sariling atin

25 Promising Native Plants of the Philippines


Sariling Atin: 25 Promising Native Plants of the Philippines

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IN THE COVER: Mangkono (*Xanthostemon vedugonianus)*

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About **the book**

The title SARILING ATIN is about our own Philippine Native Plants. It also highlights the collaboration between our own MoCA Family Farm RLearning Center and ATI Calabarzon. As a family farm, RL stands for the names of the boys in the Morris family, namely; Robert Llewellyn, Robert Lloyd & Robert Llyndon.

Urbanization has turned our once ecologically productive lands into homes with lawns complete with landscape of exotic ornamental plants. Likewise, for food production, priorities have changed. Farming for food is about producing more with higher yield. While productivity is one of the principal reasons why we farm, diversity and sustainability dictate that we need not ignore our native plants and fruits.

The demand for native planting materials for farms, orchards and landscape uses has declined over the years. Awareness level among consumers is also very low. It is the desire of this book to reintroduce some of these native plants to its readers. These 25 species were identified for its culinary uses, landscape potentials and timber utilization.

The content of the book is alphabetically arranged based on the common names of each species. Each information sheet contains their respective scientific names and the family where the species belong. Integrated in the general information are useful photos, its economic potentials, including culinary uses and its other benefits. Valuable tips on propagation methods are also included.

About **the project:** ATING KALINGAIN

I was introduced to the importance of Philippine Native Plants by the late Dr. Roberto E. Coronel, fondly called as Doc REC by his many mentees in the group called Rare Fruit Society of the Philippines. Although, this is a mixed group of native and exotic plant enthusiasts, Doc REC never failed to impart to the group the importance of preserving our native plants, its role in continuous diversity and sustainability of our environment.

It is with much enthusiasm to collaborate with the Agricultural Training Institute (ATI) CALABARZON in this project. Together with some friends in the farming community who are Philippine native tree enthusiasts, we sat down to identify 25 promising Philippine native plants. It was not an easy one because there are tons of them. However, we all believed it was a good start. We hope that readers of this book will continuously promote the use of our Philippine native plants by exploring its culinary, landscape and other commercial use.

If we can utilize and incorporate in our daily activities the Philippine native plants, then more people will be aware of it. This increase in awareness will result in patronage and conservation will naturally follow.

We painstakingly looked for sources of these planting materials and distributed them to ATI's network of farming communities; Learning Sites; Provincial Agricultural Offices; and government offices, who will all serve as custodian farmers of these species.

Patuloy nawa nating kalingain ang mga halamang sariling atin!

Message

Network, network, network! This is my common advice whenever I am asked by new and beginning farmers on how to get started in farming. Looking back, my appreciation of Philippine Native Plants was a result of networking with many people who advocated the propagation of our native plants. On top of that list, of course, is Dr. Roberto E. Coronel, Professor Emeritus at the University of the Philippines Los Baños. He has mentored many new and beginning farmers in the Rare Fruit Society of the Philippines to incorporate native plants in their farms. This is my early introduction to the idea of custodian farmers.

Tropical Asian countries like the Philippines are the center of origin and diversity of many important tropical fruit species and their native relatives. However, wild and cultivated fruit diversity is threatened by genetic erosion caused by a variety of factors. Despite these, you can still find “custodian farmers” who manage a wide range of native plant production in their own ways. They are the silent growers, propagators, and promoters of our native plants and its uses. You will find them in many farming communities, social network, academic environment and, sometimes, just quietly working on their respective gardens and farms.They reap the benefits of these plants including nutritional diversity, food security, income-generating opportunities, ecosystem benefits, or maintenance of cultural identity.

I am thankful to my fellow custodian farmers who helped me put together the list of 25 Promising Native Plants of the Philippines; namely, Araceli Tungol, Ruth Avila, and Ped Unson. I am forever grateful to Agricultural Training Institute for making this book a reality. Special mention to Center Director Marites Pia Cosico and all our ATI Calabarzon family for supporting this endeavor. Thank you my Team MOCA for all their precious time and hard work in this project. It is my desire that this book will lead to discoveries of many important economic potentials of our Philippine Native Plants!

Ka Gigi Morris
Family Farmer, MoCA Family Farm
Custodian Farmer, Philippine Native Plants

Message

The Agricultural Training Institute Region IV-A takes pride in this notable and novel accomplishment spearheaded by one of our Regional Extension Service Providers (ESPs), the MoCa Family Farm RLearning Center in Padre Garcia, Batangas. For this year, another milestone is about to unfold as we bring to you this Coffee Table Book entitled "SaRiLing ATIn: 25 Promising Native Plants of the Philippines. It is dedicated to all the plant enthusiasts whose interest and advocacy include promotion, propagation and preservation of native plants here in our country.

SaRiLing ATIn reintroduces the 25 Philippine Native Plants. It highlights the description and physical appearance, uses and propagation of each native plant. This publication also brings social awareness to the readers on the potentials and benefits of planting native plants. This will also be an eye-opener for everyone to appreciate the diversity of native plants which are becoming to be endangered.

My heartfelt thanks to the concerted efforts of the Moca Family Farm RLearning Center, the ATI Information Services Division, the ISS staff of our Center and to all who contributed to make this relevant publication possible.

Let us protect the blessings bestowed upon us, the nature's beauty and biodiversity.

Marites Piamonte-Cosico
Center Director
ATI RTC IV-A

Message

A huge part of Philippine history has shown tremendous reliability in the country's rich flora and fauna, particularly on native plants. These are an essential part of households, providing sources of food, firewood, medicines, beverages, and even structural materials.

As the world's landscape evolved, threats to biodiversity became evident. While native plants may have endured the test of the changing times, the production and use of non-indigenous plants have become prevalent. Philippine native plants have been placed in the sidelines of agricultural production, environmental protection, and overall biodiversity.

Along this line, we, at the Agricultural Training Institute (ATI), strongly commit to advance the promotion of Philippine native plants. As a nation, we have to recognize the necessity of not only knowing, but also investing in a variety of plants that we call our own.

Through the ATI-Regional Training Center in CaLaBaRZon, in partnership with MoCa Family Farm RLearning Center, Inc., this publication opens the path to rediscovering some indigenous plants in the country, particularly in the provinces of Region IV-A. The composition of native plants featured in this book will take us back in a journey to natural and cultural heritage. Indeed, this will serve as a blueprint for the youth to sustain identity amidst shifting natural biodiversity.

Going native is one way of being productive. May we all join hands in the promotion of native plants in the Philippines.

Alfredo S. Aton, MPS-DM
Director IV
Agricultural Training Institute

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ALINGARO

SCIENTIFIC NAME
Elaeagnus triflora Roxb.

LOCAL NAME
Alingaro

FAMILY
Elaeagnaceae

Elaeagnus triflora Roxb. or Alingaro is a plant native to the Philippines but can also be found in other countries like Taiwan, Malaysia, Papua New Guinea and even Australia.

The alternate leaves and shoots are usually covered with tiny silvery to brownish scales. From afar, this gives the plants a whitish to grey-brown color. It has a beautiful tiny yellow flower with a four-lobed calyx and no petals. The flowers have slight fragrance. The fruit is a fleshy drupe containing a single seed.

The ripe fruit has a sweet and tangy flavor. It can be used to make an excellent savory sauce or sweet jam.

Just like other plants from *Elaeagnus* family, Alingaro is a deciduous shrub-like small tree. It is able to grow well in a low-nitrogen soil since it has a nitrogen-fixing characteristic.

Propagation

It is best to cultivate the plant in an open field and pruned as a shrub so the fruit can be accessed more easily. It makes an excellent screen when trained along a fence or trellis. Plants are hardy in most well drained situations and for optimal fruiting, regular watering during flowering is advisable.

Vegetative propagation technique is used to propagate Alingaro. Mostly it is propagated using sexual and asexual propagation like marcotting (air-layering) and cleft grafting.

ALMASIGA

SCIENTIFIC NAME
Agathis philippinensis

LOCAL NAME
Almasiga

FAMILY
Araucariaceae

The Almasiga (Agathis philippinensis Warb.) is an endangered species in the Philippines. Almasiga is an evergreen large tree of the Araucariaceae family that grows up to 65 meters. Its diameter can reach up to two (2) meters at breast height and has a smooth, gray bark, sometimes brownish with flaky skin.

Its oval leaves narrow gradually at times, sharply toward the tip. The seed cone is oval, while the seed itself has a sharp but not extended point. Normally, Almasiga is found on the ridges of mountains where it towers over smaller trees.

It is planted as an enrichment crop in inadequately stocked areas or underplanted in existing plantations, since it needs partial shade in the early stages of its development.

Almasiga Resin or Manila copal is used in manufacturing textile paint; pesticides; wax and polishing material; and photogravure. In some villages or communities the resin is used as fuel for lamps and torches.

Propagation

Almasiga grows in areas where the mean annual temperature is in the range 22 to 32°C, and the mean annual rainfall is 2,500 to 5,000 millimeters. It prefers a freely draining, acidic soil. It has special tolerance for shallow, infertile soils. Plants are shade tolerant and wind resistant.

Vegetative propagation technique is used to propagate Almasiga. Mostly it can be propagated using sexual and asexual propagation like grafting and cutting.

ALUPAG

SCIENTIFIC NAME
Dimocarpus didyma

LOCAL NAME
Alupag

FAMILY
Sapindaceae

The Alupag tree is an evergreen fruit bearing plant, indigenous to the Philippines. It is a close relative of litchi and bears tasty fruits. The tree, around seven (7) to 10 meters tall, is evergreen. Leaves alternate, compound, up to 30 centimeters long with six (6) to nine (9) pairs of leaflets and the texture is leathery. Rippled glossy green dorsally and lighter green beneath. Flowers are small, whitish, hermaphroditic, formed on terminal or axillary panicles.

The fruit size is about 2.5 to 4 centimeters. It is whitish, semi-transparent in flesh wrapped around a large black seed. It tastes delicious and juicy. The outward appearance looks warty, of rough peel, brownish and globular. Alupag grows well in places with a subtropical climate or in tropical highlands.

Alupag fruit contains high amount of Vitamin C. Vitamin C is useful in safeguarding the body from colds and flu and improves the body's defense mechanism. Vitamin C assists in soaking up Iron and improves the skin condition as well. Alupag may also improve blood circulation and increase Iron assimilation in human body which can in turn prevent the occurrence of anemia.

Propagation

It can be propagated by seed which takes about two (2) weeks to germinate and by marcotting, inarching and cleft grafting. Marcotting is the commercial propagation method in many countries.

BAGO

SCIENTIFIC NAME
Gnetum gnemon

LOCAL NAME
Bago

FAMILY
Gnetaceae

Bago is a small to medium size tree reaching a height of 10 to 15 meters and its diameter up to 40 centimeters. Bago is cylindrical with numerous branches; its crown is compact to conical in shape. Its leaves are opposite variable in size and shape, 10 to 20 centimeters long and 4 to 7 centimeters wide, ovate oblong to lanceolate, dark green, shiny smooth and usually pointed at both ends. Inflorescence is borne on young shoots and older branches.

Fruits are produced in small clusters, 2.3 to 3.5 centimeters long, oblong with smooth red skin. The seed is enclosed in fleshy covering about one (1) millimeter thick. The seed coat is thin and brittle and separates readily from the seeds.

The young leaves and tender tips of Bago are edible and used as a vegetable. The nut is eaten either boiled, fried or roasted. In Indonesia, nuts are exported. In Java, it is an important home industry where the seed is heated, the hush is broken, and the hot kernel is pounded into a flat cake. The cakes are sun-dried, graded and packed for sale.

Bago is rich in its natural antioxidant ingredients. Antioxidants strike all the free radicals in the body and boost the immune system. The antioxidants found in fruits of Bago is similar to the benefits of Vitamin C found in fruits.

Propagation

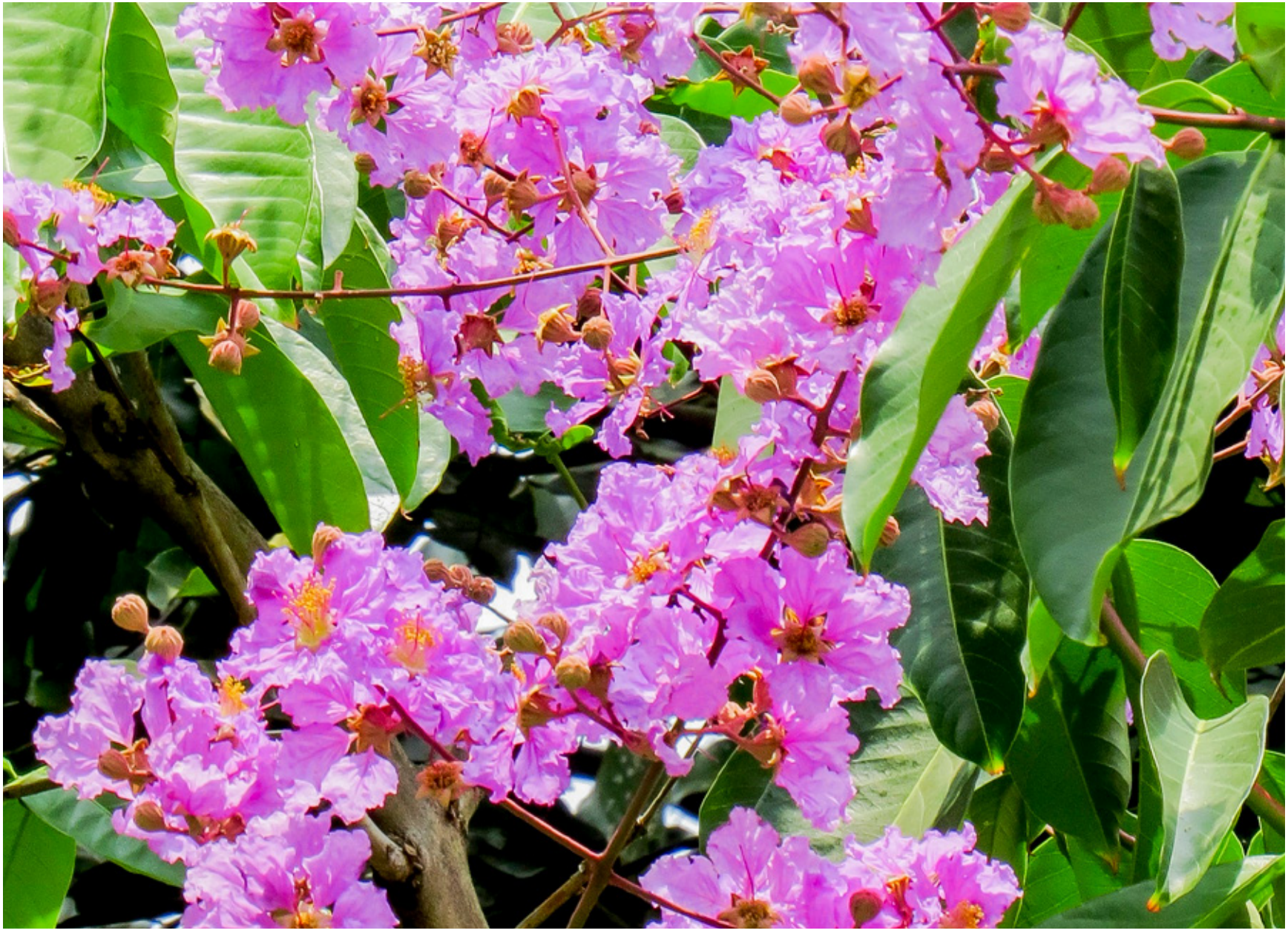
Gnetum gnemon thrives in dry and humid areas on secondary and primary forests at low and medium altitude (0 to 1,200 meters above sea level). It grows best in areas with annual precipitation of 3,000 to 5,000 millimeters although it can also survive annual rainfall of only 750 to 1,000 millimeters. *Gnetum gnemon* can grow in diverse soil types from sandy, clay to clay loam to calcareous soils but prefers relatively neutral soil with good drainage.
Bago could either be propagated by seed or by asexual means such as air layering, grafting, cutting or budding.

BANABA

SCIENTIFIC NAME
Lagerstroemia speciosa

LOCAL NAME
Banaba

FAMILY
Lythraceae



Banaba tree grows from five (5) to 20 meters in height. The bark is smooth, gray to cream-colored, and peel off in irregular flakes. The leaves are smooth, oblong to elliptic-ovate, and 12 to 25 centimeters long. The flowers are six (6) - parted, purplish lilac or mauve-pink, rarely pink five (5) to 7.5 centimeters across, and borne in large, terminal panicles up to 40 centimeters in length. The petals are oblong-obovate or obovate, shortly clawed, and 3 to 3.5 centimeters long. The margins are shortly clawed; 3 to 3.5 centimeters long; undulate; and hardly fimbriate. The fruit is a large capsule, obovoid or ellipsoid, and 2 to 3.5 centimeters long. The seed is pale brown, with a wing of 12 to 18 millimeters long.

The Banaba leaves and flowers contain Corrosolic acid, a substance being studied for its insulin like effect of lowering glucose in the body. Banaba is also being studied as a weight-loss supplement for its ability to delay or reduce the absorption of carbohydrates.

Banaba is also rich in vitamins and minerals including Zinc and Magnesium. Banaba is also rich in dietary fibers.

The Banaba leaves have been traditionally prescribed to diabetics and it also relieves stomach ailments, kidney problems, and asthma. It is used for creating hot and cold tea enhanced with the lovely flavors of lemongrass and calamansi.

Propagation

The Banaba tree will grow in full sun on a wide range of well-drained soils but is not salt tolerant. Plants should be watered regularly and should be protected from frost. Regular fertilization is recommended otherwise leaves become chlorotic. It will tolerate alkaline soil. The tree also grows in urban areas where air pollution, poor drainage, compacted soil, and/or drought are common.

The tree can be propagated by seed or by asexual propagation like marcotting.

BATUAN

SCIENTIFIC NAME
Garcinia binucao

LOCAL NAME
Batuan or Binukao

FAMILY
Clusiaceae

Batuan, also called Binucao, is a tree grows up to 25 meters with a diameter of 40 centimeters. Leaves are opposite, shiny and smooth. The newly emerged leaves are often reddish in color. The branches tend to be pendulous and its bark is black. Flowers are small, red and borne in clusters. Fruits are yellowish when mature, somewhat rounded, and four (4) to eight (8) centimeters in diameter. They have a firm outer covering and contain a very acid pulp with several seeds.

The fruit of Batuan is rich in Antioxidants that can help boost the immune system. It is also a good source of Vitamin C.

Batuan is used as ingredient to add sour flavor in meals instead of using artificial flavors or tamarind. Batuan gives the sour taste in “sinigang” dishes but with its own unique flavor.

The leaf and the fruit of the Batuan also serve as beneficial supplement for those with common type of diabetes. Research also showed that it reduces the imbalance of blood sugar level.

Propagation

Batuan trees are scattered and serve as second-story trees of primary lowland and secondary forests. It requires a well-drained area at low altitude.

Vegetative propagation is used to propagate Batuan. Mostly it is propagated using sexual propagation. Enclose the area covered by the crown of the mother tree and apply compost. Allow the ripe fruits to fall. In two (2) years, the seeds from the fallen ripe fruits will germinate.

BIGNAY

SCIENTIFIC NAME
Antidesma bunius

LOCAL NAME
Bignay

FAMILY
Phyllanthaceae

Bignay is a promising Philippine native tree for its many culinary uses. It is also a favorite subject of many studies for its health benefits. Bignay is a small, dioecious tree that grows up to 10 meters high. When maintained and pruned regularly, it can be used for edible and sustainable landscaping.

Leaves are shiny, oblong, and pointed at the tip. Spikes are axillary or terminal and usually five (5) to 15 centimeters long. Flowers are small and green. Developed fruit is fleshy around its single-seed. The fruit starts green and turn into red to deep almost purple-black. The fruit is about eight (8) millimeters long and comes in bunches of grapelike pendant clusters.

This tiny fruit is highly nutritious. Many studies showed that it has antioxidant and anti-carcinogenic properties. It can be eaten raw or fresh or can be processed into jam or jelly. Bignay juice and tea gives a refreshing treat. Like grapes, it can also be processed into wine and vinegar.

The benefits of consuming Bignay will dwarf its tiny fruit in comparison. This underutilized fruit tree is often neglected because of its size but once everyone becomes aware of its health benefits, it has the potential to bring additional income to farmers.

Bignay fruit has slightly sweet and sour taste which is perfect in making refreshing beverage full of vitamins and antioxidants. Its almost perfect combination of sweetness and tartness makes it suitable to be processed into a jam or jelly.

Propagation

If sexually propagated, seedlings may turn out to be male, and female seedlings may not bear fruit for a number of years.

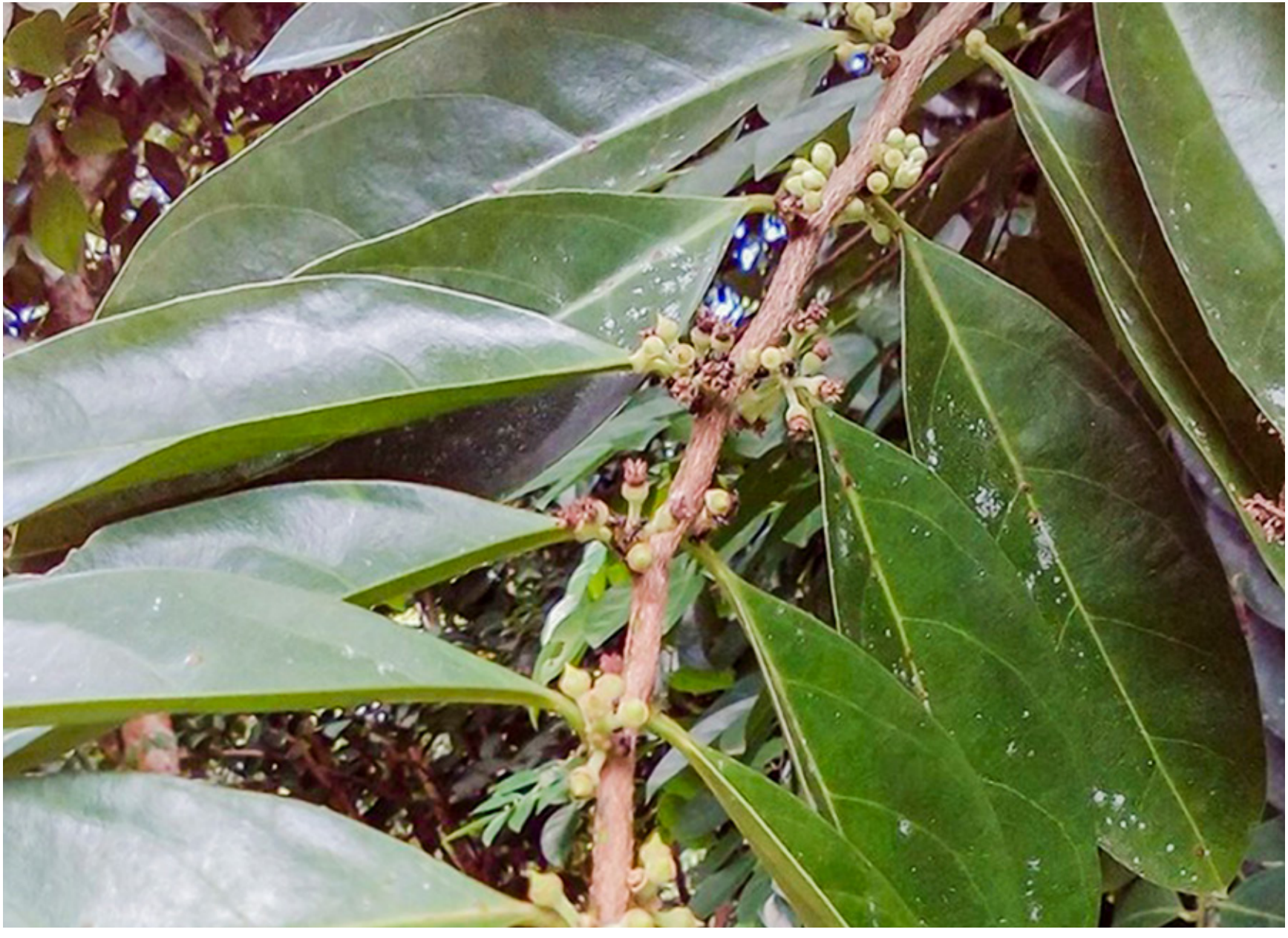
Vegetative propagation is preferred. It can be readily multiplied by cuttings, grafting or air-layering. With air-layering, it can typically bear fruit in three (3) to four (4) years after transplanting. It is possible that female trees can bear some fruit without the presence of a male. However, for better cross-pollination in commercial production, it is recommended that one male tree be planted for every ten female trees. When trees are still small or just newly planted on the field, it is recommended to have wind-protection. A sturdy stake will be helpful.

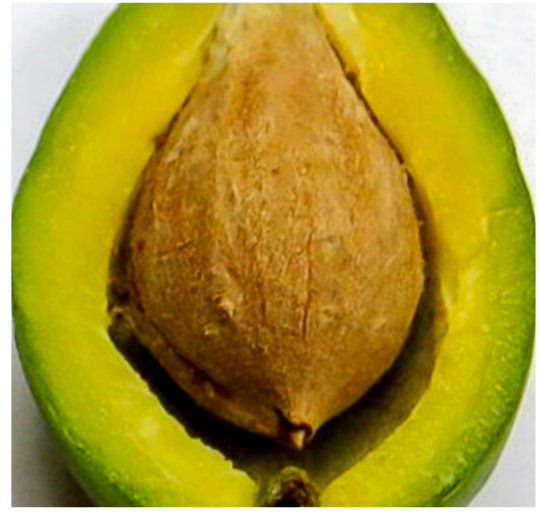
GALO

SCIENTIFIC NAME
Anacolosa frutescens

LOCAL NAME
Galo

FAMILY
Olacaceae





An evergreen tree which grows up to 15 meters high if planted by seed. Leaves are ovate oblong or elliptic oblong, dark green and eight (8) to 12 centimeters long. Small, pale green, hermaphrodite flowers are densely crowded in small clusters at leaf axils. Fruit is round to ellipsoid, light green and about two (2) to three (3) centimeters long. Considered as an undomesticated species, this egg-shaped fruit comes from a medium-sized tree that grows in the Philippines as well as Thailand, India, Malaysia and other countries in South East Asia.

Its boiled green pulp of 100 grams contains, 80 grams water; 8.0 kilocalorie energy; 3.0 grams Protein, 0.4 grams Fat; 16.2 grams Carbohydrates; 1.7 grams crude fiber; 28 milligrams Calcium; 54 milligrams Phosphorus; 1.3 milligrams Iron; 770 µg ·-carotene; 128 µg Vitamin A; 0.9 milligrams Niacin; and 12 milligrams Ascorbic acid.

The thick pulp of fruit is edible when raw. It can also be boiled or roasted. Ripe pulp is soft, aromatic and sweet. The kernel nut is delicious when boiled or roasted.

Harvest season of Galo is from March to July. Fruits are mature when they turn light green or yellowish green.

Propagation

Galo is a plant of the moist tropical lowlands, usually grown at elevations up to 700 meters, exceptionally at 1,400 meters. It prefers a climate without a pronounced dry season. It prefers areas with some shade. The plant is often found in the wild in Kerangas forest—a type of moist, heath forest and can be found on acidic, sandy soils that are low in nutrients, especially Nitrogen. Seedlings grow slowly, taking about a year to reach grafting size.

Galo can be propagated from seeds which germinate in about 100 days or by marcotting, inarching and cleft grafting. Trees grown from seeds bear fruit about six (6) to eight (8) years from planting while asexually propagated trees bear fruit in about three (3) to four (4) years.

GUMIHAN

SCIENTIFIC NAME
Antocarpus sericicarpus

LOCAL NAME
Gumihan

FAMILY
Moraceae

Said to be the tastiest of all *Antocarpus*, this unique native fruit is a golden treasure of flavors. This unique looking fruit looks like a bigger rambutan. Fruit starts at light green and turns golden yellow and orange as it ripens.

Similar to Marang, but not as aromatic, the fruit has snowy, sweet, juicy flesh that encloses its numerous seeds.

Commonly found in humid tropics with a mild monsoon climate such as Philippines, Malaysia, Borneo and Indonesia. It is also occasionally found in steep, clayey hillsides of inland areas. Typically found close to riverbanks and swamps. The fruiting season of Gumihan is from May to July.

If maintained and pruned regularly, it can be planted in the backyard and can be a source of food and can provide shade and natural landscape. Gumihan is an evergreen tree which grows up to 25 meters high if not pruned and managed. The young Gumihan tree typically have a large lobed leaf. The leaf lobbing may not be as prominent once the tree matures.

Propagation

Established and fruiting Gumihan trees are hardy in most well drained situations and for optimal fruiting, regular watering during flowering is advisable.

The more common practice of propagating Gumihan is by seedling. Sow the seed as soon as it is ripe. The seed germinates best at a temperature of 24 to 27oC. Since little is known on the best way to propagate it commercially, Philippine native tree hobbyists and enthusiasts are able to propagate this endangered species. There are a few host communities, where Gumihan can be seen. In the Philippines, this can be found in the Bicol Region.

HAGIS

SCIENTIFIC NAME
Syzygium tripinnatum

LOCAL NAME
Hagis

FAMILY
Myrtaceae

Syzygium tripinnatum or Hagis is a tree with 15 to 20 centimeters diameter trunk. Leaves are chartaceous, elliptic or oblanceolate, eight (8) to 13 centimeters long, 1.3 to 4.8 centimeters wide, with an acute or shallow cordate base and acuminate apex. Flower are borne in terminal or, less often, lateral cyes. Fruit is white to reddish, about 1.5 centimeters in diameter, juicy, sub-acid and has persistent, conspicuous calyx lobes. Hagis is a midsized tree that grows up to 20 meters high. More common in the provinces of Sorsogon and Bicol, the white Hagis fruit turns cherry red upon maturation.

The presence of bioactive compounds such as alkaloids, tannins, phenols, lipids, flavonoids in its leaves, barks, fruits, stems, and roots contribute to rich source for nutrition and medicine. These compounds have pharmacological effects such as antioxidant, antimicrobial, antidiabetic, central nervous system activity (CNS), chemo preventive, anti-inflammatory, antiallergic, hepatoprotective, among other properties. It is commonly known as antidiabetic since it has been proved to be of most promising nutraceutical value.

Ripe fruit may be eaten raw or may be processed into juice, jam and jelly. Its pulp is juicy yet sour. When eaten as raw, mix it with salt or sugar to neutralize its sour taste.

The genus comprises about 1,200 to 1,800 species and has a native range that extends from Africa and Madagascar through Southeast Asia and the Pacific. Most species are evergreen trees and shrubs. Several species are grown as ornamental plants for their attractive glossy foliage, and a few produce edible fruits that are eaten fresh or used in jams and jellies.

Propagation

Vegetative propagation is used to propagate Hagis. Softwood grafting carried out in March showed significantly higher graft success followed by softwood grafting in September whereas patch budding showed the least survival percentage.

HIMBABAO

SCIENTIFIC NAME
Broussenetia luzonica

LOCAL NAME
Himbabao

FAMILY
Moraceae

Himbabao (*Broussonetia luzonica*) is a medium-sized shed tree with a height of 15 meters and a trunk diameter of 30 centimeters. It is locally known as Alokon, Malambingan, or Babayan in Tagalog. This plant is in not related to the birch tree. It is a member of the *Moraceae* family, the mulberries. The leaves are alternate with pointed apex and rounded base. The lower leaf surface is hairy. The flowers are very small and are borne on very long, slender, spike-like flowering branches. Pistillate and staminate inflorescences are borne on separate plants. Fruits are globose syncarp with numerous seeds.

Himbabao is used for paneling; furniture and cabinet; gunstocks; musical instruments; pulpwood; firewood butchers' block; and boat planking.

It is rich in vitamins A, B and C, and contains Calcium, Phosphorus, Potassium and Iron. Himbabao trees are planted in Southern Luzon to shade abaca plants.

Propagation

Himbabao is widely grown throughout the Philippines. It is commonly found in thickets and second-growth forests at low and medium altitudes, it can grow in almost all types of soil. However, it is best grown in well-drained loamy and moderately fertile soil.

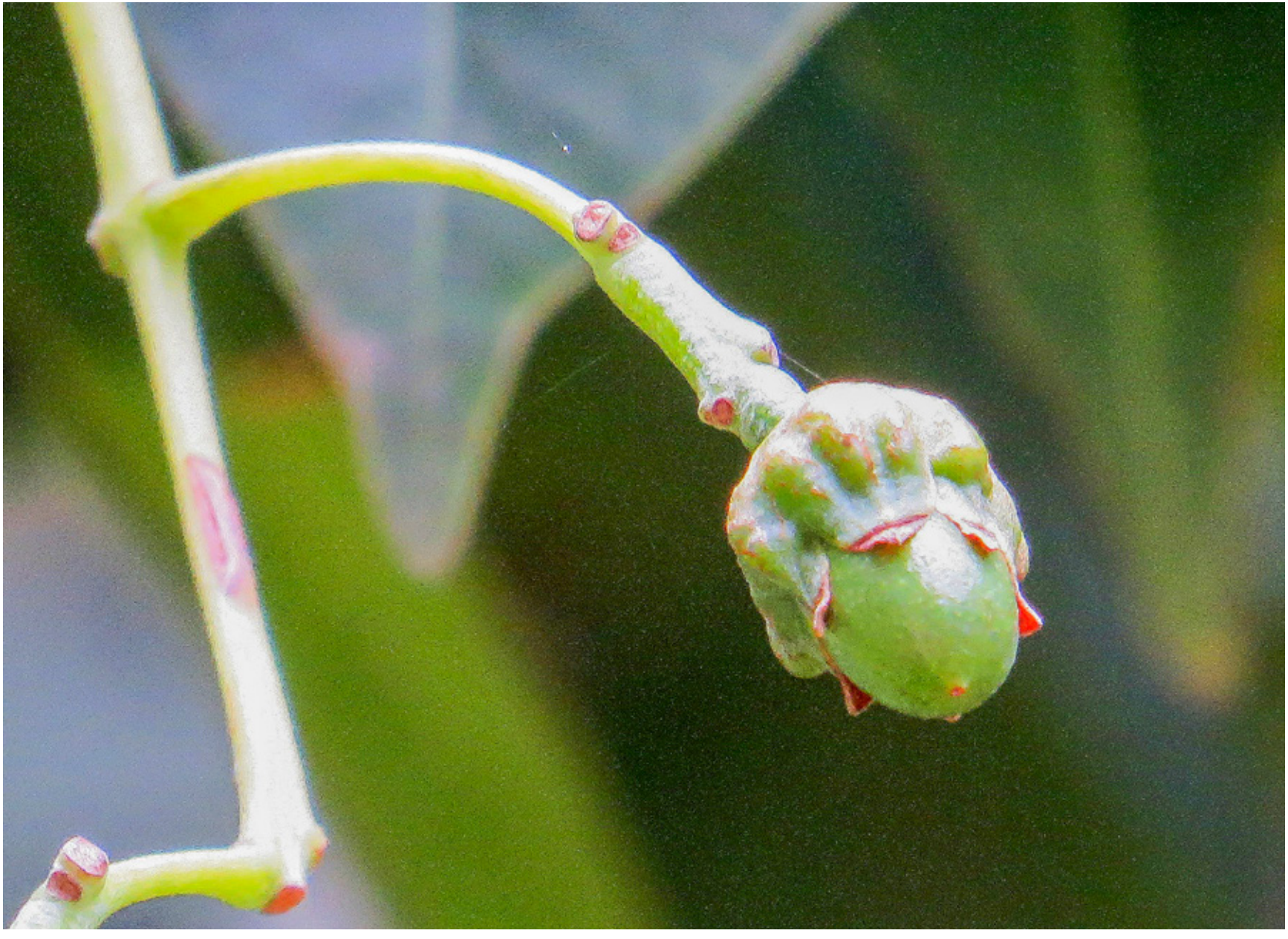
Himbabao is generally propagated by seeds or by cuttings from mature branches with approximately eight (8) centimeters in diameter. During planting, hole is dug and should be deep enough to protect the plant roots.

KALINGAG

SCIENTIFIC NAME
Cinnamomum mercadoi

LOCAL NAME
Kalingag

FAMILY
Lauraceae



Kalingag is a small tree, six (6) to 10 meters high. Bark is thick and aromatic. The leaves are opposite or sub-opposite; smooth; pale green; sub glaucous beneath; shining above; ovate- oblong to broadly lanceolate; occasionally sub elliptic; eight (8) to 20 centimeters long; four (4) to six (6) centimeters wide; pointed at both ends; and borne upon petioles five (5) to 15 millimeters long. Blade is three-plinerved. Inflorescence is erect, growing from the uppermost leaf axils, about 10 centimeters long. Calyx is canescent and turbinate. Petals are smooth and scarcely exerted. Fruit is smooth, narrowly ellipsoid, about two (2) centimeters long, surrounded to the middle by a persistent calyx.

Kalingag is a popular spice and flavoring agent. This is used as an ingredient for root beers with its strong sassafras odor and taste. The bark sometimes serve as substitute for cinnamon and used as a condiment.

The bark of the tree and leaves are used as traditional medicine in the Philippines. The bark is chewed to aid digestion and cure flatulence, used as an expectorant, and for stomach pains. It is soothing for the stomach and it is also a stimulant with astringent, antiseptic, antifungal and antiviral properties.

Propagation

Kalingag succeeds in the moist lowland tropics. Species of this genus generally prefer an acidic soil with ample moisture in the growing season and also prefer some shade. These are generally able to re-sprout from basal wood if the top is destroyed and will soon recover from any damage.

The seed generally has a short viability and is best sown soonest in containers while it is ripe.

KALUMPIT

SCIENTIFIC NAME
Terminalia edulis

LOCAL NAME
Kalumpit

FAMILY
Combretaceae

Terminalia edulis or Kalumpit is believed to be indigenous to the Philippines. It was widely distributed throughout the country at low elevations, both in dry and moist regions. It is, however not cultivated, and is now classified as vulnerable and its population is decreasing. It is likely to be an endangered species in the near future.

Eating the fruit of Kalumpit is beneficial to one's health as it is rich in Ascorbic acid, enzymes, Bioflavonoid, Chromium, Potassium, Magnesium, B vitamins and Amino acids.

The Kalumpit fruits taste like strawberry and other berry type of fruits which is sweet and citrusy. The fruits can be used or processed as flavor and age of lambanog; kalumpit jam; and for wine making.

Aside from being nutritious, Kalumpit is very effective in treating eczema and other skin diseases. The fruit is used as eyewash like the Acacia *farnesiana*. It is also used as a lotion in cases of humid herpetism. The fruit pulp is also used by Hindu physicians as astringent and laxative.

Propagation

Kalumpit grows best in areas where the mean maximum and minimum annual temperatures are within the range of 22 to 38°C, though it can tolerate 12 to 45°C. It prefers a mean annual rainfall of 850 to 1,900 millimeters, though it can tolerate from 600 to 2,100 millimeters. It is found in monsoon forests, where there is a distinct dry season. This also requires exposure to sunlight. Plants are however tolerant of shade. Kalumpit prefers a well-drained, medium to light soil; and prefers a pH range of 5.5 to 6.5, but can also tolerate pH of 4.5 to 7.

Vegetative or asexual propagation can be used to propagate Kalumpit like grafting. It can also be propagated using sexual propagation.

KAMANSI

SCIENTIFIC NAME
Antocarpus camansi

LOCAL NAME
Kamansi

FAMILY
Elaeagnaceae

Artocarpus altilis or Breadfruit or locally known as Kamansi is one of our native trees which grows as an exotic fruit in the Philippines. It can be grown in the lowlands and in the uplands. Breadfruit tree has many similarities to jackfruit except that their fruits appear on twigs and the terminal end of small branches. Kamansi trees can grow up to 50 feet in height. Once established, it can withstand brief drought situations as well as periodic flooding. Trees typically produce their first fruits at eight (8) to 10 years old. It can produce around 600 to 800 fruits each season.

The fruit has moderate levels of essential vitamins and minerals. Like other tropical delicacies, it is rich in many vital B-complex groups of vitamins such as Thiamin, Pyridoxine, and Niacin.

The young fruit is boiled and can be cooked as a vegetable dish. Also, it can be cooked into a seeded breadfruit in coconut milk. Likewise, the ripe fruit is sweet and flavorsome. The seeds can also be eaten when boiled or roasted. It is rich in starch, protein, low in fat, and rich in minerals, especially Niacin.

Propagation

Kamansi is suitable in light (sandy), medium (loamy) and heavy (clay) soils and prefers well-drained soil. It grows in acidic, neutral and basic (alkaline) soils. However, it grows well in very alkaline soils.

Vegetative propagation is used to propagate Kamansi. Select healthy, undamaged roots that are growing just beneath the surface of the soil and carefully excavate them.

KATMON

SCIENTIFIC NAME
Dillenia philippinensis

LOCAL NAME
Katmon

FAMILY
Dilleniaceae

Dillenia philippinensis or Katmon is one of Philippine native trees that has so much potential both for landscape as well as for culinary uses of its fruits. This tropical beauty is endemic to the Philippines. Commonly found in Mindoro, Masbate, Bicol Region, Negros Island and other low and medium altitude forests where it is most known to grow.

Dillenia philippinensis is known to be a medium size tree that can grow up to 17 m in height. It has showy tropical leaves, beautiful flowers, shade tolerance, and compact growth.

In a study that determined the antioxidant activity of 31 edible wild fruits grown in Benguet, published in the Electronic Journal of Biology, Katmon has the highest antioxidant activity (Barcelo). The fruit contains both polyphenols and flavonoids.

The edible fruits are round, about six to eight centimeters in diameter, with large fleshy sepals tightly enclosing the true fruit. Its fruit is commonly called elephant apple, similar to *Dillenia indica*. The fruit is fleshy and sour. The fresh fruit is not a typical tropical dessert fruit but due to its acidity and juiciness, it makes an excellent sauce or jam and is also used for flavoring. The juice of the true fruit can be added with sugar or honey for cooling beverage. Likewise, it is used as souring ingredient by growers because of its excellent sour taste.

Other than its fruit, the bark can be air dried and extracted for its red dye. The leaves are shiny leathery, elliptic or oblong-ovate, 12 to 25 centimeters long, and coarsely toothed. Study of air dried leaves yielded Betulinic Acid.

Propagation

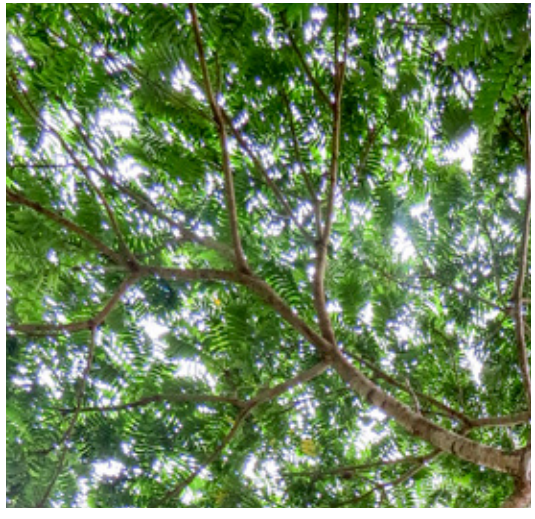
It is wildcrafted in some areas, or picked/harvested from its natural or wild habitat. Commercially, it can be commonly propagated by seeds. Seedling trees fruits in about five (5) to seven (7) years. There are also some propagators who have successfully propagated it by cuttings.

LAMYO

SCIENTIFIC NAME
Dracontomelon edule

LOCAL NAME
Lamyo

FAMILY
Anacardiaceae



Lamyo grows up to 20 m and a diameter of about 60 cm. Young trees reach a height of three to four meters after two years and 6.5 meters after 5.5 years. The leaves are alternate, pinnate, and hairy; the leaflets are pointed at the apex, rounded at the base, and from 10 to 20 cm in length. The flowers are small, and occur on rather large, compound inflorescence. The fruits are rounded, yellow and have edible pulp around the seed.

Fruits of Lamyo reportedly have cooling properties and are used to treat sore throat, skin inflammation, itch, internal ulcers, as well as an antidote for poisoning. The leaves possess antiseptic properties against broad spectrum of bacteria.

Young fruits are used to flavor curry, and the edible flesh covering the seed is sweet-sourish and eaten in Thailand. Fruits are edible, fresh or stewed in honey. Flowers and leaves are cooked and eaten as a vegetable or used as a food flavoring. Fruit is used as a sour relish with fish in Malaysia.

Propagation

In trial plantations with a spacing of 1 m x 3 m, the canopy closes after eight years. The tree tolerates shade. Since natural pruning is good, artificial pruning is seldom necessary. Logs should be sprayed with insecticides to prevent attacks by Bostrychid beetles. Propagation of Lamyo is usually by seed. Trees can also be established by direct sowing and wildlings because it regenerates easily.

LIPOTE

SCIENTIFIC NAME
Syzygium curanii

LOCAL NAME
Lipote

FAMILY
Myrtaceae

It is a small to medium-sized tree that grows up to 14 meters tall and its trunk up to 75 centimeters in diameter. The outer bark is purplish gray and its twigs are angularly winged and leaves are alternate, oblong-lanceolate or obovate, acuminate, six (6) to 20 cm long, four (4) to seven (7) cm wide, with 14 to 16 pairs of secondary veins. Flowers are white, numerous, and in panicles. Fruits are subglobose, fleshy, red to dark purple, sweet sour, and edible, and one centimeter in diameter.

Fruits are eaten raw or cooked. The ripe fruit is rich in Vitamin C and processed into jams, jellies and juice. The juice is made into a tropical fruit wine. Also, Lipote jelly is added as an ingredient in baking cakes. The flesh of the fruit is dried and processed into capsule or tablets. For folkloric and medicinal purposes, it is used for diabetes, hypertension, and high cholesterol. Some Ifugaos use the sour fruit for treating cough. Leaf decoction is used for hypertension.

The ripe liporte fruit has 83% edible portion contains (per 100g) 83.4g water, 77kcal energy, 0.7g protein, 2.5g fat, 12.9g carbohydrates, 1.7g crude fiber, 93mg calcium, 22mg phosphorous, 0.2mg iron, 50µg ·-carotene, 10 µg total vitamin A, 0.01 mg thiamin, 0.02 mg riboflavin, 0.3 mg niacin, and 16 mg ascorbic acid.

Propagation

Lipote is propagated through seeds or through grafting. It is always good to use the seeds when it comes from a fruit that's ripe.

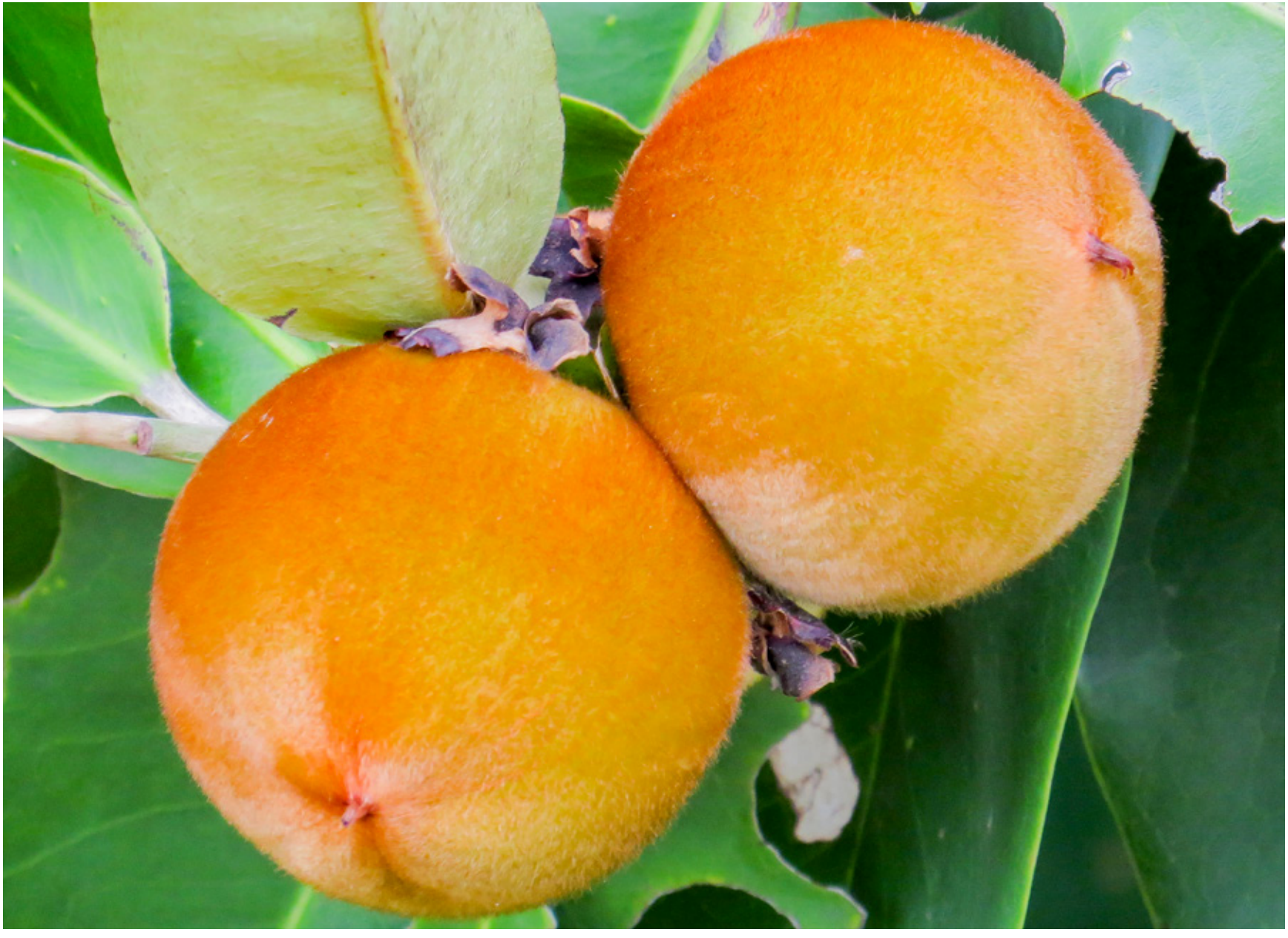
The plants start to bear fruits in four (4) to five (5) years after planting. This species can be used as a reforestation species because of its economic and ecological contribution.

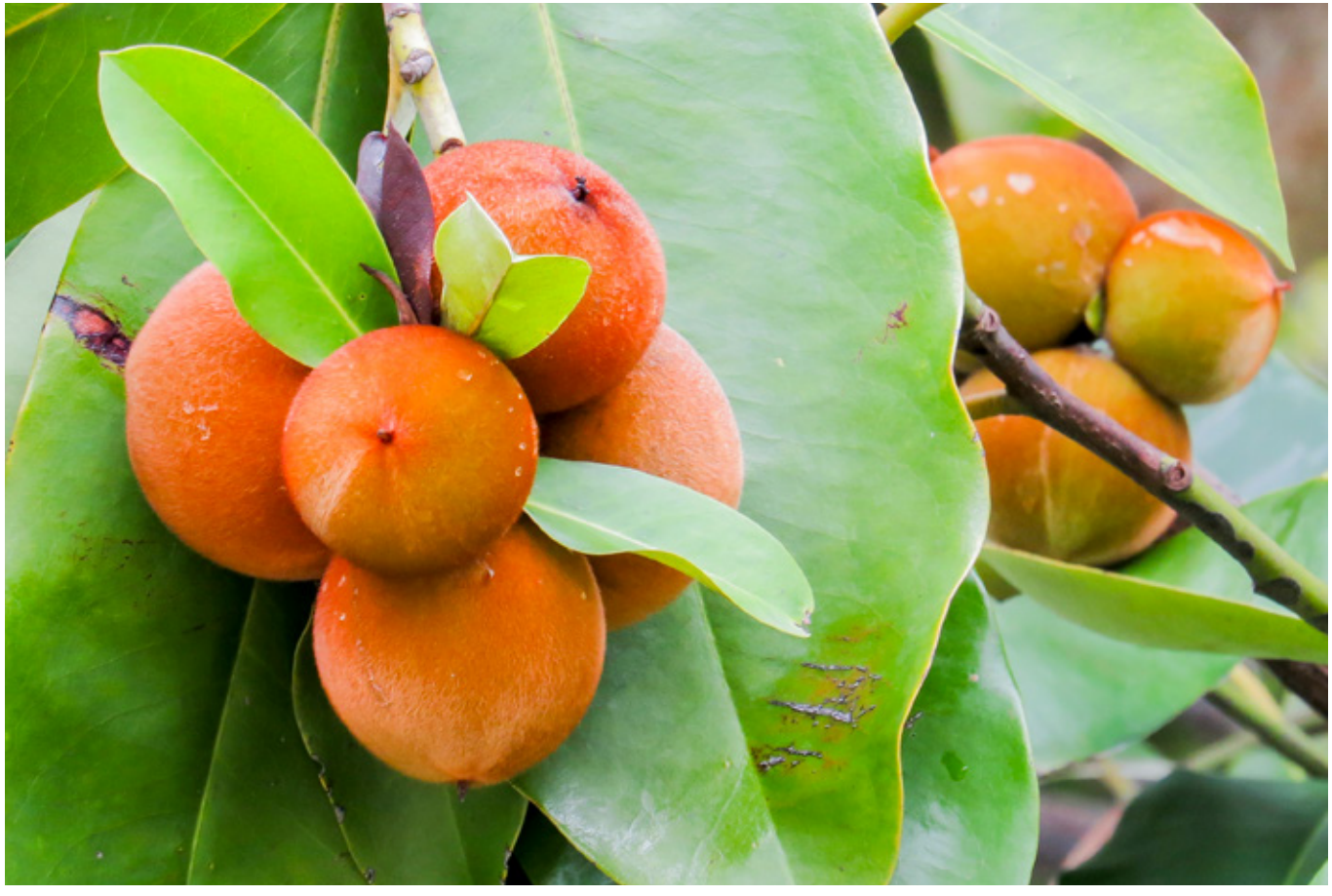
MABOLO

SCIENTIFIC NAME
Diospyrus discolor

LOCAL NAME
Mabolo

FAMILY
Ebenaceae





Mabolo is indigenous in the Philippines, where it is widely found in primary and secondary forests at low and medium altitudes. It is also grown in other tropical countries.

This is a medium-sized to large tree, eight (8) to 15 m or more high, with oblong leaves, green and shining on the other surface, soft with appressed, pale hairs on the lower side. The female flowers are slightly larger than the male flowers. The fruit is large and spherical, with a velvety skin densely covered with brown hair, dull reddish, thin and adhering to the flesh. The flesh is whitish, firm rather dry, sweet, and astringent; and with a strong, aromatic, and cheesy odor.

The high levels of Vitamin C and Vitamin A of Mabolo (velvet apples) boosts the immune system of the body by acting as antioxidants, eliminating damaging free radicals that can mutate or kill healthy cells. The dietary fiber in Mabolo helps ease the passage of food through the digestive tract, thereby eliminating constipation and other gastrointestinal issues.

As a culinary dish, it is either eaten raw, but is also included in various dessert dishes and in certain beverages. Despite its unpleasant smell, people still turn to velvet apples because of its high nutrient content that can be very beneficial for a variety of health issues.

Propagation

Male trees must be planted near the female trees for effective pollination and fruit production. The tree does best in loam but flourishes very well in almost any soil with little care. It is rarely fertilized and there is no need for protective spraying.

Mabolo is usually propagated by seed, which germinates at 24 days. It can also be propagated by marcotting, budding and grafting. The latter method is being commercially used in the Philippines.

MANGKONO

SCIENTIFIC NAME
Xanthostemon vedugonianus

LOCAL NAME
Mangkono

FAMILY
Myrtaceae

Mangkono is a giant among the species of trees. It has been found to draw metal minerals out of the soil. Hence, it is known as ironwood and is extremely difficult to cut down. The plant prefers tropical climates such as Philippines. However, the Mangkono tree is now becoming endangered since saplings are cut down before maturation. The trunk of a Mangkono tree can grow up to 20 to 36 inches in diameter, while the canopy reaches up to 30 to 40 feet. The leaves of the Mangkono tree have a leathery texture and are generally oval in shape. The tree features bright red, rounded flowers at the end of the branches and fruit that splits open to reveal half-moon seed within.

The wood of the Mangkono tree is highly valued and can resist routing for 40 years even if exposed to constant moisture or higher temperature in arid regions. The wood of a full-grown Mangkono tree is so hard that it is recommended to use a diamond saw to cut it. A Mangkono tree can be chopped down with an axe but it is very difficult and will take several days to complete. The challenge of cutting down a mature Mangkono tree resulted in the cutting down of many younger trees after they reach a diameter of only a few inches.

The extreme hardness of the Mangkono tree makes it suitable for certain applications. The ability of the wood of the Mangkono tree to resist rot makes it an ideal material to build ships. It is also used in the handles of tools, poles, wharfs and bridges.

Propagation

The Mangkono tree will grow in sandy loam soil. Soils rich in organic matter is not suitable for Mangkono. The Mangkono tree while growing requires large amounts of water during the dry season. It will flower more if exposed in full or partial light.

Vegetative propagation is used to propagate Mangkono. However, it can also be propagated using seeds.

MARANG

SCIENTIFIC NAME
Artocarpus odoratissimus

LOCAL NAME
Marang

FAMILY
Moraceae

Artocarpus odoratissimus is an evergreen tree that grows up to 25 m tall if not pruned and managed. The leaves are long about 45 to 65 cm; broad similar to the Breadfruit, another *Antocarpus,* except that it is a little less lobed. The leaf lobbing may not be as prominent once the tree matures. Its small monoecious flowers are densely crowded on globose to oblong-shaped, solitary inflorescences.

The fruit size is large and around 16 to 20 cm long. It is roundish oblong, and studded with soft, brittle, greenish and yellow spines. It is very aromatic, with snowy, sweet, juicy flesh that encloses its numerous seeds. The fruit is similar to kamansi *(Antocarpus kamansi)*, also native to the Philippines, except that it has a softer spine. Marang, as a native tree, is commonly cultivated in Mindoro, Negros and Mindanao region.

Many will agree that Marang has a more favorable scent compared to Durian, another *Antocarpus*. The sweet flesh that surrounds the seed of the fruit is delicious when it's ripe. Nutritionally, it can be considered a complete food since it contains most of the necessary nutrients for a person's health. Such nutrients include Protein, Fat, Carbohydrates, Calcium, Retinol, Crude fiber, Phosphorous, Iron, Beta-carotene, Vitamin A, Riboflavin, Thiamine, Biacin and Ascorbic acid.

Marang is typically eaten fresh as a dessert. However, it has a short shelf life. Hence, it is difficult to transport to the market especially if it's far. It is best to process the fruit, which can be made into ice cream, concentrated syrup or puree, preserve and jam. Marang can be dehydrated and powdered using a commercial food processor to maximize its culinary potential.

Propagation

Marang is propagated from seed and by inarching. The seeds germinate in about 26 to 30 days. Fruiting season is around May to August and can vary in different areas in the Philippines. Fruits are harvested when fully mature and can be ripened off the tree.

PAHO

SCIENTIFIC NAME
Mangifera altissima

LOCAL NAME
Paho/Pahutan

FAMILY
Anacardiaceae

This tiny looking mango is not a young and unripe mango. Yes, it is closely related to mango (*Mangifera indica*), but it is of a different species. Paho or *Mangifera altissima*, is a much smaller fruit and less prone to pests.

Paho is an evergreen tree with shiny, elliptic, dark green leaves and smooth, brown bark. The fruit hangs from a long stem, is an ovoid drupe. It is light green and ripens to pale yellow. It is single seeded.

This fruit contains Vitamin B6, Riboflavin, Vitamin A, Vitamin C, Vitamin E and Vitamin K. It is also rich in Folate, Niacin and Pantothenic acid. It assists in the prevention of host of diseases, which arise from the deficiency of minerals and vitamins.

These small tart mango-looking fruit is a favorite of many as relish. Combined with tomatoes and onions, it can go well with fish and meat. When chopped and mixed with other ingredients for fresh salad, one can create a spectacular flavor.

Many culinarians agree that it gives out an "herbful" of flavors and aroma. Its unique flavor is gaining fast acceptance among kitchen enthusiasts. They usually try to use it in many recipes. One new way of utilizing Paho is it may serve as a substitute to green olives.

The fruits are only available between March and May. It is important that the fruits are harvested green. It can be processed by pickling or brining. It can also be stored in the fridge or canned so that it will be readily available when it is not in season.

Propagation

It can be propagated by seed, which takes about a month to germinate. It can also be propagated by cleft grafting using its own seedlings or those of the mango.

PILI

SCIENTIFIC NAME
Canarium ovatum

LOCAL NAME
Pili

FAMILY
Burseraceae

An attractive symmetrically shaped evergreen, and distinctly erect and spreading tree, Pili can grow up to 20 to 30 m tall, with huge trunk, and known for its resinous wood. Pili is predominantly dioecious. Leaves have deltoid to lingulate stipules that are spirally arranged. It is a popular windbreaker, since it is known for its resistance to strong winds.

Pili is native to the Philippines and can also be found in maritime Southeast Asia, such as Indonesia, Malaysia and Papua New Guinea. A tropical tree that prefers warm temperature, and well distributed and well-drained soil. It cannot tolerate temperate weather and the slightest frost.

To date, the potentials of Pili is not maximized. The Pili kernel is its most important product. The flavor of a raw Pili nut is similar to a roasted pumpkin seed. When roasted, the nutty flavor and texture is similar to the Pine nut.

Although, known for its Pili nuts, this native tree has huge potential for its valuable wood. It can also be used for forest and conservation landscaping.

As food source, the young shoots and the fruit pulp are edible. The young shoots are used in salad and vegetable dishes. The fruit pulp when cooked and seasoned has a unique and pleasant nutty potato flavor.

Oil can also be extracted from Pili. It can be used in cooking and in making vinaigrette and other salad dressing. It also serves as substitute for oil typically used in making soaps.

The hard woody shells are excellent inert growth media for orchids and *Anthuriums*.

Propagation

This is a priority crop in the Bicol region, considered Pili's center of diversity. It is commonly propagated sexually through its seeds. However, it is recommended to propagate it asexually either by marcotting, grafting and budding.

PUTAT

SCIENTIFIC NAME
Barringtonia racemosa

LOCAL NAME
Putat

FAMILY
Lecythidaceae

This native plant is a favorite in many landscaping projects. The elegance of this native tree when its flowers bloom, makes it a popular choice for landscapers and designers who are in sustainable and conservationist landscaping movement.

Putat is a tree with a smooth trunk that grows up to 10 m. Leaf scars are noticeable in its prominent branches. The leaves measures 10 to 30 cm long; oblong ovate occur at the ends of the branches; and pointed at both ends and toothed along the margins.

Its unique and elegant flowers in white or pink are in clusters at the end of the stem or may drop from the angle between the scar and the stem. The flowers of Putat have calyx that encloses the bud, splits into two (2) or three (3) ovate, and concave segments. The petals range from oblong to oval lanceolate. Stamens are plenty about three (3) to four (4) cm long. Fruit is ovoid to oblong-ovoid, and crowned by a persistent calyx with a leathery pericarp.

Putat is often found in tropical rainforest areas, open lowlands and thickets. It usually grows along riverbanks and freshwater swamps. Occasionally it also grows in less saline areas of mangrove swamps where it may develop pneumatophores.

Propagation

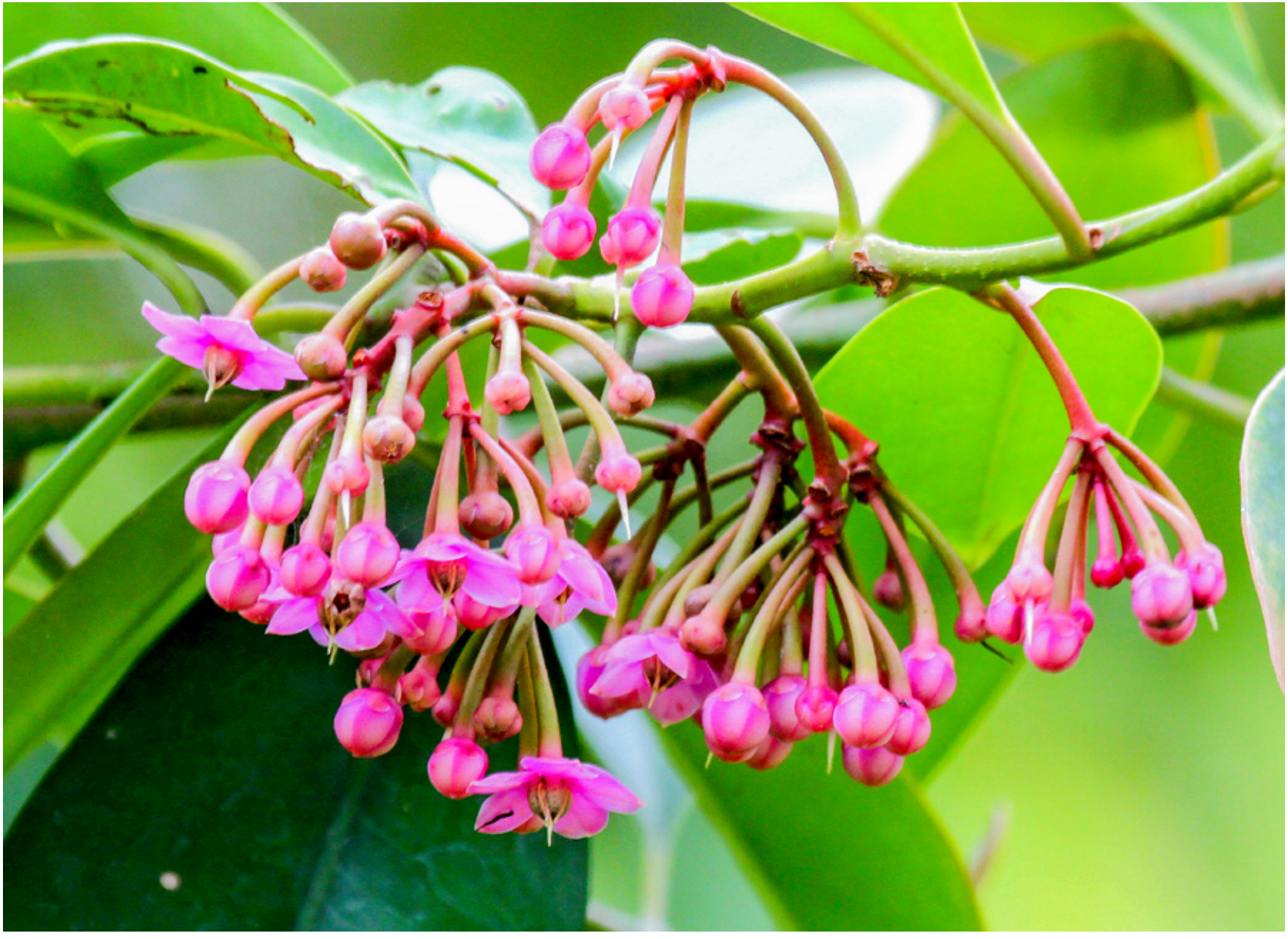
The species do not tolerate even light frost. Grown in wet and moist tropical climatic zones, Putat can be propagated by seeds. Seeds are sown in a seedbed or in a plastic bag with ordinary garden soil. Water the seedbeds/plastic bags as necessary. Germination of the seeds takes place after two (2) weeks time.

TAGPO

SCIENTIFIC NAME
Ardisia squamolosa

LOCAL NAME
Tagpo

FAMILY
Primulaceae



Ardisia squamolosa, locally known as Tagpo, is a small tree that grows up to 10 m if not maintained and pruned. Leaves are alternate, with oblanceolate to elliptic-oblanceolate shape. The size is about six (6) to 15 cm long, two (2) to six (6) cm wide, and with pointed ends. Flowers are pretty pink, and with mild fragrance. It is borne on compound, terminal or lateral inflorescences that grows about one centimeter in length.

The fruit is pretty dark red, sometimes in dark purple. Shape is rounded, and about five (5) to eight (8) mm in diameter. The ripe fruit has a sweet and tangy flavor, with tart aftertaste. This does not taste good when eaten raw because of its aftertaste. However, this can be processed into an excellent savory sauce or sweet jam.

If maintained and pruned, this tree has a good potential for its edible and non-edible landscape characteristics. Locals use Tagpo traditionally to flavor fish. Young leaves are also eaten by locals and use as green vegetables in dishes.

Like many *Ardisia*, it is common in primary forests at low and medium altitudes. *Ardisia squamolosa* is endemic in the Philippines. In many researches, *Ardisia* is known for its health-promoting compounds and phytopharmaceutical extracts.

Propagation

It can be grown from seeds and propagated through cuttings. However, shrubs from cuttings grow truer to form than those grown from seeds. Most propagators grow multiple shrubs for larger planting materials, especially when it is used as hedge or for landscape purposes.

SAPINIT

SCIENTIFIC NAME
Rubus rosifolius

LOCAL NAME
Sapinit

FAMILY
Rosaceae

Rubus rosaefolius or Sapinit is a climbing, prickly shrub that can grow up to two (2) to three (3) meters. It is identified with the rose family because of its prickly stem and its branches covered by hairs. This Philippine berry is more like a raspberry than a strawberry.

It is wildly grown in areas that are cold and in high elevation of 1,000 to 2,000 feet above sea level. It is mostly found in Mt. Banahaw in Quezon and in Laguna. Sapinit or sometimes referred to as local wild raspberries are bright red that accounts for its phytochemical richness. It measures to at least one centimeter in diameter. It is succulent, a combination of sweet and sour flavor, and sometimes with slight bitterness.

From being wildcrafted, there are now many propagators, who are starting to grow them in small commercial quantity. The berries unique taste offers many culinary opportunities for farmers living in upland farming communities. Shelf life of fresh fruits lasts for three (3) days.

The Philippine wild raspberry Sapinit can be processed into juice, jams, jelly and wine. It can also be used in making vinaigrette for salad dressing. The locals use the leaves as tea. Its bright red color can likewise serve as a natural food colorant and a great garnish for any food presentation.

One kilo of Sapinit can approximately make four bottles of jam and jelly. Similarly, a kilo of the fresh berries can produce one liter of juice or around five 350 ml wine.

Sapinit is becoming popular for its health benefits. Studies showed that it is rich in anti-cancer phytochemicals including leucoanthocyanins, anthraquinones, saponins, deoxysugars, free fatty acids and hydrolysable tannins.

Propagation

Sapinit is a plant that is useful for environmental sustainability since it does not need continuous cultivation. Growing amongst others in the wild, it has the ability to retain soil fertility and bears fruit for so many years.

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