Siri	*Piper betle* L.	Piperaceae	Leaf	Young leafs are smoothed and then applied throughout the body	Aromatic	The Wild Plant	Yard
Laiya	*Zingiber officinale* Roscoe.	Zingiberaceae	Rhizome	Mashed until smooth and applied throughout the body	Aromatic	Cultivation	Forest
Sarai	*Cymbopogon citratus* (DC.) Stapf.	Poaceae	Leaf	The leafs are rubbed until they emit a scent then hang them in the room	Aromatic	Cultivation	Garden
Sarai bunga	*Cymbopogon nardus.*	Poaceae	Stems and leafs	The leafs are rubbed until they emit a scent then hang them in the room	Aromatic	Cultivation	Garden

People of Dayak Taman tribe in Ingko' Tambe Village utilize plants as food (73 species), clothing (2 species), boards (2 species), traditional rituals (9 species), natural dyes (13 species), beauty/body care (4 species), natural pesticides (2 species), ornamental plants (11 species), and aromatic (5 species). So the total of the whole plant that is used were 121 species (Table 1).

3.2 Families percentage

The results of the interviews and field observations conducted by the researchers at Dayak Taman tribe community showed that there were 46 plant families were utilized. *Zingiberaceae* and *Moraceae* family are the most widely discovered family of plants with a percentage of 7.43% for each. The *Zingiberaceae* family includes kunyit (*Curcuma longa* L.), laiya (*Zingiber officinale* Roscoe.), langkuas ton (*Alpina galanga* L.), patikala (*Etlingera elatior* Jack.), tantamu (*Curcuma xanthorrhiza* Roxb.), laiya dadarak (*Zingiber officinale* var. rubrum.). While the *Moraceae* family includes cimadak (*Artocarpus integer* Thunb. Merr.), nunuk (*Ficus blechnum* Reinw.), karam (*Ficus variegate* Blume.), kundur (*Artocarpus communis*), mangkak (*Artocarpus integra* Merr.), sukun (*Artocarpus altilis*), tarap (*Artocarpus sarawakensis*).

3.3 Percentage of part of the plant that is utilized

Parts of plants used as food, clothing, boards, traditional rituals, natural dyes, beauty/body care, natural pesticides, ornamental plants and aromatic by the people of Dayak Taman tribe were seeds, rhizome, stems, flowers, Leafs, and fruit that is presented in Table 2.

Table 2: Parts of plants utilized by the people of Dayak Taman tribe

Parts of plants	Number of plant species	Percentage
Seeds	4	3,30
Rhizome	5	4,13
Stem	7	5,78
Flowers	12	9,91
Leafs	38	31,40
Fruit	55	45,45

Table 2 shows that the part of the plant that is widely utilized by the community of Dayak Taman tribe is fruit (45.45%). Plant parts which is utilized with the second highest percentage is leaf (31.40%) and the third highest is flowers (9.91%).

3.4 Habitat type percentage

Plants which are utilized by the Dayak Taman tribe were taken from different habitats, such as river banks, fields, forests, yard, and gardens that is presented in Table 3.

Table 3: Plant Habitat used by the Dayak Taman tribe community

Habitat	Number of plant species	Percentage
River bank	2	1,64
Fields	20	16,52
Forest	24	19,83
House yard	32	26,44
Garden	43	35,53

Table 3 shows that plants that were utilized by Dayak Taman community were widely found in plantation habitats (35.53%), house yard (26.44%), forest (19.83%, fields (16.52%) and riverbank (1.64%).

3.5 Percentage of plant status in nature

Plants derived from the result of interviews and field observations on the Dayak Taman tribe showed that there are cultivated plants and growing wild plants that is presented in Table 4.

Table 4: Plant status in nature

Plant Status in Nature	Number of plant species	Percentage
Wild plants	26	21,48
Cultivated plants	95	78,51

Table 4 shows that the status of plant in nature is cultivated plants has the highest percentage of 78.51% and wild plants with the percentage of 21.48%.

4. Discussion

Forest is natural resources that provides many benefits and plays a very important role for human life (Desuciani, 2012) [7]. The Taman Dayak tribe community also has the same perception that is a source of life in sustaining people' daily lives. The Dayak tribe community use forest products as food (73 species), clothing (2 species), boards (2 species), traditional rituals (9 species), natural coloring (13 species), body/beauty care (4 species), pesticides natural (2 species), ornamental plants (11 species) and aromatics (5 species). Based on the results of interviews, field observations and identification found the number of plant species used as many as 121 species from 46 families and the highest number of families *Zingiberaceae* (7.43%) and *Moraceae* (7.43%).

The *Zingiberaceae* and *Moraceae* families are widely used because they are easy to find, easy to process and easily cultivated. According to Rike *et al* (2018) [29], the *Zingiberaceae* family is widely used because plants from these families are easily cultivated, have economic value, are easily processed into food, can be used as medicine and spices. Kuntorini (2005) [18] reported that the *Zingiberaceae* family has many benefits, as medicinal ingredients, ornamental plants, hair tonic ingredients, spices ingredients and easily cultivated. Sirirugsa (1998) [35] and Habsah *et al*., (2000) [10] state that the *Zingiberaceae* family is useful for food products, spices, medicines, dyes, perfumes, aesthetics and ingredients for health. Apart from that, TPC (2012) [39] state that *Zingiberaceae* is a group of plants that is widely used because many contain active compounds such as flavonoids, saponins, essential oils. As an antioxidant, antibacterial, and anti-inflammatory (Jitoe *et al*., 1994; Habsah *et al*., 2000; Ozaki *et al*., 1991) [10, 13, 21].

The *Moraceae* family is a family that is very useful for the Dayak tribe community in Taman because besides be used as food as well as clothing, and natural coloring. If physically reviewed, plants from the *Moraceae* family can be used directly as building materials. Where as if chemically reviewed, plants from the family *Moraceae* are known as traditional medicines and are known as sources of isopressylated phenolic compounds (Nomura, 1998) [24].

The results of research conducted on the Dayak Taman tribe community in Ingko 'Tambe Village showed that the plant parts utilized by the community consisted of seeds, rhizomes, stems, flowers, Leafs and fruit. The most used part of the plant is fruit (45.45%). The second most used part of the plant is Leafs (31.40%). The Dayak tribe community use a lot of fruit because it has followed the pattern that has been done by parents or previous ancestors so that it becomes a habit that is carried out until now. If reviewed theoretically, it states that fruit has benefits for the body as well as a source of vitamins, sugar, carbohydrates, minerals and water (Juliana *et al*., 2013; Hamidah, 2015) [15, 11].

Leafs parts are widely used by the Dayak tribe community because they are easy to extract, easy to process, and availability is always there. According to Sada & Tanjung (2010) [31]; Setyowati (2010) [34] Leafs are widely used because it is very easy to find, always available, the process of taking and processing can be done simply. Lestari (2011) [22] states that Leafs are widely used by the community because they believe that the Leafs have various mineral substances. Leafs also contain secondary metabolites such as flavonoids, saponins, tannins, alkaloids, morphine, shikonin, and essential oils (Van Wyx *et al*., 2002; Van Wyk & Wink, 2004; Aiyelaagbe *et al*., 2008; John, 2008; Dewick, 2009; Patimah, 2010; Ting *et al*., 2010; Lajuck, 2012; Mariska, 2013; Charyadie, 2014; Lee *et al*., 2014; Kabera *et al*., 2014; Ahmad *et al*., 2015) [40, 41, 2, 8, 26, 20, 23, 21, 1].

The Dayak Taman tribes community in Ingko' Tambe village generally utilize the banks of rivers, fields, forests, yards, gardens to plant plants for daily life. Garden is the habitat where the useful plants found (35.53%). The garden

is the most found habitat for plants that are used by the Dayak tribal community in Taman because all communities have land for gardening so they prefer to plant plants in the garden. Beside that, community usually take plant seeds in the forest and plant them in the garden, then they sell the crops to increase income. De Jong *et al*., (2001) [6] explains that tembawang is a garden (can be a secondary forest) which is located adjacent to the local residence. Tembawang has a function in meeting the daily needs of the local community. Potter (2008) [27] states that through the existence of Tembawang, the community can obtain various kinds of fruits, vegetables, and wood as materials for making houses. Hutchinson (2012) [12] states that the existence of tembawang can improve the economy of the local community.

The Dayak Taman tribe community plant the plants for daily life. The results of the analysis showed that 78.51% of the plants were cultivated by the local community. The purpose of Taman Dayak community to cultivate useful plants are: (a) to keep plants alive, (b) increase the number of plants, (c) so that the younger generation knows about endangered plants, (d) as a conservation effort. Efforts to conserve the Taman Dayak tribe community are reflected in how to use the plant part by taking as needed and they do not conduct logging.

5. Conclusion

The results of the study through interviews and field observations conducted on the Dayak Taman tribe community in Ingko' Tambe Village obtained 121 species from 46 families that were used by the Dayak Taman tribe community in Ingko' Tambe village as food, clothing, woods, traditional rituals, natural colouring, beauty/body care, natural pesticides, ornamental plants and aromatics. The highest number of families is *Zingiberaceae* (7.43%) and *Moraceae* (7.43%). The most used part of the plant is fruit (45.45%). Plants that are used by the Dayak tribe community are found in garden habitats (35.53%). The status of plants in nature, namely cultivation has the highest percentage of 78.51%. The results of this study indicated that the Dayak Taman tribe community has proximity to the forest so that they know the types of useful plants.

6. Acknowledgements

Our gratitude goes to the Directorate General of Learning and Student Affairs of the Ministry of Research, Technology and Higher Education for funding the research of Student Creativity Program. Our gratitude also goes to: (1) Counsellor of Perkumpulan Badan Pendidikan Karya Bangsa Sintang, (2) Head of STKIP Persada Khatulistiwa Sintang, (3) Headman of Ingko' Tambe, South Putussibau District, Kapuas Hulu Regency, (4) Customary leader Ingko' Tambe Village, (5) Balien (shaman), (6) Community leaders and all informants who have provided information regarding the useful plants by Dayak Taman tribe community in Ingko' Tambe Village.

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