

Ethnobotany of Economic Plants in the Baliem Valley, Jayawijaya, Irian Jaya

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Introduction

The great Baliem Valley of Jayawijaya is located at 138 degrees 30' east and 4 degrees 0' south, about 1,600 meters above sea level. It has a humid climate with large temperature variation; the mean daily temperature is 15°C, with a maximum of 24°C and a minimum of 11°C. The valley is surrounded by limestone karst hills and is crossed by the Big Baliem River. The area is a mosaic of vegetation types: *hipere* gardens (*wen* or *ladang*), fallows, grasslands, secondary forest and hilly climax forest.

The Dani (or Lani) tribe is an ethnic group that has lived isolated in this area until they were discovered in 1938. The Dani are divided into several clans, e.g., Mukoko, Siep, Husage, Heselo, Heseken, Mesaga, and Lantipo. The main staple food, sweetpotato, is planted in their gardens along with secondary crops. Additional food is collected from the surrounding forest, as well.

Europeans first settled in the Baliem Valley in 1954, and since 1965, many non-locals have come and settled in the city of Wamena, the capital of the Jayawijaya district. Many of the foods, such as maize, potato, Chinese cabbage, tomato, and onion, introduced by the new settlers have become cash crops. As a result, they are replacing some of the local plants. It is rather difficult to find some of the indigenous vegetables, such as *mege* (*Mucuna pruriens*), *meptengkek* (*Flacourtia rukam*), and *wenali* (*Psopocarpus tetragonolobus*), in the Nayak market in Wamena. The younger generation does not even know that the indigenous *wuluken* (*Elaeagnus conferta*) or *hereboak* (*Coix lacryma-jobi*) can be eaten.

The development of Wamena as the capital of Jayawijaya has also brought change to the local culture. Canned food, bread, biscuits, Coca Cola, Fanta, and bottled water can be found in many places. This acculturation has not completely changed the indigenous culture, since traditional planting and cooking practices still continue. However, much of the traditional knowledge of useful plant species may soon be gone, as traditional practices for the utilization of flora and forest products decline.

Materials and methods

Field work was carried out in the areas of Wamena, Kurulu, Kurima, Pass Valley, and Pyramid in Jayawijaya, January - February 1991 and January - February 1992. Field observations were recorded and data collected on useful local plants, noting their local names, use, and preparation methods in cooking.

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Indigenous knowledge of plant usage and its conservation

The forests of the Baliem Valley are usually dominated by trees belonging to the Fagaceae, Lauraceae, Myrtaceae, Cupresaceae, Pandanaceae, families; the undergrowth belongs to the Ericaceae, Rubiaceae, Euphorbiaceae, Urticaceae plant families. This general forest area (*okama*) and the protected forest area (*husama* or *wakano*) are home to various plant resources. Traditionally, the Danis have been dependent on forest products, such as wood, rattan, tubers, edible fruit, medicinal plants, edible fungi and other foods. The trees are used for housing, fences, and firewood. Rattan is collected for making baskets and as binding for their bridges, houses, fences and weapons. The Dani are aware of the forest's potential and have managed it wisely under the guidance of their chief.

Individual ownership of forest plants is traditionally indicated by the markings on a particular tree. For example, a tree trunk might be marked by grass bound together at its base, indicating that it belongs to someone and is forbidden property. Anyone caught picking the fruit or wood from that tree must pay a fine.

Indigenous knowledge used for the domestication of wild plants can be found in the Baliem Valley area, as well. Fruit trees, such as *jambu* (*Syzygium aquaeum*), *saik* (*Pandanus conoideus*), or *tuke* (*P. julianettii*), etc., which commonly grow in the forest, have been planted in gardens near their homes. Other crops which have been planted in the gardens are: *pain* (*Dioscorea bulbifera*), *hom* (*Colocasia esculenta*), *el* (*Saccharum officinale*), *haki* (*Musa paradisiaca*), *hupak* (*Zea mays*), *hece* (*Capsicum annum*), *wenali* (*Psopocarpus tetragonolobus*), etc.

For their daily food requirements, the Dani people plant garden beds close to their village homes (*sili*). If they are planted very near to their homes, they are called *wen ililu*; if they are located a distance from their homes, they are just called *wen*. The main food staple is sweetpotato, which is harvested five or more months after planting. Since sweetpotato cannot be planted in their gardens more than twice consecutively, the Danis practice a system of rotation of their gardens; when one garden needs to rest, they look for new gardens. They may replant in fallows, old swidden fields (5 - 10 years old), or secondary forest areas. Both the swidden fields and secondary forest areas are usually covered over by a variety of plant species, most commonly members of the Fern, Poaceae, Asteraceae, Sapindaceae, Verbenaceae, Melastomataceae, Euphorbiaceae, and Rubiaceae families. The areas are a source for ritual plants, medicinal plants, fibers, etc. and function as well, as space used for building shelters and letting pigs loose to forage.

Fallow and secondary forest are ready for replanting as sweetpotato gardens when the indicator plants, *sugun* (*Wendlandia paniculata*) or *pabi* (*Dodonea viscosa*), have grown about three to four meters tall and have produced flowers and fruit. By using this rotating cultivation system, the Dani people conserve many plant genetic resources in their gardens, fallows and in the forest.

Cash crops

For a complete list of cash crop plants, see Table 1. Cash crops in the Jayawijaya area can be categorized, based on their use in people's daily life, as staple food crops, secondary food crops, ornamental plants, palatable forest fungi and wild plants, wood and rattan, etc.

Staple food crops

Hipere (*Ipomoea batatas*) is the main staple food, with somewhere between 81 and 200 cultivars found in the market area of Wamena. Traditionally, the Dani plant certain cultivars for certain uses; there are particular cultivars for babies and different cultivars for rituals, such as offerings for their gods, etc. The non-indigenous locals have recently introduced rice (*Oryza sativa*) as a staple food.

Secondary food crops

About thirty plant species are known to be planted and used as secondary food crops, for example, *hom* (*Colocasia esculenta*), *pain* (*Dioscorea bulbifera*), *el* (*Saccharum officinarum*), *napiareabo* (*Manihot utilissima*), *sowa* (*Setaria palmifolia*), *ite* (*Capsicum anuum*), *kaeken* (*Arachis hypogea*), *saik* (*Pandanus conoideus*), *tuke* (*Pandanus julianettii*), *terung* (*Solanum melongena*), *haki* (*Musa paradisiaca*), *kol bunga* (*Brassica oleracea*), *tomat* (*Solanum lycopersicum*), *kilu* (*Sechium edule*), *wenali* (*Psophocarpus tetragonolobus*), etc.

Ornamental plants

Many ornamental plants have been introduced, especially in the city of Wamena. The cut flowers of *bunga kurulu* or *bunga kertas* (*Helichrysum bracteatum*), a cash crop grown in many areas, are sold popularly as souvenirs. *Lesane* (*Acalypha amentacea*) is an attractive ornamental shrub whose leaves are also used as a cigarette substitute.

Palatable forest fungi and wild plants

About 20 species of forest fungi (*suk-age*) are known to be eaten by the Dani, among them, *suk lelage*, *suk siruka*, *suk dilok*, *suk pola*, *suk monika*, *suk jilitep*, *suk enaga*, etc. Several varieties of ferns, such as *wakal* (*Diplazium esculentum*), *sisika*, *worika*, *uleleka*, *hibeka* and *witureka*, are eaten as well. Among the most popular edible wild fruits are *tuke* (*Pandanus julianettii*), *saik* (*Pandanus conoideus*), *jelileken* (*Rubus rosaefolius*), *jelem* (*Eugenia jambos*), *wuluken* (*Elaeocarpus ganitrus*), *buabuaken* (*Physalis angulata*), and *heyeken* (*Castanopsis acuminatissima*).

Wood and rattan

About 56 tree species are used by the Dani for house construction, buildings and fences. Among them are *pi* (*Quercus* sp.), *vi* (*Castanopsis acuminatissima*), *wiki* (*Paraserianthes falcataria*), *wile* (*Casuarina* sp.), *walimo* (*Leptospermum flavescens*), *sien* (*Araucaria cunninghamii*), *monika* (*Pittosporum moluccanum*) and *wip* (*Grevillea papuana*). Rattan is called *Mul* (*Calamus* cf. *prattianus*) and is used as binding for fences, bridges, houses, and for making clothing and baskets.

Utensils

An indigenous aquatic plant known as *gali* (*Eleocharis dulcis*) is used for women's skirts. *Noken* (string baskets) are made of *digit* and *yobewisa* (*Boehmeria malabarica* and *B. nivea*), *digi* (*Astronia* sp.), *sikepupuk* (*Sida rhombifolia*), and *hannabun* (*Wikstromia venosa*). The young leaves of *engak* (*Mussaenda reinwardtiana*) are used as a sanitary absorbent for babies.

Exotic plants

Many species of orchids, such as *Dendrobium macrophyllum*, *Paphiopedilum* spp., and *Rhododendron* sp., have a high potential for commercial use, as well as for hybridization.

Medicinal plants and drugs

The *buabuaken* (*Physalis angulata*) plant contains a bitter principle and the people in the Baliem Valley use the various parts of the whole plant for treating fever and malaria. The young leaves of *jambu batu* (*Psidium guajava*) are a remedy for stomach ailments.

Miscellaneous

The leaves of *hanum* (*Nicotiana tabacum*) are used for cigarettes. The dried fruits of *sika* (*Lagenaria siceraria*), called *holim*, are used by men for penis sheaths. The sheath of the banana plant is used to collect salted mineral water. The culms of *Mischanthus floridulus* are used for musical instruments, arrow shafts, fences and mattresses. The split stems of *mulele* (*Geitoplesium cymosum*) and a fern (*Gleichenia dichotoma*) are used for woven bracelets and as binding for houses and fences.

Conclusions

Research on the ethnobotanical knowledge and practices of the indigenous Dani people in the Baliem Valley indicated that many newly introduced species of economic plants in the area have begun replacing the local flora. Continued studies on the abundance, distribution, and reproductive biology of indigenous plant species, especially the rarer ones, are needed in order to determine their potential usefulness. If the use of traditional practices in utilization of forest products continues to decline, much knowledge of useful species may be lost.

References

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Table 1 List of economic plants of Baliem Valley, Jayawijaya.

Species names (Family)	Local name	Use
<i>Acalypha amentacea</i> (Euph.)	<i>Lesane</i>	Ornamental, cigarrete
<i>Actinodaphne</i> <i>multiflora</i> (Laurac.)		House construction, fence
<i>Aeschynanthus</i> sp. (Gesner.)		Exotic
<i>Agrostophyllum</i> sp. (Orch.)	<i>Weit</i>	Exotic
<i>Allium cepa</i> var. <i>ascalonicum</i> (Lil.)	<i>Bawang</i>	Spices
<i>Allium sativum</i> (Lil.)	<i>Bawang putih</i>	Spices
<i>Alpinia brevituba</i> (Zingib.)	<i>Jiwi</i>	Spices
<i>Althernanthera</i> sp. (Amaranth.)		Weed
<i>Amaranthus</i> sp. (Amaranth.)	<i>Kibi</i>	Vegetable
<i>Ananas commusus</i> (Commeli.)	<i>Nanas</i>	Edible Fruit
<i>Antirrhinum majus</i> (Scroph.)		Ornamental garden
<i>Arachnis hypagea</i>	<i>Kaeken</i>	Vegetable
<i>Araucaria cunninghamii</i> (Arauc.)		House construction, fence
<i>Artemisia vulgaris</i> (Asterac.)	<i>Anekuku</i>	Weed
<i>Artocarpus</i> <i>heterophyllus</i> (Morac.)	<i>Nangka</i>	Edible fruit
<i>Arundina graminearum</i> (Poac.)		Cooking (hot stone)
<i>Asclepias curassavica</i> (Asclepia.)		Ornamental Garden
<i>Astronia</i> sp. (Melast.)	<i>Digi</i>	Fiber
<i>Baekea frutescens</i> (Myrt.)	<i>Wileh-wileh</i>	House fence construction
<i>Bambussa</i> sp. (Poac.)	<i>Bambu, ciluak</i>	Ornamental, fence
<i>Belamcanda chinensis</i> (Amaryl.)		Ornamental
<i>Bidens pilosa</i> (Aster.)	<i>Lapsakanik</i>	Weed
<i>Bixa olerana</i> (Bixac.)	<i>Sapui</i>	Ornamental, dye
<i>Boehmeria nivea</i> (Mal.)	<i>Yohewisa</i>	String bag
<i>Brassica oleracea</i> (Brass.)	<i>Kol</i>	Vegetable
<i>Brassaia actinophylla</i> (Aral.)		Weed

Species names (Family)	Local name	Use
<i>Broussonetia papyrifera</i> (Morac.)		-
<i>Brugmansia candida</i> (Solan.)		Exotic
<i>Brunfelsia americana</i> (Solan.)		Ornamental garden
<i>Buddleia asiatica</i> (Logan.)	<i>Wul</i>	Sanitary absorbent sp.
<i>Bulbophyllum</i> spp. (Orch.)		Ornamental, exotic
<i>Cajanus cajan</i> (Fab.)	<i>Wenali</i>	Food
<i>Calamus pratianus</i> (Arecac.)	<i>Mul</i>	Ropes, basket
<i>Calliandra calothyrsus</i> (Fab.)		Reforestation
<i>Calliandra surinamense</i> (Fab.)		Reforestation
<i>Calliandra tetragona</i> (Fab.)		Reforestation
<i>Capsicum frutescens</i> (Solan.)	<i>Hece</i>	Spice
<i>Cardamine hirsuta</i> (Brassic.)		Vegetable, weed
<i>Carica papaya</i> (Caric.)	<i>Pepaya</i>	Fruit
<i>Cassia alata</i> (Fab.)		Medicinal
<i>Cassia retusa</i> (Fab.)		Ornamental
<i>Cassia siamea</i> (Fab.)		Ornamental
<i>Castanopsis acuminatissima</i> (Fagac.)	<i>Heyeken</i>	House fence construction
<i>Casuarina oligodon</i> (casuar.)	<i>Wileh</i>	House fence construction
<i>Celosia argentea</i> (Amar.)		Vegetable, ornamental
<i>Centella asiatica</i> (Apiac.)		Weed, medicinal plant
<i>Citrus</i> spp. (Rutac.)	<i>Jeruk</i>	Fruit
<i>Clematis phanerophlebia</i> (Ranun.)	<i>Megasom</i>	Weed
<i>Crotalaria</i> spp. (fab.)	<i>Oway</i>	Soil fertilizer
<i>Coelogyne asperata</i> (Orch.)	<i>Wurupul</i>	Exotic
<i>Coffea robusta</i> (Rub.)	<i>Kopi</i>	Beverage
<i>Coix lacryma-jobi</i> (Poac.)	<i>Joli</i>	Secondary- food
<i>Colocasia esculenta</i> (Arac.)	<i>Hom</i>	Food

Species names (Family)	Local name	Use
<i>Commelina diffusa</i> (Comm.)	<i>Kom</i>	Weed
<i>Commersonia</i> sp. (Sterc.)		Weed
<i>Cordyline terminalis</i> (Lil.)	<i>Yabe</i>	Ritual
<i>Cosmos caudatus</i> (Aster.)		Ornamental
<i>Cymbopogon nardus</i> (Cyper.)		Spice
<i>Cyperus</i> spp. (Cyper.)	<i>Hilikuak</i>	Weed
<i>Cypomandra betacea</i> (Solan.)		Fruit
<i>Dahlia</i> sp. (Astera.)		Ornamental
<i>Dendrobium</i> spp. (Orch.)	<i>Wopi</i>	Exotic
<i>Dianella ensifolia</i> (Lil.)		Ornamental
<i>Dicranopteris linearis</i> (Gleich.)	<i>Tikil</i>	Bracelets
<i>Diplazium esculentum</i> (Polyp.)	<i>Wakal</i>	Vegetable
<i>Dioscorea bulbifera</i> (Diosc.)	<i>Pain</i>	Food
<i>Dodonea viscosa</i> (Sapind.)	<i>Bapi</i>	Soil fertilizer, weed
<i>Duranta repens</i> (Verben.)		Ornamental
<i>Elaeagnus conferta</i> (Elaeag.)	<i>Wuluken</i>	Edible, fruit
<i>Elaeocarpus</i> sp. (Elaeo.)		House fence construction
<i>Eleocharis edulis</i> (Cypera.)	<i>Sali</i>	Woman's skirt
<i>Engelhardia rigida</i> (Juglan.)	<i>Alimo</i>	House fence construction
<i>Epiblastus</i> sp. (Orch.)		Exotic
<i>Epiphyllum candidum</i> (orch.)		Exotic
<i>Equisetum debile</i> (Equi.)	<i>Kem/Yuki</i>	
<i>Erigeron sumatrensis</i> (Aster.)	<i>Wamalatok</i>	Weed
<i>Erythrina monosperma</i>	<i>Ka</i>	Fence, house construction
<i>Euphorbia hirta</i> (Euph.)		Weed
<i>Fagraea ceilanica</i> (Log.)	<i>Kul</i>	Exotic
<i>Ficus dammaropsis</i> (Mor.)	<i>Hok</i>	-
<i>Ficus wassa</i> (Mor.)		-

Species names (Family)	Local name	Use
Flacourtia rukam (Flac.)	<i>Meptengkek</i>	Fruit
Foeniculum vulgare (Brass.)		Spice
Galinsoga parviflora (Aster.)		Weed
Gardenia lamingtonii (Rub.)		Dye
Geitopleisium cymosum (Lil.)	<i>Mulele</i>	Bracelet
Glochidion novoguineense (Euph.)	<i>Umpak</i>	Fence
Glochidion vinkianum (Euph.)	<i>Melaga</i>	Fence
Grevillea papuana (Proteac.)	<i>Wib</i>	Fence, house construction
Habenaria sp. (Orch.)		Exotic
Harpullia sp. (Sapind.)		Fence, house construction
Hedychium gardneranum (Zingib.)		Exotic
Helianthus annuus (Aster.)	<i>Bunga matahari</i>	Ornamental
Helichrysum bracteatum (Aster.)	<i>Bunga kurulu</i>	Ornamental
Hibiscus manihot (Euph.)		Food
Hibiscus rosa-sinensis (Malvac.)		Ornamental
Hibiscus x-archeri (Malvac.)		Ornamental
Ilex spicata (Aquif.)	<i>Teteit</i>	Hunting, bow
Impatiens balsamina (Balsamin.)		Ornamental
Impatiens platipetala (Balsamin.)		Ornamental, weed
Ipomoea aquatica (Convol.)	<i>Kangkung</i>	Vegetable
Ipomoea batatas (Convol.)	<i>Hipere</i>	Main food staple
Ipomoea learrii (Convol.)		Ornamental, weed
Iresine herbsii (Irid.)		Ornamental
Jasminum sambac (Oleac.)		Ornamental
Lagenaria siceraria (Cucurb.)	<i>Holim</i>	Vegetable, penis sheath
Lantana camara (Verb.)		Ornamental, fence, weed

Species names (Family)	Local name	Use
<i>Laurentia longifolia</i> (Lobel.)		Weed
<i>Leucaena leucocephala</i> (Fab.)		Folder
<i>Lithocarpus antaresensis</i> (Fag.)		Fence, house construction
<i>Luisia zollingeri</i> (Orch.)		Exotic
<i>Maclura cochinchinensis</i> (Morac.)		Dye
<i>Mangifera indica</i> (Anac.)	<i>Mangga</i>	Fruit
<i>Manihot utilissima</i> (Euph.)	<i>Napire abo</i>	Food
<i>Medinilla</i> sp. (Malvac.)		Weed
<i>Mediocalcar</i> sp. (Orch.)		Exotic
<i>Melastoma</i> sp. (Melast.)	<i>Weayuken</i>	Weed
<i>Mischantus floridulus</i> (Poac.)	<i>Hite, jagat</i>	Arrow, musical instrument vegetable
<i>Momordica charantia</i> (Cucurb.)		vegetable
<i>Mucuna pruriens</i> (Fab.)	<i>Mege</i>	Food
<i>Musa paradisiaca</i> (Musac.)	<i>Haki</i>	Food
<i>Mussaenda reinwardtiana</i> (Rub.)	<i>Pitpit</i>	Medicinal, sanitary absorbent
<i>Myristica holrungii</i> (Myrist.)	<i>Pom</i>	Fence
<i>Nepenthes maxima</i> (Nepenth.)	<i>Holim-holim</i>	Medicinal
<i>Nymphoides indica</i> (Gentian.)		Water exotic
<i>Oberonia</i> sp. (Orch.)		Exotic
<i>Octomyrtus pleiopetala</i> (Myrt.)		Shelter
<i>Oxalis repens</i> (Oxal.)		Weed
<i>Pandanus conoideus</i> (Pand.)	<i>Saik</i>	Food
<i>Pandanus julianettii</i> (Pand.)	<i>Tuke</i>	Food
<i>Paraserianthes falcata</i> (Fabac.)	<i>Wipi</i>	House construction
<i>Passiflora edulis</i> (Passif.)	<i>Markisa</i>	Food
<i>Peperomia pellucida</i> (Piper.)		Weed
<i>Persea americana</i> (Laur.)	<i>Adpokat</i>	Food
<i>Phaius tankervilleae</i> (Orch.)		Exotic

Species names (Family)	Local name	Use
Phraetia sp. (Orch.)		Exotic
Phyllanthus niruri (Euph.)		Weed
Physalis angulata (Oxal.)	<i>Buabuaken</i>	Medicinal
Pinus merkusii (Pinac.)		Reforestation
Piper betle (Piper.)		Medicinal
Piper wilhelmense (Piper.)		Ritual
Pithecellobium clypearia (Fab.)		Fence
Pittosporum ramiflorum (Pittosp.)	<i>Menongkah</i>	Medicinal
Plantago major (Plant.)		Weed
Plectranthus scutellarioides (Lam.)		Ornamental
Podocarpus neriifolius (Podoc.)	<i>Lait</i>	House construction
Psophocarpus tetragonolobus (Fab.)	<i>Wenali-wenali</i>	Vegetable
Psidium guajava (Myrt.)	<i>Jambu</i>	Medicinal
Pterostylis graminearum (Orch.)		Exotic
Pyrus malus (Rosac.)	<i>Appel</i>	Fruit
Quercus sp. (Fag.)	<i>Vi</i>	House construction
Rhododendron macgregoriae (Eric.)	<i>Inetamukut</i>	Exotic
Rhododendron pachystigma (Eric.)	<i>Holisom</i>	Exotic
Rosa sp. (Rosac.)		Weed
Rubus rosaefolius (Rosac.)	<i>Malief</i>	Fruit
Saccharum officinale (Poac.)	<i>El</i>	Food
Salix babylonica (Salic.)		Ornamental
Sauropus androgynus (Euph.)		Vegetable
Schefflera sp. (Araliac.)		Weed
Sechium edule (Cucur.)	<i>labu sia</i>	Vegetables
Sesbania grandiflora (Fab.)		Ornamental
Setaria palmifolia (Poac.)		Food
Sida rhombifolia (Malv.)	<i>Day</i>	Weed
Sloanea archboldiana (Elaeoc.)		Fence, house construction
Solanum mammosum (Solan.)		Ornamental

Species names (Family)	Local name	Use
<i>Solanum melongena</i> (Solan.)	<i>Terung</i>	Vegetable
<i>Solanum tuberosum</i> (Solan.)	<i>Kentang</i>	Food
<i>Solidago</i> sp. (Aster.)		Weed
<i>Sonchus arvensis</i> (Aster.)	<i>Wamleaken</i>	Weed
<i>Spathoglottis plicata</i> (Orch.)	<i>Halebale</i>	Exotic
<i>Spiranthes sinensis</i> (Orch.)		Exotic
<i>Stachytarpheta</i> sp. (Verb.)		Weed
<i>Tagetes</i> sp. (Aster)		Ornamental
<i>Timonius nitens</i> (Rub.)	<i>Warah</i>	Soil fertilizer, weed
<i>Timonius rhizophoides</i> (Rub.)		Soil fertilizer, weed
<i>Trachymene afrakensis</i> (Apiac.)	<i>Musan</i>	Ritual
<i>Tristania</i> sp. (Myrt.)	<i>Yoli</i>	Fence
<i>Urena lobata</i> (Malv.)		Weed
<i>Verbena bonariensis</i> (Verb.)		Weed
<i>Vaccinum</i> spp. (Eric.)	<i>Duaga</i>	Exotic
<i>Vigna radiata</i> (Fab.)		Vegetable
<i>Vigna sinensis</i> (Fab.)	<i>Wurikaken</i>	Vegetable
<i>Vinca rosea</i> (Apoc.)		Ornamental
<i>Viola betonicifolio</i> (Vioceae)	<i>Sugun/kebir</i>	Ritual
<i>Wendlandia paniculata</i> (Rub.)		Fire wood
<i>Wikstromia indica</i> (Thymel.)		Fiber, women's skirt
<i>Youngia japonica</i> (Aster.)		Weed
<i>Xyris complanata</i> (Xyridac.)		Weed
<i>Zea mays</i> (Poac.)	<i>Jabe</i>	Food
<i>Zingiber officinale</i> (Zing.)	<i>Jambu air</i>	Spice
<i>Zyzygium aquaeum</i> (Myrtac.)	<i>Jambu</i>	Fruit
<i>Zyzygium jambos</i> (Myrtac.)		Fruit