



# asean

**Indigenous  
Raw Materials  
Exhibition**

**26 February-  
20 April 2007**

## ASEAN-Japan CENTRE

An ASEAN Information Station Located in Ginza, Tokyo,  
founded by the Governments of ASEAN and Japan

The ASEAN Promotion Centre on Trade, Investment and Tourism (*ASEAN-Japan Centre*) was established in 1981 under an agreement between the governments of ASEAN member countries and Japan.

The Centre promotes trade, investment and tourism relations between ASEAN countries and Japan by organizing trade exhibitions, seminars, capacity-building programs and information dissemination, among others.

### Mandate:

- To promote export from ASEAN to Japan, particularly semi-processed and manufactured goods
- To accelerate the inflow of investment from Japan to ASEAN, including the transfer of skills and technology
- To vitalize tourist traffic from Japan to ASEAN

ASEAN is an abbreviation for Association of Southeast Asian Nations. Member countries are Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam.



## ASEAN-Japan Centre

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## Theme

### The ASEAN Indigenous Raw Materials Exhibition

#### *"The Varied Mix & Uses of ASEAN Indigenous Raw Materials"*

Blessed with an abundance of indigenous raw materials from the lush exotic foliage to exquisite treasures of the sea, the tropical resources of ASEAN are a varied mix of Nature's bounty.

Combining these with a colorful cultural and craft heritage, artisans have created inspired objects for home, leisure and workspaces exuding warmth and an extreme reverence for the beauty and language of nature - the same raw materials that are also used in the construction of ASEAN dwellings.

What's more, ASEAN cuisine's delight comes from the delectability of its raw ingredients that were made into bowls of happiness. For health and wellness, ASEAN is also home to a rich source of plant life that is not only good for the body but also for one's well-being.

Learning more about the complex but beautiful stories behind the finished products from ASEAN will enhance your appetite to diversify your future business with ASEAN.

This is the ASEAN Indigenous Raw Materials Exhibition 2007 – a showcase of the wealth of ASEAN's natural wonders.



### Outline of the Exhibition

1. Name of the Exhibition:  
"ASEAN Indigenous Raw Materials Exhibition"
2. Period: February 27 – April 20, 2007  
Opening Hours: 9:30 a.m. – 5:30 p.m.  
(Close on Saturdays, Sundays & Holidays)
3. Venue: ASEAN-Japan Centre, Permanent  
Exhibition Hall [1/2 Floors]
4. No. of Exhibits: 59 kinds
5. Main Exhibits: Indigenous Raw Materials and  
Samples of Finished Products from ASEAN  
Countries



**Food &  
Beverage**



The Common Basil has a lot of related species including crossbreeds since they easily propagate in the wild and have high fertility and easiness to cross-pollinate. Most of its fragrance comes from the essential oil, which can be found in the oil glands on the backside of the leaves. Its spicy and fresh fragrant can be obtained by chopping of the leaves and rubbing it.

#### Active Ingredient/s:

The essential oil contains a lot of ingredients, which make up its flavor. Its effect can be attained by eating and smelling the essential oil. Improvement of a person's bodily function is expected because the flavor has an effect on appetite improvement and can cause activation in stomach and intestines. Relaxing effects can also be expected since its active ingredients like *linalool*, camphor and eugenol have relieving efficacy. Essential oil from natural botanical materials is used as a repellent due to its *cineol*. *Glucomannan*, a water-soluble dietary fiber, is contained in seeds.

#### Main Usage:

- Spice, essential oil (leaves), dessert, dietary aid (seeds)
- Common Basils are used as spice in raw or dried forms. Products with sour and oil are also popularly used
- Fresh basil sauce with olive oil, pine fruit and garlic, etc. is a representative sample of processing it for food, as in the case of Italian cuisine.
- Dried seeds are sold in Southeast Asia and are popularly eaten as dessert with coconut milk or syrup, fruits, etc. The seeds are often used as dietary aid because they help to give a feeling of fullness even in small amounts due to its abundant dietary fiber.

Family

*Lamiaceae*

Species

***Ocimum basilicum* L.**

Local Names

Kelapa Sawit (B)(I)(M), Doung preng [C], Nam Man Palm (T), Dau Co (V)

Sector/s: Food & Beverage



Originally from Ethiopia and Sudan, high-quality coffee is produced in tropical highlands. Growing up to between 3m ~ 4.5m, the flowers are white and have sweet flavor, the fruits are round to oval, and are green when young, red or purple when ripe. Generally, one fruit has two seeds inside.

Even among same species, coffee tastes differently based on the area of production. Coffee beans are harvested between 8-9 months after blooming, with the fruits commonly picked by hand when ripe already. Sometimes, machines are used to harvest all the fruits and then hand-select the ripe ones only.

Harvested coffee fruits are processed to remove the meat and outer skin. Generally, high-quality coffee is processed using the "wet method" - by soaking the seeds into water and then removing the meat and skin after fermentation. Sometimes, coffee is processed in dry method, which is to dry beans and then remove the meat and skin of the coffee beans, which are roasted according to the taste preferences of consumers.

**Active Ingredient/s:**

Chlorogenic acid and trigonelline are produced after roasting the coffee beans, which are kinds of caffeine and tannin that cause its bitterness, astringent taste and sourness. Caffeine is said to have doping action.

**Main Usage:**

- Beverage supplement to keep awake
- Nutritional drink for relieving fatigue

**Family***Rubiaceae***Species*****Coffea arabica* L.****Local Names**

Kopi Arabika (B)(M)(I), Krop Café [C], Maak Café (L)(T), Kape (P), Ca Phe (V)

**Sector/s: Food & Beverage**



As an evergreen tree, tea is divided into two (2) groups: the *var.sinensis*, short trees that are strong to cold and are a Chinese specie suitable for preparing green tea; and the *var.assamica* (Mast) Kitam, tall trees of over 10m, which are weak against the cold, and suitable for preparing red tea. With dark green and thick leaves, teas thrive best on acidic, humus soil and are cultivated on well-drained inclined hill soil. The sprouts are collected to be processed into tea, and the hand-picked ones are considered high-grade tea.

Teas are categorized into two (2) different groups depending on how they are processed: the unfermented tea (green tea) and fermented tea. The fermented teas are divided further into fermented teas (red tea) and half-fermented teas (oolong tea).

#### Active Ingredient/s:

The unique, pleasant taste of tea is due to the amino acid *theanine*, which has an effect in relaxing the mind, as opposed to the excitatory effect of caffeine. *Tannin* gives the tea an astringent taste and it also has an effect in relieving constipation and regulating intestinal functions. The amount of caffeine contained in green tea is the highest compared to coffee or cacao and it has arousal effects, reduces fever, relieves pain, and has also diuretic action. The *theaflavins* that are contained in *catechin* and red tea have anti-oxidation, anti-tumor, and anti-bacterial effects. In recent years, green tea has become a trend also in Southeast Asia and various products, like flavored green tea and jam have been commercialized and are quite popular.

#### Main Usage:

Hence, many products containing tea essence, such as health drinks, cosmetics, soap, and dish-washing detergents, are sold in the market.

Family  
*Theaceae*

Species  
***Camellia sinensis* (L.) O. Kuntze**

Local Names  
The (B)[C](I)(M), Saar (L), Tsaa (P),  
Cha (T), Tra (V)

Sector/s: Food & Beverage / Health & Wellness



Rising more than 20m tall, the coconut palm has single upright trunk, with the apex having some large pinnatifid leaves around 5m long in clumps.

The fruits are called “coconut” and are 10-35cm in diameter; yellow green when young, they turn yellow, orange, grayish brown as they ripen. The mature fruits fall down naturally. Coconuts have smooth water-shedding outer fruit skin, fibrous middle fruit skin, and hard inner fruit skin like hull. There is albumen inside the inner fruit skin. The ratio of gelatinous fat layer and waterish albumen milk and their usage differs according to maturity. Generally, young fruits have more milk, ripe fruits have firmer fat layer.

Coconut palms have wide usage. Fiber from middle fruit skin is used for brush, mat, rope, etc. and used as daily fuel. Coconut shell of inner fruit skin is processed for plates and utensils, buttons, etc, and very popular as souvenirs. Albumen milk is just like sport drink with young smell. It is said to be biologically clean when its shell is opened, and people find it useful as natural drinking water. Hence, the coconut palm is considered as the “tree of life.” All its parts are utilized for various applications.

Fat layer has bouncing texture and lightly sweet taste, and is eaten raw. Coconut milk is produced by squeezing hard fat layers and is used as food seasoning. Copra, which is dried fat layer, is made into margarine, soap, candles, even as dynamites. Flower juice is very sweet, processed into palm sugar through heating, and vinegar or alcohol drink through fermentation. Trunks are used as wood-building materials, and bladed leaves are used for baskets, mats, material for wall and roof.

Family  
*Arecaceae*

Species  
***Cocos nucifera* L.**

Local Names  
Kelapa (B)(I)(M), Deum DOUNG [C],  
Maak Paow (L), Niyog/Buko (P) ,  
Ma-Praw (T), Dua(V)

Sector/s: Food & Beverage / Gifts &  
Houseware / Handicraft / Furniture /  
Health & Wellness / Construction  
Materials





## F&B-5 / H&W

These evergreen shrubs are native to tropical regions in America. They thrive best in well-drained land. When young, it is weak against cold weather; but when it matures, as long as it is not exposed to frost, it can survive the winter outdoors and one could say it is a strong and easy-to-take-of-care tree.

A guava tree can grow from 8m to 10m high and the stem has a smooth bark, but it starts to peel off like the crape myrtle when it gets old. It has 5 to 15cm long oblong leaves and produces one or more white flowers that are 2.5cm in diameter and have many stamens on the leaf axils of new branches. The fruits become mature 90 to 150 days after the flowers blossom yielding a round or oval-shaped fruit similar to the shape of a pear that is 3 to 7cm in diameter. The young fruits are green but as they get mature they start turning yellow-green and finally into yellow.

The color of the flesh varies from white, pink, orange or red; and as it gets mature, it becomes multi-layered texture and starts releasing a unique and strong smell. It is a little cumbersome to eat it, because it has many hard seeds the size of sesame seeds. The fruit is especially rich with vitamin C, but it also contains a lot of vitamin A and B. Besides being consumed as a fruit in raw, it is mostly processed into juices.

As it contains *branchyscleroids* that are also found in Japanese pear, it tastes a little gritty. Moreover, as it contains a lot of *pectin*, it can be processed into products such as jam, jelly, and puree by adding sugar. The leaves are brewed to drink it as tea, but its taste is bitter and acerbic. However, the *polyphenol* that is contained in the leaves is known for having an effect in suppressing the rise of blood-glucose level by slowing down the absorption of glucose consumed into the body. For this reason, these leaves are released as products authorized as "Food for specified health uses" by the Ministry of Health, Labour and Welfare.

## Guava

Family  
*Myrtaceae*

Species  
***Psidium guajava* L.**

Local Names  
Biabas (B), Tra baek [C], Jambu (I),  
Maak See Dar (L), Jambu Batu Merah  
(M), Bayabas (P), Fa Ran (T), Qua Oi (V)

Sector/s: Food & Beverage / Health & Wellness



Another evergreen tree, mango trees can grow over from 10m to 20m tall, and some even get over 40m tall; and since they have a dome-like aspect, the distance between each tree can sometimes exceed over 20m.

The leaves are long and thin, the tip of the branch has a panicle, and each panicle produces from 500 to 2000 small yellow-green flowers. It has both unisexual flowers (male flower) and bisexual flowers, but most of them are unisexual flowers. Even though it produces so many flowers, only a few fructify from each panicle.

The shape of the fruit varies depending on the specie and it could weigh from 50 to 1400g. Its shape usually varies from round ones to long ones. The skin of the fruits can also vary from green, yellow or red, but the flesh is usually yellow. The flesh is creamily sweet and has just the right amount of acidic taste.

Other than consuming it raw, the mature fruit can be processed into juices, cans, dried fruits, and/or into sauces like mango chutney. The young fruits are used as condiments for its acidic taste to dishes or as pickles or they are also consumed raw with a sprinkling mix of condiments like salt, sugar, and red pepper. The spout and anthotaxis are sometimes used as vegetables.

Its wood is light-weight, and is used as material for boats and furniture. Its sap can be used as a substitute for Arabic gum. Because mango is a plant from the Anacardiaceae family, people with cashew (anacardiaceae) allergy should be careful with its use.

Family  
*Anacardiaceae*

Species  
***Mangifera indica* L.**

Local Names  
Manga (B), Deum Svay [C], Maak  
Muaong (L), Ma Muaon (T), Mangga  
(I)(M)(P), Qua Xoai (V)

Sector/s: [fruit] Food & Beverage / [tree]  
Gifts & Houseware / Handicraft /  
Furniture





The pili nut tree is an evergreen tree native to the Philippines. It is also known as "Philippine Kanran" and grows widely throughout the Philippines. It thrives best on well-drained argillaceous (sedimentary rock that is made up of fine silt or clay particles) soil but is rarely cultivated. Usually, the fruit is collected from wild trees and "left-alone" trees.

The pili nut tree grows over 20m tall and produces a green flower of almost 1cm long that has a strong smell. It yields a 6cm oblong fruit. The skin is yellow-green when the fruit is still young; but as it gets mature, it gets wrinkled and turns dark purple.

The fruit is consumed when it is quite mature. The skin is removed by immersing it in hot water, and the slightly viscous flesh is cooked with condiments. The flesh itself does not have much of a taste. The fruit contains one "three-ridged" seed and the seed kernel inside the seed is the one edible and eaten. The seed has a very hard shell and it requires a lot of effort to take out the seed kernel. The kernel can only be harvested from trees that are over 10 years of age.

The kernel is cream colored and has a similar aroma to that of an almond. It is consumed raw as nuts or roasted. In addition, 80% of the kernel is composed of oil. This oil can be squeezed out and used in cooking, or it can also be used as material for making incense, printing ink, and ointments.

The Bicol region in the southern portion of Luzon Island of the Philippines is the production center of pili nut oil; but because it gets oxidized easily, it is only used locally.

Family

*Burseraceae*

Species

***Canarium ovatum* Engl.**

Local Names

Pili (P)

Sector/s: Food & Beverage / Gifts &  
Houseware / Handicraft



## F&B-8 / H&W

An annual grass perennial in the tropical, subtropical and temperate regions, the red pepper grows from 40cm to 60cm tall. Basically, young fruits are yellow green and they turn to be red as they ripen.

The taste, colors and shape of the fruits differ by species, some of which are used for ornamental purpose for their colorful fruits (orange, yellow, ivory, purple, etc.). Some of red peppers do not have any hot or spicy taste.

The fruits are used as spice. Green red pepper in Southeast Asia has dry hot flavor, while Korean and Chinese ones are spicy with sweetness. These days, various kinds of chili sauces from ASEAN have been imported due to the Asian boom and became popular in Japan.

### Active Ingredient/s:

- *Capsaicine* and *dihydrocapsaicine*, which are said to be effective for hyperthermic action, perspiration, stomachic property, disinfection.

### Main Usage:

- Spice (flesh, dried, powdered, blended)
- Chili sauces in Southeast Asia and South America, Japan, etc.
- Hot packs and socks, underwear with capsaicine for hyperthermic action
- Food supplement
- Bath salt for perspiration.

## Red Pepper

### Family

*Solanaceae*

### Species

***Capsicum annuum* L.**

### Local Names

Lada (B), Matesh [C], Cabai (I), Mar Phet (L),  
Cili (M), Sili (P), Phlik (T), Ot (V)

Sector/s: Food & Beverage / Health & Wellness



## F&B-9 / H&W

Originally from Southern India, this evergreen creeper can grow from 7m to 8m tall. It has 10-15cm, egg-shaped leaves in gnarls, and around 10cm long flower truss. Fruits are around 3-6mm in diameter in 15-17cm long bunches. Young fruits are green, which turn red, and black when full maturity is reached.

The differences among black pepper, white pepper and green pepper lie in their processing. Black pepper is made from dried young fruits with fruit skin of 2 days. Its skin turns black and gets wrinkled; its character is stronger in terms of hot flavor and smell. White pepper is made from dried seeds after the removal of fruit skin while green pepper is made from drying young fruits for a short time, in low temperature.

Pepper goes very well with various foods for its numbing effects. Powdered dried seeds are commonly used throughout the world. The essential oil is used as aroma oil for its spicy flavor and “uplifting” effect. Pepper has been used as preservative and therapy for gastric pain and stomach pain from ancient times. The stimulating effects of pepper include hyperthermic action, perspiration improvement and orexigenic effect.

### Active Ingredient/s:

The stimulating effect of pepper is caused by its spicy component *piperine* and its flavor components *pinene* and *limonene*. It is said that *piperine* has bacteria-killing property and antibacterial effectiveness.

### Main Usage:

- Spice
- Essential oil
- Preservative

## Pepper

### Family

*Piperaceae*

### Species

***Piper nigrum* L.**

### Local Names

Lada Sulah (B), Marech [C], Merica (I), Phik Thai (L), Plik Thai (T), Lada (M), Paminta (P), Tieu (V)

Sector/s: Food & Beverage / Health & Wellness





## F&B-10 / G&H / H / F

Sugar cane is a perennial herbaceous that is native to New Guinea and has a 2-4m erect cylindrical stem. It grows in the tropical and subtropical regions throughout the world. The outer surface is shiny like bamboo with a lot of knots and the thick stems grows to over 4cm in diameter. To thrive, it is necessary to be in an environment that has a lot of rain during its growth period, dry during harvest season and an annual average temperature of over 20°C.

The sugar level gets to 10%-20% in about a year from planting and it is collected before the ears come out. It becomes the raw material for sugar. The harvested stem is passed through a sugar mill to extract the raw sugar juice. The raw sugar is then boiled and the crystallized form of this is called black sugar. It has a soft taste because it is rich in minerals, and it is popular as a health food. On the other hand, the raw sugar that is refined and crystallized becomes the white processed sugar.

The raw sugar juice can be drunk as it is as a beverage, and it is also used as raw material for alcohol. The raw sugar juice has slightly grassy smell but it is sweet and has an effect in relieving fatigue. One can chew the cut stem directly. The residue (bagasse) left after milling is used as fuel for the steam engines at the processing factories or returned back to the sugarcane fields as fertilizers. The remaining liquid, after removing the sugar completely out from the raw sugar juice, is called "blackstrap." Recently in Japan, experiments are being conducted to try to process fuel alcohol by fermenting and distilling the "blackstrap."

In Brazil, fuel alcohol from sugarcane has been already utilized since the 1980s. Its commercialization as an alternative energy to gasoline and an environment-friendly bio-fuel is highly hoped for.

## Sugar Cane, Noble Sugar Can

Family  
*Poaceae*

Species  
***Saccharum officinarum* L.**

Local Names  
Galagah (B), Aom Pov [C], Tebu  
(I)(M), Tubo (P), Oiy (L)(T), Mia (V)

Sector/s: Food & Beverage / Gifts &  
Houseware / Handicraft / Furniture



## F&B-11 / H&W

Another evergreen shrub that is originally from tropical American region and subtropical region, Annatto grows from 4m-8m tall and has heart-shaped leaves. The flowers are white or pale red. The fruits are 2-4cm big and bright red with hard hairs. As they ripen, the fruits naturally open and show 20-30 seeds like pomegranate.

The seeds are covered with arillus, which produces orange carotenoid pigment. They are non-poisonous, yellow in acid, red in neutrality.

Annatto pigment is permitted to be used as a food additive in EU and Japan, etc. Before the Congo Red, an artificial aniline dye, became popular, annatto was commonly used as fabric dye.

### Active Ingredient/s:

- *Bixin* and *norbixin*, main ingredients of the carotenoid pigment.
- The roots are reported to have anti-fever efficacy.
- The seeds are effective for convergence, aperient, and kidney disorders.

### Main Usage:

- Food coloring (cheese, butter, etc.)
- Natural dye
- Traditional medicine
- Used as lipsticks and for body painting in older times.

## Annatto

Family <i>Bixaceae</i>
Species <b><i>Bixa orellana</i> L.</b>
Local Names Atsuete (P), Hat Dieu Mau(V)

Sector/s: Food & Beverage / Health & Wellness



## F&B-12 / G&H / H

A perennial herbaceous that is originally from tropical Asia, banana can grow as tall as 7m. The wild species are said to be *Musa acuminata* Colla from Malay Peninsula and *Musa balbisiana* Colla from Philippines and India. Wild species are not suitable to eat because they have a lot of hard seeds. Cultivated bananas are of 3 species, *Musa sapientum* Linn, *M. cavendishii* Lamb. and *M. paradisiaca* Linn., out of around 40 species of the genus.

The young banana fruit is yellow green outside, and the flesh of fruit is of starchy material. The fruit skin gets yellow as it ripens. In *Musa sapientum* Linn., the starch of fruits is converted into sugar. It has some black spots called "sugar spots" appearing on its skin when fully ripen. In *M. paradisiaca* Linn., the starch is not converted very much into sugar. The fruits are less sweet, bitter and hard to eat. Cooking with heat helps the starch to be converted more into sugar. The taste gets sweeter like sour-sweet potato and has a light and dry texture.

### Active Ingredient/s:

The fruits contain 21g glucide in 100g, which are digestive and absorptive. Some athletes eat bananas regularly for its energy-efficient active ingredient. Bananas are considered as a weight-reducing food because they have B-complex vitamins, minerals and dietary fiber.

### Main Usage:

They are processed into drink, as dried fruits, sweets, sour, also as an alcoholic drink. Besides its fruits, anthotaxis called banana hearts and pith of pseudo stem are commonly used as vegetables in Southeast Asia. Banana fibers are processed into fabrics, ropes and papers; they also use the leaves directly as container for eating and serving food and food packing materials in their daily lives.

## Banana Planta

Family <i>Musaceae</i>
Species <i>Musa sp.</i>
Local Names Pisang (B)(I)(M), Chek [C], Klueay (L)(T), Saging (P), Chuoi(V)
Sector/s: Food & Beverage / Gifts & Houseware / Handicraft





## F&B-13 / H&W

## Cacao

Cacao is another evergreen tree that is originally from tropical America. It grows up to 4m-10m tall. It has white sweet flowers that are 1.5cm in diameter and bloom directly from the bark in countless numbers. It blooms throughout the year, but only 1 out of 200-300 flowers becomes a fruit.

The cacao fruit is like a rugby ball, 15-20cm long and 10cm in diameter. In a fruit, around 20-50 seeds (2-3 cm long, 2cm diameter) are found covered with white mucus regularly in 5 divisions like a corn. White mucus is so sweet that local children are fond of chewing. Fruit skin is yellow green when young and turns yellow to red when ripens. With mucus removed, cropped seeds are fermented and sun-dried. The processed seeds are called cacao beans.

Cacao mass is processed cacao beans, roasted, removed of seed skin and germ, and powderized. The fat in cacao mass is cocoa butter, which is used for margarine and as cosmetic ingredient for hand creams, lotions, etc. due to its moisturizing action. Chocolate is a product which is made from milk and sugar and cocoa butter and molded. Cacao is a product made from squeezing defatted cacao mass.

### Active Ingredient/s:

Cacao products are popular as healthy food because they contain abundant polyphenol, dietary fiber, and mineral. *Theobromin*, a kind of alkaloid, which is contained specifically in cacao, is said to be effective for mental concentration, memory stimulation and cogitation (deep thought) because it stimulates the cerebral cortex.

### Main Usage:

Chocolate, cacao, margarine, cosmetic ingredient

### Family

*Malvaceae*

### Species

***Theobroma cacao* L.**

### Local Names

Koko (B)(M), Ple Cacao [C], Cokelat (I), CoCo (L) (T), Madre de Kakao (P), Ca Cao (V)

Sector/s: Food & Beverage / Health & Wellness



A perennial emergent plant native to Southeast Asia or China, lotus, in general, has a long history of being grown in lakes, lagoons, rice fields, and moats. It has a thin and long rhizome that hugs the ground horizontally.

The enlarged head of the rhizome is the lotus root. The large leaf with almost 30cm in diameter has a long leaf stalk and it either floats on the water or sticks out into the air. The flowers also have long stalks that stick out of the water and these flowers have a light red color. The seeds are almost 1cm in diameter. When they are not mature yet, the seeds have a yellow-green color. But when it matures, it gains a hard black seed coat and is contained inside an inverted cone shaped thalamus that looks like a beehive.

The Indian lotus and *Nymphaea lotus L.* are quite often being confused with each other, but the latter has leaves with lacinias and the flowers bloom as if it were floating on the water. Moreover, every part of the Indian Lotus is edible, while *Nymphaea lotus L.* has been grown for ornamental purposes.

**Active Ingredient/s:**

The leaf, stamen, fruit, and seed contain alkaloids. The rhizome contains a lot of amino acids and it is known for having effects on stopping diarrhea, arresting bleeding, alleviate fever, and revitalizing. The plantlet is removed because it is bitter.

**Main Usage:**

The root, stem, and sprouts are consumed as vegetable; the leaves are used as substitutes for plates or used for wrapping food. The seed is very starchy and the less developed ones can be consumed raw and the mature ones are cooked before they are eaten. The lotus fiber is used for weaving fabrics.

**Family***Nelumbonaceae***Species*****Nelumbo nucifera Gaertn.*****Local Names**

Teratai (B)(I)(M), Prolet [C], Ton Boua (L) (T)

Sector/s: Food &amp; Beverage / Gifts &amp; Houseware / Handicraft / Furniture



## F&B-15 / G&H / H / F / H&W-19

Another deciduous tree native to Southeast Asia, the White Mulberry grows up to 10m tall. In Japan, it is widely cultivated as feed for silkworms and has a wide variety of species. It is a dioecious plant and it forms spikes of small white flowers.

The fruits look like berries and are thin and long. When they are not fully developed yet, they are white; but as they mature, they turn pink and then red and finally purple. When tasted, the small seeds have a slightly astringent taste, however, it is sweet and has a lot of juices and contains a lot of *anthocyanin*. It is consumed raw or processed into products like jam and fruit wine.

### Active Ingredient/s:

The leaves contain flavonoids like *kuwanon*, *triterpenoids*, and *moranolone* and it is used as herbal medicine because of its effects in decreasing blood pressure, controlling blood glucose level, and suppresses the absorption of glucose. Moreover, it is also produced into health teas because it is rich in minerals like vitamins, carotene, calcium, and iron. The leaf has an effect in decreasing fever, and contains carotene and vitamin B1. Young branches contain tannin and it is effective in decreasing neuralgic pain. The root's skin contains *triterpenoid*, *steroid*, *flavonoid*, and *coumarin* and it is said to be effective for suppressing cough, decreasing blood pressure, and have diuretic effects.

### Main Usage:

Besides using the leaves as feed for silkworms, the dried leaves are used for making tea. In Chinese medicine, all the plant parts, leaves, branches, fruits, and roots are used. The plant is processed into floor wood, furniture, and handicrafts. In Japan, it is considered a high-class wood. In addition, the branches are used as dye for yellow color.

## White Mulberry

Family <i>Moraceae</i>
Species <b><i>Morus alba L.</i></b>
Local Names Deum Mon [C], Ton Mon (L)(T)
Sector/s: Food & Beverage / Gifts & Houseware / Handicraft / Furniture / Health & Wellness





## F&B-16 / G&H / H / F-10

Another perennial herbaceous plant native to South America, pineapple is cultivated in tropical regions around the world and Asia accounts for the half of the production volume. It thrives best on acidic soil and it can be cultivated even in worn-out dry lands. Moreover, there are some breeds that are simply ornamental to appreciate the flowers and the leaves.

Pineapple has thin long green leaves with a sharp tip and has glomerules of small white or purple flowers at the top of the stems. Each head of a flower (glomerule) is composed of about 150 flowers gathering tightly in a spiral form. In due time, whether it was fertilized or not, the ovary and thalamus become enlarged and this becomes the edible part of a pineapple. The flowers bloom from the lower section towards the upper. However, if the flowers are let to bloom naturally, the fruit's shape can get deformed and one-time harvest would be hard. So, in large plantations floral induction agents are used to induce flower bud initiation.

### Active Ingredient/s and Usage:

The fruit contains a lot of juices and has a strong bitter-sweet aroma. Besides being consumed raw as a fruit, it is processed into can products, beverages, and alcoholic beverages because its quality deteriorates quickly after it gets fully mature. The pomace (remains of the crushed fruit) that is left over after the beverages are processed, is used as food for livestock and as fertilizer. Fiber that looks like white hemp can be extracted from the leaves and these are processed into ropes and strings. The ceremonial dress of the Philippines, "*barong tagalog*" is also made from the pineapple fiber.

Because the fruit contains the *proteolytic* enzyme, *bromelain*, it makes tough meat soft when cooked together. Moreover, it is also rich in vitamins and dietary fiber.

## Pineapple

Family

*Bromeliaceae*

Species

***Ananas comosus* Merr.**

Local Names

Nenas (B)(I)(M), Manosh [C], Maak  
Nut(L), Pinya (P), Sub Pa Roat (T),  
Dua (V)

Sector/s: Food & Beverage / Gifts &  
Houseware / Handicraft / Furniture



## F&B-17 / H&W-9

## African Oil Palm, Macaw-Fat Oil Palm

Native to West Africa, the African Oil Palm grows to 10-25m tall, and has numerous pinnate compound leaves of about 10m long extending from the top of the stem. At the base of the leaves, it grows numerous fruit clusters that have almost 1,000 fruits in each one of them. The fruits are egg-shaped and about 5cm long; it is extremely fibrous and in the inside it has one slightly angular egg-shaped seed.

The flesh and the seed contain a lot of oil. 55%-60% of the flesh is palm oil. It is widely cultivated in the tropical region, because it is the plant that most oil can be extracted per unit area. The world's largest cultivator of African oil palm is Malaysia.

Because the oil needs to be extracted right after harvesting to prevent it from degradation, there is a necessity to have an oil extraction factory right next to the plantation. For this reason, cultivation of these in large-scale plantations started to happen for better efficiency.

### Active Ingredient/s and Main Usage:

Palm oil is a yellow butter-like oil that can be consumed, but it is also used as the main component of margarine and soap and as an anticorrosive. The oil obtained from the albumen is called the Kernel Oil or Palm Kernel Oil, and it is colorless and is a liquid at room temperature.

The Kernel Oil has a different component and physical property than Palm Oil and other than being used as the main component of margarine and soap, it is also used in cosmetics. Moreover, both oils are also used for making industrial materials such as aliphatic acid, aliphatic alcohol, aliphatic amine, aliphatic ester, glycerin, and various surface-active agents

Family  
*Areaceae*

Species  
***Elaeis guineensis* Jacq.**

Local Names  
Kelapa Sawit (B)(I)(M), Doung preng  
[C], Nam Man Palm (T), Dau Co (V)

Sector/s: Food & Beverage / Health & Wellness



An evergreen shrub native to tropical regions in America, papaya grows up to 2-10m tall. The stem is flexible and almost never branches. It has a long leafstalk and grows palm-like large leaves with deep lacinia on the tip of its stem. It is basically a dioecious plant, but occasionally it grows a plant with bisexual flowers or it goes through sexual transformation when they are stimulated by factors like temperature or pruning back of a stem.

The fruit's shape varies from round to oblong, and the largest ones weigh up to 4kg. The fruit has a cavity on its center that contains numerous black round seeds of 5mm in diameter. Mainly the fruit is used. When the fruit is still young, the skin is green and its flesh white. It has a crispy texture and is used as vegetable in pickles, stir-fries, and salads.

As it gets mature, both the skin and the flesh start to change to yellow and orange colors. The flesh softens and releases a thick sweet aroma. Besides eating it raw as a fruit, it is processed into products like beverages, ice-cream and jam. If any part of the plant is scratched, the plant releases a milky liquid called *papain* that contains *proteolytic* enzymes. The flesh also contains *papain* and it has a variety of uses. For example, by cooking tough meat with it, the meat will soften. It can also be used for tannage and as a shrink-preventing agent for sheep wool.

Moreover, it is said to have an effect in raising the metabolism of the cells, and it is also used as an ingredient for cosmetics and soaps for whitening the skin and preventing dullness of skin. The *proteolytic* enzyme, *carpaine*, contained in the leaves and seeds have an effect in raising the cardiac action just like with digitalis. The seed can also be used as an *anthelmintic* agent.

Family  
*Caricaceae*

Species  
***Carica papaya* L.**

Local Names  
Kepayas (B), La Hong [C], Pepaya (I),  
Maak Hung (L), Betik (M), Papaya (P),  
Ma-La-Kor (T), Du Du (V)

Sector/s: Food & Beverage / Health & Wellness





## F&B-19 / G&H / H / Furniture

The Palmyra Palm is native to tropical regions in Africa and grows over 30m tall and is cultivated from India to Southeast Asia. It has a single erect stem and the leaves look like dome shape because the 2-3m long leaves that spread like fans grow concentrated on the tip of the stems. The fruit is about 15cm in diameter and it is yellow-green when young and turns purple when it matures.

This tree has a water repellent outer skin, a fibrous middle peel, and an inner peel that is hard like a shell. The inner peel is not as hard as a coconut and it is divided into three (3) parts. The inner side of the inner peel has gelatinous transparent albumen wrapped in the thin peel, and this is used as food. It is not only consumed raw but it is processed into can products. The albumen is very juicy and by itself does not have much of a taste.

Moreover, palm sugar is made by collecting the inflorescence nectar that pours out from the opening made by cutting off the spike and by then boiling it. If the inflorescence nectar is fermented, alcohol and vinegar can also be produced. In Laos and Cambodia, Palmyra palm wine and beer is produced and sold.

### Main Usage:

The leaves were also used for writing. In ancient times, it was used as *pattra* for writing passages from the *sutra*. It has also been used for thatching the roof or for making artifacts like hats, mats, and baskets. Moreover, it is also used as green manure and by incineration, salt can also be obtained. The stem is used for making furniture. Fiber can also be extracted from the leaf stalk, stem and outer peels.

## Palmyra Palm

Family

*Areaceae*

Species

***Borassus flabellifer* L.**

Local Names

Gulanaw (B), Deum Tnaot [C], Ton  
Tan (L) (T), Gula Melaka (M)

Sector/s: Food & Beverage / Gifts &  
Houseware / Handicrafts / Furniture



## F&B-20 / H&W

(Also known as Acid Orange, Panama Orange and Philippine Calamansi)

Calamondin or Calamansi is an evergreen tree native to Southern China that thrives best on tropical and subtropical valleys and it can bear fruits any time of the year. It is widely cultivated in Southeast Asia although sometimes it is described as a native of the Philippines (*Citrofortunella microcarpa*), where it is commonly used for cooking and juice drink. While it is variously called by different names, the tree is, in fact, the result of a hybrid between species in the genera *Citrofortunella* and an unknown species in the wild.

It is a shrub or small tree that grows up to 3-6m, and bears small citrus fruit used to flavor foods and drinks. Most of the fruits are round, and small oil glands are dispersed tightly on its skin. The skin is thin, and it is only about 1.5mm thick and can be easily peeled off. The flesh is orange, soft and juicy but has a strong acidic taste and has somewhat big seeds. The skin has a sweet taste and it is recommendable to eat it with the skin at the same time, just like eating a kumquat.

Because of its strong acidic taste, the juice is used as a substitute for vinegar. It is also candied, dipped in syrup, and processed into beverages and pickles. It has a similar flavor to the Citrus of Okinawa. In spite of its appearance and aroma, the taste is quite sour. However, the fruit can be frozen whole and used as ice cubes in beverages like tea or ginger ale.

The juice, extracted by crushing the whole fruit, makes a flavorful drink, hot or cold, similar to lemonade, and a liqueur can also be made from the whole fruits in combination with vodka and sugar. In Asia, the juice is used to baste fish, fowl, and pork and is high in vitamin C. In North America, the calamondin is grown mainly as an ornamental plant.

## Calamondin Orange

Family

*Rutaceae*

Species

***Citrus madurensis* Lour.**

Local Names

Limau Kesturi (B), Kalamansi (P)

Sector/s: Food & Beverage / Health & Wellness







**Gifts &  
Houseware /  
Handicrafts /  
Furniture**



## G&H / H / F-1

Paper Mulberry is cultivated in tropical region and subtropical region from India to Pacific islands. A deciduous tree, it is 4-10m tall and the tallest ones can grow over 15m. It is a dioecious plant, where the male flower is light green and produces a tail-like compound flower of 4-8cm in size.

On the other hand, the female flower has a round shape of about 2cm in diameter and red-purple styles stretch out like a thread looking like pompoms made of yarn. Each *tepal* (an organ that protects the stamen and the pistil) and gynophor enlarges, then unites and forms a compound fruit. The yellow-green leaves are heart-shaped and have 3-5 shallow lacinias.

The fruits are edible and can be used as Chinese medicine called “Zhushi” that serves as nutrient and has effects in controlling edemas and bleary eyes.

Long and strong fiber can be obtained from the bark and this is used to make textile fabric, ropes, and paper. It is used for making Japanese paper, but when compared to *Broussonetia kazinoki*, its quality worsens. Most of the Japanese Paper made in Japan is made from imported paper mulberry or *Broussonetia kazinoki* from Thailand.

In Southern Pacific regions, the cloth called “*tapa*” is made by beating and stretching the wet bark.

### Main Usage:

Paper, Fabric, Rope, Food, Chinese medicine

## Paper Mulberry

Family  
*Moraceae*

Species  
***Broussonetia papyrofera* (L.)**  
**Vent.**

Local Names  
Por Saa (L), Ton Por Kra Saa (T)

Sector/s: Gifts & Houseware / Handicraft  
/ Furniture



## F&B / G&H / H / F-2

This thermophilic vine pteridophyta grows in tropical region and subtropical region (Southern area from central Honshu in Japan, East Asia, and Southeast Asia). The shape of Leaves is pinnate compound leaf, characteristic in pteridophyte, head of the vine continues to grow and winds up woods to several meters high.

Ingredient:

Main Usage:

- Food (young leaves) Handicraft (baskets), Chinese Medicine “Haijinsha”, “Haijinshagen”
- Ripe cystoid spores have diuretic action, and the roots have soothing and detoxify action. Each of them is called “Haijinsha” and “Haijinshagen” in Chinese medicine.

## Climbing Fern

Family

*Lygodiaceae*

Species

***Lygodium ponicum*(Thunb.)Sw.**

Local Names

Paku Pakis (M), Nito (P)

Sector/s: Food & Beverage / Gifts & Houseware / Handicraft / Furniture



Bamboos are a group of woody perennial evergreen plants that have 91 genera and about 1,000 species. They are found in diverse climates, from cold mountains to hot tropical regions. Major areas with no native bamboos include Europe, North Africa, Western Asia, northern North America, most of Australia, and Antarctica.

The stems, or "culms," can range in height from a few centimeters to 40 meters, with stem diameters ranging from 1mm to 30cm. The stems are jointed, with regular nodes. Although bamboo is a grass, many of the larger varieties are very tree-like in appearance and they are sometimes called "bamboo trees." The reason bamboos are so different from trees is they lack a vascular cambium layer (*the perpetually growing layer of a tree's trunk beneath the bark that makes it increase in diameter each year*) and meristem cells (the meristems make the tree grow taller) at the top of the culm.

Some of species of bamboo rarely flower, some of them only every 28-120 years. Some of these species are monocarpic, the plant dying after the seed matures. Furthermore, all the individuals of the species flower at the same time in a large geographical region. This trait is thought to have evolved because it reduces the effects of predators of the seed, since they are less likely to be able to wipe out the seed production, and cannot depend on bamboo as a food supply between flowerings.

Bamboo canes are normally round in cross-section but square ones can be produced by forcing the new culms to grown through square tubes, which are removed and replaced every few days as the culms grow.

#### Main Usage:

Construction materials, scaffolds, furniture, boxes, baskets, food, paper, among others.

Family  
*Poaceae*

Species  
***Bambusaceae* (sub-class)**

Local Names  
Buloh (B), Deum Reusey [C], Bambu (I), Mai Phai (L)(T), Buluh (M), Kawayan (P), Cay Tre (V)

Sector/s: Food & Beverage / Gifts & Houseware / Handicraft / Furniture / Construction Materials





## F&B / G&H / H / F-4

## Buri Palm, Gebang Palm, Talipot Palm

*Corypha* (Gebang Palm, Buri Palm or Talipot Palm) is a genus of six (6) species of palms native to India, Malaysia, Indonesia, Philippines, New Guinea, and northeastern Australia. They are fan palms with leaves with a long petiole terminating in a rounded fan of numerous leaflets.

As all are large palms, they reach heights of 20m-40m and with a trunk diameter of up to 1m-1.5m. The leaves were used since ancient times for writing, as pattra for writing passages from the sutra.

Currently, the underdeveloped young leaves are mostly often used, but the rachis is also used as raw material for making furniture like tables and chairs. Also, the outer layer of broken up leaf pieces is peeled off and strings are made out of these. These strings are used as materials for knitting bags. The mature leaves are used for thatching the roofs or to wrap tobacco. It is also used as braded material for making hats, mats, and baskets.

Also in the same way as the other palms, occasionally the spike is cut-off and from the opening comes off, so that the inflorescence nectar is collected to make alcoholic drinks and vinegar.

When the palm reaches maturity, variously estimated from 25 to 40 years, it gradually drops all its leaves and develops at the top of its trunk an enormous, terminal shoot, which is like a pyramid of greenish-white flowers, often 7m high. From 10 to 12 months after flowering, the fruits mature. They are fleshy, from 2-2.5 cm across, and each contains an extremely hard seed 1.5cm round. After fruiting, the palm dies.

Family  
*Areaceae*

Species  
***Corypha utan* Lam.**

Local Names  
Tnaot Tang [C], Buri (P)

Sector/s: Food & Beverage / Gifts &  
Houseware / Handicraft / Furniture



## G&H / H / F-5

Silk is obtained from cocoons of bombycid moth and giant silkworm moth. In case of the silkworm raised in Japan, the fiber becomes over 1,000m long and it is the only natural long fiber.

The state in which it is extracted from the cocoon is called raw silk, but it has a colloid called sericin that gives it a rough texture on its surface. Because of this, normally the raw silk is refined with in alkaline conditions (to remove the sericin) and made into a flexible lustrous fiber before making it into a string.

Silk is constituted by a protein called fibroin, so this protein layer gives it its luster. Not only that, but the prismatic effect caused by the silk's triangular surface, helps in giving it its beautiful luster. Besides its luster, it has various qualities like softness, lightness, hygroscopic property, and strength.

An original specie of silkworm called *Cambouju*, that makes golden cocoons, is raised in countries like Laos and Cambodia. These strings are processed into textile fabrics through weaving techniques like the Japanese *ikat* and *Ukiori* (brocade). In Indonesia, it is also called *ikat* and in Thailand and Laos *mudmee*. The fabrics are not only used for traditional costumes but also for bed covers, pillow covers, and table cloth.

Moreover, Indonesia has started to use the golden cocoon of *cricula triphenestrata* from the *Saturniidae* family, and the brownish red cocoon of *Attacus atlas*, to make not only clothing but also artifacts.

## Silk

### Local Names

Sutera (B)(I)(M), Sotr [C], Mai Morn (L), Mai (T), To Tam (V)

Sector/s: Gifts & Houseware / Handicraft / Furniture



## G&H / H / F-7

A floating perennial waterweed that is native to tropical and subtropical America, water hyacinth grows on lakes, rivers, and swamps of tropical and subtropical regions all around the world. Besides reproducing with its seeds, it stretches the stem and creates a new plant with its spout. It has such a high reproductive power that especially in flat water, in little time it covers up the entire water surface to an extent that boats can not pass through.

The thread-like root spreads underwater and gets tangled with each other, so once it infests the area it is very hard to remove. It can float on the water because the leaf stalk blows up serving as a float. It produces light purple flowers of 3cm in diameter clustered in short spikes. Out of the six (6) petals that these flowers have, one (1) has yellow mottles. It is a vivid and fresh flower that could easily be used as ornament, but its flower stalk bends in one (1) day and the flower sinks in the water. It grows its fruit underwater and when the fruits mature, it disperses its seeds in the water.

Because of its high reproductive power, it is often thought to be harmful, but because it absorbs a lot of nitrogen and phosphorus in the water, it has been experimented to be used to purify water. It has a low nutritional value, but the inflorescence and spouts can be used as food or as feeds for livestock.

Moreover, the dried stems can be woven and processed into baskets and furniture. In recent years, furniture made from water hyacinth has been imported from Thailand and it is gaining popularity with its warm impression and rough texture.

## Water Hyacinth

Family

*Pontederiaceae*

Species

***Eichhornia crassipes* (Mart.)**

**Solms-Laub.**

Local Names

Kang Kong (B), Kam Phloc [C], Phak  
Thop-Cha-Wa (L) (T)

Sector/s: Gifts & Houseware / Handicraft  
/ Furniture





The perennial herbaceous plant wild sugar cane or thatch grass is the parent cultivar of *S. sinense Roxb.*, which is cultivated in Northeastern India and parts of Southeast Asia. It is widely grown throughout the tropical regions of Java, India, and Taiwan.

It grows to 1-3.5m tall and has rough thin and long leaves of about 50cm each. It has a very noticeable white panicle of 15-30cm in size.

Salt can be extracted from the ashes obtained by burning the plant body. The stems can be used for making barriers, fences for corves, or as fodder or even woven to make walls. Moreover, split stems can be used for making objects like brooms, hats, blinds, picture frames, wall ornaments, and fruit baskets.

The inflorescence is sometimes used as fillings for pillows, and the flower stalks can be used to make hats.

In the Philippines, the wild sugar cane used in the manufacture of handicrafts and related products is from *imperata cylindrical species*, which is a grass of about 1.5m in height. The leaves grow from the base of the plant, with the leaf blades about 10 to 80cm long. It has loose, diversely branching, silky-white flower clusters.

The leaves of this grass are extensively used for thatching. It is also a suitable source of pulp for handmade papermaking and the manufacture of handloom weaving of placemats, wall decoration, and Venetian blinds. The stems of this grass are used to a limited extent in the manufacture of hats. Studies have been conducted on utilizing the plant for making round, braided mats for bathroom use, baskets, fruit trays, chairs, and tables.

Family  
*Poaceae*

Species  
***Saccharum spontaneum L.***

Local Names  
Gelagah (B), Aom Pov [C], Tebu (I)(M),  
Talahib (P), Mia Duong (V)

Sector/s: Gifts & Houseware / Handicraft  
/ Furniture



## G&H / H / F-9

A perennial herbaceous from the Cyperaceous family, seagrass grows in swamps and paddy lands in tropical regions all over the world. It thrives best in sunny land with sandy soil or mud.

The grass length is of 50-100cm and it looks like a Japanese silver grass. The leaves taper to a point and the flowering head consists of several flat-topped clusters. The fruits are seeded and dark brown.

Seagrass is related to the *Scirpus wichurae* specie but it does not belong to the *Scirpus* genus. It belongs instead to the *Rhynchospora* genus. In the Philippines, it is called seagrass but it is different from the *Halophila johnsonii* that thrives in the ocean.

Seagrass is used in making various forms of handicrafts, such as baskets, food covers, candle holders, planters, trays, mats, among others..

## Seagrass

Family

*Cyperaceae*

Species

***Rynchospora corymbosa* (L.)**

**Britt.**

Local Names

Rumpai Laut (B), Tikiw (P)

Sector/s: Gifts & Houseware / Handicraft  
/ Furniture



An arboreal plant that grows mainly on the coasts of tropical regions, the screw-pine attains a height of almost 6m tall, with deep green colored long and thin leaves extending from the tip of the branches. The leaves have sharp spines on its edges. It is a dioecious plant and the male strain has spicate inflorescence with bract and releases a sweet smell. The female strain has a globular inflorescence where many female flowers gather at the base of the leaves. This later becomes a conglomerate of oval shaped fruits similar to a pineapple. The fruits have a long stalk, and it fructifies as if it was hanging from the plant.

The screw-pines are often confused with *Pandanus boninensis* Kurz but these are larger than the screw-pines, whose fruit's head divides into three (3) or (4) parts with an indented spherical appearance. Screw-pines are divided into five (5) or six (6) parts and have a smooth spherical appearance, and do not become red when fully mature but becomes deep yellow instead.

The leaves are the part that is used the most often in making rugs and baskets by weaving them after drying them. They are also used as a flavoring agent, and it is said that if you add this when you are cooking rice, it makes old rice smell like it was new.

Recently, *pandan* leaves are sold in Japan, but these are a different type of tree called *P. odoratus* Ridl. These are used in occasions like making sweets. In addition, the sprouts are edible. Strong fibers can be obtained from the aerial roots, which are processed into products like ropes. Furthermore, because of its unique appearance it has a high demand as ornamental trees. There are some species that are variegated as well.

Family  
*Pandanaceae*

Species  
***Pandanus tectorius* Soland ex  
Parkins.**

Local Names  
Daun Pandan (B)(M), Pandan Dagat (P)

Sector/s: Food & Beverage / Gifts &  
Houseware / Handicraft / Furniture





## F&B / G&H / H / F-13

A bivalve from the Placunidae family, the capiz shell is about 8cm long and is round and its right shell is made of crystallized calcium carbonate. It is flat, thin, and white half-transparent. It inhabits underneath the blue-gray mud in shallow sea areas in the tropical zones.

The Japanese name comes from the fact that in ancient China and Philippines, when glass did not exist, it was used as window pane.

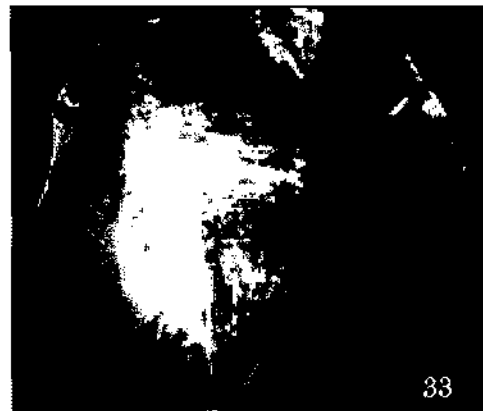
In the Philippines, cover lining (inlay), fashion accessories, buttons, handicrafts (wind bells, mobiles, etc.) are made from capiz, but recently the shells are colored and are also used as ornaments for Christmas.

The slight differences in its thickness and patterns of each of the shells and the fresh sound it makes when it is touched are its distinct characteristics.

## Capiz

Family <i>Placunida</i>
Species <i>Placuna placenta</i>
Local Names Pleaur Hoiy (L)(T), Kapis (P)

Sector/s: Food & Beverage / Gifts &  
Houseware / Handicraft / Furniture



Teak (*Tectona*), also called jati, is a genus of tropical hardwood trees in the family Verbenaceae, native to the south and southeast of Asia. They are large trees, growing to 30m-40m tall. The word teak originated from the *Malayalam* word *tekku*.

There are three (3) known species: the *tectona grandis* (common teak), which is by far the most important, with a wide distribution in India and Indo-China; *tectona hamiltoniana* (dahat teak), which is a local endemic species confined to Myanmar, where it is endangered; and *tectona philippinensis* (Philippine teak), which is endemic to the Philippines and is also endangered.

The timber is used in the manufacture of outdoor furniture, boat decks, and other articles where weather resistance is desired. It is also used for indoor flooring and as a veneer for indoor furnishings, as well as in small handicraft making.

Teak is easily worked and has natural oils that make it suitable for use in exposed locations, where it is durable even when not treated with oil or varnish. Teak cut from old trees grown slowly in natural forests is more durable and harder; teak from young trees grown in plantations is more prone to splitting and water damage.

Teak's popularity has led to growth in sustainable production throughout the seasonally dry tropics in forestry plantations. It does not grow in the rainforest and its consumption encompasses a different set of environmental concerns, such as the disappearance of rare old-growth teak. Experiments are on to arrive at vegetative propagation from one year old stem cuttings.

Much of the world's teak is exported by Indonesia and Myanmar.

Family  
*Vervbenaceae*

Species  
***Tectona grandis* L. f.**

Local Names  
Kayu Jati (B)(I)(M), Deum Mai Sak [C],  
Mai Sack (L)(T), Go Tec (V)

Sector/s: Gifts & Houseware / Handicraft  
/ Furniture / Construction Materials



## F&B / G&H / H / F-15

Rattan (from the Malay rotan), is the name for the roughly 600 species of palms in the tribe *Calameae*, native to tropical regions of Africa, Asia and Australasia. Most rattans are distinct from other palms in having slender stems 2-6cm diameter with long internodes between the leaves. Their consequent growth habit also differs, not being trees but vine-like, scrambling through and over other vegetation.

The fast-growing rattan is superficially similar to bamboo, but distinct in that the stems are solid, rather than hollow, and also in their need for some sort of support. While bamboo can grow on its own, rattan cannot. Some genera (*e.g. Metroxylon, Pigafetta, Rhipha*) are, however, more like typical palms, with stouter, erect trunks.

Many rattans are also spiny, the spines acting as hooks to aid climbing over other plants, and also to deter herbivores. Rattans have been known to grow up to hundreds of meters long. Most (70%) of the world's rattan population exists in Indonesia, distributed among Borneo, Celebes, Sumbawa Islands. The rest of the world's supply comes from the Philippines, Sri Lanka, Malaysia, and Bangladesh.

Rattan is much easier to harvest, requiring simpler tools and also much easier to transport. The various species of rattan range from several millimetres up to 5-7 cm in diameter. Rattan is a very good material mainly because it is lightweight, durable, and flexible to a certain extent.

Rattans are extensively used for making furniture and baskets. Cut into sections, rattan can be used as wood to make furniture. Rattan accepts paints and stains like wood, so it is available in many colors; and it can be worked into many styles. Moreover, the inner core can be separated and worked into wicker. In some species, the green shoots can be eaten as vegetables, or the flesh which is wrapped by a brown scaly skin can be consumed, and/or a resin called "Dragon's Blood" can be extracted.

## Rattan Palm, Rattan

Family

*Areaceae*

Species

***Calamus L.***

Local Names

Rotan (B)(I)(M), P'dao [C], Whai (L)(T), Arurog/Palasan/Sika (P)

Sector/s: Food & Beverage / Gifts & Houseware / Handicraft / Furniture





## G&H / H / F-17

Popularly known as Manila Hemp, abaca is a perennial herbaceous related to banana. Originally from the Philippines, volcanic ash deposit in tropical region and subtropical region provides the environment from which abaca can abundantly grow. It attains a height of 5-7m tall. It is the specialty of the Philippines.

The species look like banana but have narrower denser leaves. Fruits are not edible. Fiber from pseudo stem can be harvested every 1.5 to 2 years, if the roots are left in soil. It has a strong texture and is strong as triple of cotton and double of sisal hemp. The fiber has luster gloss, and is strong against moisture, light, fresh and salt water.

The nearer the fiber is to the core of the stem, the more it is white and of the highest quality and, therefore, more expensive. The nearer it is to the outer bark, the more tanned it is and is of lesser quality and less cost. It used to be said that the fiber is not suitable for fabric spinning because of its hard texture, but a new technology is now being used these days to soften it.

### Main Usage:

- Fiber (rope, marine rope, fishing net)
- Paper (bank notes, tea bags, bonding-fiber fabric) because of its thin and tough finishing
- Furniture
- Commodities

It is reported that the Japanese paper bill is made up of 60% abaca, with the rest a mixture of Japanese fibers.

## Abaca

(Also known as Manila Hemp)

Family

*Musaceae*

Species

***Musa textilis* Nee**

Local Names

Abaca / Abaka (P)

Sector/s: Gifts & Houseware / Handicraft  
/ Furniture



An evergreen tree from the Euphorbiaceae family and native to Brazil, the rubber tree thrives best in high temperatures and high moisture soils. It is usually 17-20m tall, but when cultivated it grows to 25-35m. The bark is covered in a gray-brown epidermis and numerous latex vessels run underneath it. The latex vessels spiral up the tree towards the tip of the stem in a clock-wise spiral.

The latex is extracted by tapping the bark, just deep enough not to cut the cambium and then a spout is inserted below the tapped part to collect the latex, which is white or yellow and seep out the most at dawn. The latex can be extracted starting at the tree age of 5-6 years, and the amount that can be extracted increases as the tree's age increases. However, after about 20 years, the amount that can be extracted decreases and the tree must be replaced.

These trees are cultivated in large-scale plantations. The world's largest producer is Malaysia, and other countries like Thailand, Sri Lanka, Indonesia, and India also cultivate the Para Rubber Tree in their tropical regions and the latex is processed into gum at their local factories. 35% of latex consists of gum that can be used as the raw material of high-quality natural gum. Water is added on the extracted latex and adjusted to a certain concentration; then, the latex is solidified by adding acetic acid.

This solidified version of latex is then pressured with a roller into sheets and dried. These dried gum sheets are then exported and processed into varieties of gum products.

The wood can also be used as timber. The air-dried specific gravity is 0.56-0.64 and has a light cream color. It can also be made into furniture, but because it has a low material yield, it is more commonly used as pulp or as material for activated carbon.

Family

*Euphorbiaceae*

Species

***Hevea brasiliensis* (Willd. ex Juss.) Muell.-Arg.**

Local Names

Pokok Getah (B)(M), Deum Kao Sou [C], Yang-Pa-Ra (L)(T)

Sector/s: Gifts & Houseware / Handicraft  
/ Furniture / Construction Materials



## G&H / H / F-19 / CM-6

Burma padauk (*Pterocarpus macrocarpus*) is a species of tree from the Fabaceae family, which thrives in tropical region and subtropical region and grows to usually 10-25m tall, and the tallest ones can grow up to 35m. They are abundant in Northern Thailand, Myanmar, Laos, Vietnam, and Cambodia.

Rosewood refers to a number of richly hued timbers, brownish with darker veining. All rosewoods are strong and heavy, taking an excellent polish, being suitable for flooring, furniture, turnery, and musical instruments. In general, supplies are poor through overexploitation. Some species become canopy trees (to 30 m high), and big pieces can occasionally be found in the trade.

The trees are mostly harvested by cutting the trees from the natural forests. They are also used for artificial regeneration. Its wood is used as timber to create furniture, musical instruments, floor cover, and ships. The wood is hard and strong, and especially the heartwood has high durability, with beautiful pattern, pale yellow outside.

The splint wood is light yellow, and the heartwood is reddish-brown and has a beautiful grain pattern. The high-quality wood is called "*karin*" and this is much prized as one of the *karaki*, a Japanese term used for rare and beautiful wood. The wood is also used as a dye for brown color.

Steam-distilled from the wood chips of the tree, rosewood oil is not widely used for therapeutic purposes, and little research into its medicinal value has been done. Its scent makes it popular as a fragrance and deodorant, and it is a favorite ingredient in many body and skin care products. The Rosewood essential oil is from *Aniba rosaedora*, a tree from the Amazonian rainforest.

## Burma Padauk

(Also known as Rosewood)

Family  
*Fabaceae*

Species  
***Pterocarpus macrocarpus***  
**Kurz.**

Local Names  
Mai Dou (L), Kayu Ros (M), Pla Dou (T), Go Hong (V)

Sector/s: Gifts & Houseware / Handicraft  
/ Furniture / Construction Materials







**Health &  
Wellness**

## H&W-1

Ylang-ylang (*Cananga odorata*) is a small but beautiful flower of the *cananga* tree. It is a fast-growing tree that exceeds five (5) meters per year and attains an average height of 12 meters. It grows in full or partial sun, and prefers the acidic soils of its native rainforest habitat. The leaves are long, smooth and glossy. The flower is greenish yellow, sometime, but rarely, pink, curly like a starfish, and yields a highly fragrant essential oil. A related species is *Cananga fruticosa*, which is a dwarf ylang-ylang growing as small tree or compact shrub with highly scented flowers. Ylang-ylang has been cultivated in temperate climates under conservatory conditions.

The name Ylang-ylang is derived from the Tagalog (a Philippine language), either from the word *ilang*, meaning “wilderness”, alluding to its natural habitat, or the word *ilan-ilan*, meaning “rare”, suggestive of its exceptionally delicate scent. The plant is native to the Philippines and Indonesia and is commonly grown in Polynesia, Melanesia, and Micronesia.

The fragrance of ylang-ylang is rich and deep with notes of rubber and custard, and bright with hints of jasmine and *neroli*. The essential oil of the flower is obtained through steam distillation of the flowers and separated into different grades (extra; 1; 2; 3) according to when the distillates are obtained. The main aromatic component of ylang-ylang is *methyl anthranilate*.

Ylang-ylang's essential oil is used in aromatherapy. It is believed to relieve high-blood pressure, normalize sebum secretion for skin problems, and is considered to be an aphrodisiac. The oil from ylang-ylang is widely used in perfumery for oriental or floral themed perfumes. Ylang-ylang blends well with most floral, fruit and wood smells.

## Ylang-Ylang

Family

*Annonaceae*

Species

***Cananga odorata* (Lamk.)**

**Hook. f. et Thoms**

Local Names

Kadang Ngea [C], Ilang-Ilang (P), Kra Dang Nga (T), Ngoc Lan Tay (V)

Sector/s: Health & Wellness





## F&B / H&W-2

## Balsam Pear

(Also known as Bitter Gourd or Bitter Melon)

The Balsam Pear, which is also known as bitter gourd and bitter melon, is an annual creeper that originated from India whose young fruits are used for food 5-20 days after blooming. They have a unique bitterness, whose skin turns from color green to yellow when the fruits ripen. It is said that greener is more bitter.

The size of fruits varies depending on the species, i.e., anywhere from 5cm to 30cm. It is commonly used as vegetable, after removing the young seeds and the spongy fruit fiber. It gets less bitter after soaking it in water or rubbing it with salt.

When eating it raw, the texture is a little hard; slicing it thin enables people to enjoy the texture. It is daily eaten in Southeast Asia, China, Kyushu and Okinawa in Japan as stir-fried, viand or as soup. The skin of the fruits is processed into fresh juice or tea as a food supplement.

### Active Ingredient/s:

The *momordicine* of balsam pear has stomachic property or sleep-suppressing property, *citrulline* - a kind of amino acid that improves the circulation of the blood. It is rich in hydro-soluble vitamins, such as Vitamin C, and is, therefore, very popular as a healthy vegetable. It is said that it helps to beat summer heat and is good in relieving fatigue. In addition, its ripe seeds are used as dietary aid since they contain abundant *Conjugated Linoleic Acid* (CLA), which helps the activity of *lipase*, *lipidolytic* enzyme.

### Main Usage/s:

- Food, supplement and dietary aid

Family

*Cucurbitaceae*

Species

***Momordica charantia* L.**

Local Names

MaReah [C], Ma Ra (L)(T), Ampalaya (P), Kho Qua (V)

Sector/s: Food & Beverage / Health & Wellness





## F&B / H&W-4

A monocotyledon from the ginger family (Zingiberaceae) and native to Eastern India, the Greater Galangal is widely distributed through the tropical regions of India to Malaysia. It thrives best in fertile well-drained land with good amount of moisture. In areas with strong sunshine, it needs to be set on the shade for half a day. Its roots decay when they are exposed to excessive moisture or frost.

It grows up to 2m tall, produces many small white flowers on the tip of its stem, and yield light red colored round fruits. The small flowers are consumed as vegetable. It has a fleshy tuberous root, which is used as a spice that has a similar aroma and pungency to that of ginger. In Thailand it is called kha and it is used in many dishes such as Tom Yum Goong.

Greater Galangal is also cultivated as a medicinal herb, because the rhizome is said to have an effect in rising body temperature, have stomach properties, relieves pain, and have antiseptic effects. It is used raw or dried. Also, the oil is extracted and used as aroma oils whose main constituent, *cineole*, accounts for the 60% of the oil's constitution.

Further, the *phenylpropanoid* contained in Galangal has an effect in suppressing carcinogenic substances' effect in mutation the DNA (anti-mutagenicity). This new, promising medicinal value has great expectations and the research is currently underway.

## Greater Galangal

Family <i>Zingiberaceae</i>
Species <b><i>Alpinia galanga</i> (L.) Swartz.</b>
Local Names Halia (B), Rumdeng [C], Khar (L)(T), Halia Siam (M), Luya (P)
Sector/s: Food & Beverage / Health & Wellness



## H&W-3

*Echinacea* is a genus consisting of nine (9) species of flowering plants in this family, all native to eastern North America. The genus name is derived from the Greek *echino*, meaning "spiny", due to the spiny central disk. They are herbaceous, drought-tolerant perennial plants growing to 1 or 2m in height.

The leaves are lanceolate to elliptic, 10-20cm long and 1.5-10cm broad. The flowers are constituted with a red purple ray (the part that looks like petals) and a black purple tubuliflorous (the part that looks like the stamen and pistil). The tubuliflorous protrudes roundly towards the center of the flower and the rays cover their surrounding by hanging around it.

Strong against the cold but weak against excess moisture, the Purple Coneflower is used either as ornaments or cut flowers and sometimes the rays are removed and only the remaining tubuliflorous is used. They are used either as ornaments or cut flowers, and sometimes the rays are removed and only the remaining tubuliflorous is used.

*Echinacea* has been popularly attributed with the ability to boost the body's immune system and ward off infections, particularly the common cold. Depending on which species is used, herbal medicine can be prepared from the above-ground parts and/or the root. It is not known which of *echinacea*'s many chemical components might be responsible for its touted health benefits, although all species possess compounds of a chemical class called *phenols* (as do most other plants), such as *cichoric* and *caftaric* acids. When making herbal remedies, these *phenols* can serve as markers to evaluate the quantity of *echinacea* in the product. Other constituents that may be important include *alkamides* and *polysaccharides*.

## Purple Coneflower

Family

*Asteraceae*

Species

***Echinacea purpurea* Moench**

Local Names

Echinacea (I)

Sector/s: Health & Wellness



## H&W-5

A perennial herbaceous plant native to the Philippines, it is cultivated in other Southeast Asian countries like Malaysia, and Indonesia and also in India. It prefers warm, rainy weathers and it thrives best in fertile land that does not get direct sunshine.

The stem branches from the root and the plant itself grows to a height of 30-80cm tall. It has 8-10cm long, egg-shaped, jaggy leaves that have thick small hairs on the rear surface. It can have its first harvest in about 6 months after planting, and after that, it can be harvested once or twice a year for about 3-4 years until it is renewed periodically. The harvested parts are its leaves and leaf stalks.

The Patchouli Oil can be obtained from the collected leaves and leaf stalks. This oil has long been used in India and Europe as raw material for perfumes. It has an exotic strong smell like of musk. By distilling the leaves and leaf stalks that were dried for 4-5 days after they were harvested, viscous light brown to dark brown oil can be obtained. By hanging it to dry, the oil extraction rate and quality increases. Moreover, as the amount of leaf stalks increase, the oil extraction rate and quality decreases. If the oil is left alone for a while, crystallized Patchouli camphor is created.

It is said that the oil has effects on alimentary disorders, asthma, and relieves fevers and pains. It is also used for scenting clothes, alcoholic beverages, and soaps. In India it is used as an insect repellent by placing its aroma on the clothes.

The dried leaves, without the oil extracted yet, used to be imported to Japan as a substitute for the Chinese herbal medicine Huoxiang.

## Patchouli, Pachouly

Family

*Lamiaceae*

Species

***Pogostemon cablin* Benth**

Local Names

Noac Huong (V)

Sector/s: Health & Wellness





## F&B / H&W-6

## Cassia, Cassia Lignea, Chinese Cinnamon

An evergreen tree originally from China and Indochina, the Cassia tree grows up to 15m tall and blooms a lot of yellow small flowers, which fructify oval fruits 1cm in diameter.

Cassia is sometimes confused with cinnamon (*C. zeylanicum* Nees), with sweet flavor, but they are of different species. Cassia's flavor is more bitter and less sweet than cinnamon. A spicy flavor characterizes cassia and it is used as a substitute for cinnamon.

Dried, stripped bark is powdered and used as spice for cooking and in making sweets. The bark is taken from the trunk and brunch and it is said that stripping it is easier in rain season than in dry season. Stripped cassia seems to be the bark itself, far different from the curled and smooth cinnamon. Cassia, looking like bark, is considered as of a higher class in markets.

Its essential oil contains *cinnamaldehyde*, which is effective for defervescence (the abatement of a fever) and provides relief from something distressing or painful, and *tannin*, a brownish or yellowish substance found in plants and used in tanning, dyeing, and as an astringent.

Cassia is called "Guipi" in Chinese medicine and is used for hyperthermia, perspiration, *pyretolysis*, and stomachic and pain relief.

### Main Usage:

Spice, essential oil, medicine

Family

*Lauraceae*

Species

***Cinnamomum cassia* Presl**

Local Names

Kayu Manis (B)(M), Que (V), Obchuey (T), Vo Que (V)

Sector/s: Food & Beverage / Health & Wellness



A monocotyledon native to India, the turmeric plant has a gnarled underground rhizome with circular nodes of 3 to 4 cm in diameter, where oval shaped leaves with long stems extend from these. This root system grows to about 40 to 100 cm tall.

The turmeric plant has 20 to 40 cm long flower stalks that have flower panicles on its tip which produce white-yellow flowers wrapped in yellow-green bracts. It thrives best in warm and moist areas that do not receive direct sunlight and it is cultivated mainly in the tropical and subtropical regions of India to Southeast Asia. A bright orange flesh appears when the skin of the rhizome is peeled away.

It can be used as spice or as food-coloring by smashing it or grating it raw. Other than these uses, a powder version of the turmeric, which is created after cooking it for 5 to 6 hours and then drying it, is widely used around the world.

Turmeric is the main ingredient of curry powder and it is also used to color butter and *takuan*, a popular and traditional pickle in Japan. *Curcmin* is responsible for its yellow color, and this substance is found especially in autumn turmeric, which grows in Japan. It also contains substances such as *curcmane*, *cineole*, *azulene*, *camphor*, and *turmeron*. These substances are known to improve the function of the liver, enhance blood circulation, have *hemostatic* effect, stomachic properties, antibacterial and antiseptic effects, non-steroidal and anti-inflammatory action, cardiac action, and *cholagogic* action. Due to these effects, turmeric is also used as herbal medicine.

Moreover, the hot extract that remains after boiling the rhizome is used as a dye for light yellow to orange colors. Furthermore, in alkaline conditions, the color changes to red. A famous example is the Indian chintz, which is cotton fabric dyed with turmeric.

Family  
*Zingiberaceae*

Species  
***Curcuma domestica* Valet.**

Local Names  
Kunyit (B)(M), Romia, Ro mead [C],  
Kee Minh (L), Luyang Dilaw (P), Khar  
Minh (T), Nghe (V)

Sector/s: Food & Beverage / Health &  
Wellness



## F&B / H&W-8

## Ginger

Comprising of 50 genus and 1,200 species, this perennial herb, or most of its species, are grown in tropical forest from India to Malaysia.

Young ginger roots are juicy and fleshy with a very mild taste. They are often pickled in vinegar or sherry as a snack or just cooked as an ingredient in many dishes. They are also boiled in water to make ginger tea, to which honey is often added as a sweetener. Mature ginger roots are fibrous and nearly dry. The juice from old ginger roots is extremely potent and is often used as a spice in Chinese cuisine to flavor dishes, such as in seafood or mutton.

Ginger is also used as a flavoring for candy, cookies, crackers and cakes, and is the main flavor in ginger ale and the somewhat spicier ginger beer. Ginger is also used as a spice added to hot coffee and tea. In Southeast Asia, the flower of a type of ginger is used in cooking. This unopened flower is known in the Malay language as Bunga Kantan, and is used in salads and also as a garnish for sour-savoury soups like Assam Laksa. Specifically, in Myanmar, ginger is used in a salad dish called *gyin-tho*, which consists of shredded ginger preserved in oil, and a variety of nuts and seeds. In Japan, ginger is pickled to make “*beni shoga*” and “*gari*” or grated and used raw on tofu or noodles.

### Active Ingredient/s:

*Zingeron* and *shogaol*, which are said to be effective for detoxification, perspiration, stomachic prosperity, to mellow the flavor of other materials and anti-inflammatory

### Main Usage:

Spice, beverage, traditional medicine for cold, etc.

### Family

*Zingiberaceae*

### Species

***Zingiber officinale* Rosc.**

### Local Names

Halia (B)(M)(V), K'Nhei [C], Jahe (I), Khing (L) (T), Luya (P-Generic), Gung (V)

Sector/s: Food & Beverage / Health & Wellness





## F&B / H&W-10

## Malabar Grass

(Commonly known also as Lemongrass)

Lemongrass is a perennial monocotyledon and almost 30 species grow through out the tropical and subtropical regions of Africa and Asia. It can be divided into two (2) main groups, the *Cymbopogon citratus* Stapf and the *Cymbopogon flexuosus* Stapf, which is also known as the East Indian lemongrass.

It is similar in appearance to the Japanese Silver Grass and it grows up to 2m tall. The leaves are 90cm long, 1.5cm wide, and have a strong smell similar to that of a lemon. It thrives best in sandy soils, and in warm and rainy areas where it is exposed to a good mix of sunlight and rain.

Lemongrass is not eaten as it is for its own taste, but it is instead used in cooking as a spice to enjoy its aroma. It is used in many Southeast Asian plates like the Tom Yum Kung from Thailand that is known to be one of world's three (3) greatest soups. Besides its use for its aroma, it is also used for its antiseptic effects.

### Main Ingredient/s:

The main aromatic substances contained in lemongrass are *citral*, *d-citronellal*, and *geraniol*. *Cymbopogon flexuosus* Stapf has a higher percentage of citral compared to *Cymbopogon citratus* Stapf.

### Main Usage:

Lemongrass is not only used as it is but it is also made into incense and blinds to keep the insects away because of *citral* and *citronellal*, which have insect repellent effects. Moreover, its essential oil is used also for aroma therapies, because it is said that this aroma has relaxing effects.

Family

Poaceae

Species

***Cymbopogon flexuosus*  
(Neesex Steud.) Wats.**

Local Names

Serai (B)(I)(M), Slek Krey [C], Huao  
See Kai (L), Tanglad (P), Ta Krai (T),  
Sa Chanh (V)

Sector/s: Food & Beverage / Health &  
Wellness



## H&W-11

## Ngai Camphor Plant, Ai Camphor Plant

A perennial herbaceous found in India through southern China continent to Malaysia, the tree is covered with hair and blooms a number of yellow flowers 6-8mm in diameter, knurling leaves 10-25 cm long. The tree is wild species, rather than cultivated species and grows in impoverished soil in the sun of up to 2m tall.

The Ngai Camphor plant is an amazing medicinal plant. It is *antiurolithiasis* and work as a diuretic. It is used to aid the treatment of kidney disorders. The leaves can also be used to treat colds and mild hypertension. Since it is a diuretic, it helps dispose of excess water and sodium (salt) in the body.

### Active Ingredient/s:

Essential oil from leaves contains *l-borneol*, which has been used as a substitute for borneol oil. Borneol oil is similar to camphor but is a little less volatile. It is used for fragrance and its algefacient effect for its fresh aroma. It is also used as an insect repellent. To get *l-borneol*, harvest from autumn to winter, when the yield ratio is said to be around 0.1 %.

### Main Usage:

Used as tea and as bath salt, the leaves have a great deal of potential for medical purposes, for its action to perspiration, pyretolysis, tonicity, stomach property, de-worming, hemostasis and pain relief.

Its benefits include the following: good as a diuretic agent, effective in dissolving kidney stones, aids in treating hypertension & rheumatism, treatment of colds & fever, anti-diarrheic and anti-gastralgic properties, helps remove worms and boils, and treats dysentery and sore throat.

Family

*Asetraceae*

Species

***Blumea balsamifera* DC.**

Local Names

Sambong (P), Kalabune (T)

Sector/s: Health & Wellness



## F&B / G&H / H / H&W-12

An orthotropic annual native to Africa, it is widely distributed in the tropical regions around the world. It grows in clusters from the heel, usually has a reddish hairless stem, and grows up to 2.5m tall. Its leaves are divided into 3 to 5 parts, similar to the palm of the hand.

It produces light yellow flowers with a dark red center of 5cm in diameter on the leaf axils. The flower withers away in one day and later the calyx starts to enlarge. The calyx has a multi-layered texture and an acidic flavor, and it is edible. It has a beautiful red color. Other than being used to make jam or jelly, or used as spice, a sorrel drink can be made by fermenting it. When dried, they are brewed and drunk as tea; but in Southeast Asia most of the times it is consumed cold and with sugar (Thai: Nam Kra Jeab). Moreover, among Brazilians with Japanese ancestry, salted roselle is used as a substitute for *umeboshi*.

### Active Ingredient/s:

As it contains large quantities of the red pigment, *anthocyanin*, it is believed to have an effect in relieving eye fatigue. Moreover, as it also contains a lot of citric acid, tartaric acid, and vitamin C, it has an effect in relieving fatigue and improving appetite.

### Main Usage:

In addition to being used as a food item, the fibers taken from the stems are called roselle hemp and have a hard luster and it is used as a substitute for jute. The young leaves and fruits can be consumed as vegetables, and oil can also be extracted from its seeds.

## Roselle, Jamaica Sorrel

Family

*Malvaceae*

Species

***Hibiscus sabdariffa* L.**

Local Names

Som Phor Dee (L), Bunga Raya (M),  
Gumamela (P), But giam (V)

Sector/s: Food & Beverage / Gifts &  
Houseware/ Handicraft / Health &  
Wellness





A deciduous shrub native to South Central China that are normally found from China to India, the Five-Leaved Chaste Tree grows in clusters and reaches to a height of about 2-5m. It has leaves that are formed of 5 jaggy green thin egg-shaped follicles that look like the palm of a hand. Blue-purple-colored small tubular flowers of 6 to 7mm in length form panicles. Leaves may be harvested three months after establishment.

It can resist cold and dry environment and thrives best on well-drained soils that get a lot of sunshine. It is also used as gardening plant and is cultivated as a medicinal plant. The leaves, bark, roots and seeds are used for medicinal purposes. It has been proven to be an effective analgesic and anti-tussive (prepared as a pleasant tasting cough syrup) and has been considered as a replacement for *dextromethorphan*. Studies have shown benefit through reduction of coughing and relaxation of the bronchial smooth muscles.

Its stems and leaves are used as vermicide and for diarrhea. The fruit is used as a basic ingredient for some herbal medicines because of its effect of sedation, pain relief, cough relief, expectoration, anti-malarial, and analgesic action. Moreover, by burning the leaves and the stems, it acts as a mosquito repellent. The fruit is also used as a flavoring ingredient in teas, and the bark can be used as raw material for making paper.

This shrub has been clinically tested to be effective in the treatment of colds, flu, bronchial asthma, chronic bronchitis and pharyngitis. It has anti-histamine properties and muscle relaxant.

Family

*Vervbenaceae*

Species

***Vitex negundo* L. var. *negundo***

Local Names

Lagundi (P)

Sector/s: Health &amp; Wellness



## H&W-14

An evergreen tree native to Southeast Asia and Australia and are currently grown throughout the tropical regions of the world like Hawaii and Southeast Asia, the Indian Mulberry also grows in Japan in areas like Okinawa and Ogasawara Islands. It grows to 3 to 6m tall, and has smooth hairless yellow-green egg-shaped large leaves.

It produces white compound flowers which then yield compound fruits of about 4cm long that have a cavity in the middle and look like a hornworm because of its lumpy and lustrous appearance. When it is still not fully developed, it has a yellow-green color; but as it gets mature, it starts to change into a cream color. It is used mainly by processing the fruit into juice now commonly known as *noni*. The Pacific nations have industrialized the production and exportation of Noni juice, and many are imported also to Japan.

### Active Ingredient/s:

The bark and the root contain *morindin* and *anthraquinone* and they are used as dye for mahogany color. The latter is also effective as a laxative.

### Main Usage:

The fully mature fruit has a unique unpleasant smell (mostly due to the *caproic acid*), but it is popular as a health drink because it is said to have effects in improving diabetes, cardiac disorder, and hypertension. However, some organizations doubt its health effects and some scientific reports point to something contrary to some of these claims.

## Indian Mulberry

(Also known as *Noni*)

Family  
*Rubiaceae*

Species  
***Morinda citrifolia* L.**

Local Names  
Ple Nhor [C], Mengkudu (I), Maak Nhor (L), Noni (M), Ton Nhor (L), Look Yaw, Trai Nhau (V)

Sector/s: Health & Wellness



## H&W-15

A deciduous tree that grows up to 15 to 20m tall and native to Southeast Asia, the Queen Crape Myrtle, also known as *banaba* in the Philippines, thrives best in fertile well-drained land with lots of sunshine. In the tip of its branches, it forms panicles of flowers that are 4 to 8cm in diameter. The flowers are finely crinkled. At flowering season, it has a light pink color, but it slowly turns purple. Its stem is used as timber and its heartwood is brown and has an air-dried specific gravity of 0.68.

### Active Ingredient/s:

*Banaba* is high in corosolic acid which is used in many treatments for diabetes. It is a natural plant insulin, which can be taken orally, and has no side effects. Clinical studies have been done on this remarkable herb, much of it in Japan, with researchers such as Dr. Yamazaki, professor of Pharmaceutical Science, Hiroshima University School of Medicine.

### Main Usage:

Liquid from boiled leaves of *banaba* is known to stop bleeding of wounds and bleeding after giving birth and are often used as health teas. Other than the fact that it contains a lot of minerals and no caffeine, scientific research shows that it has the ability to reduce blood sugar and to fight obesity.

Because of the way *banaba* helps the body to handle glucose (glucose transport activator), it is also used effectively in weight-loss products, without significant dietary alterations. In the US, many weight-loss formulas are now using banaba as a safe, natural component for reducing weight, being also rich in dietary fiber.

It is reported that banaba can also provide relief from constipation.

## Queen Crape Myrtle

Family

*Lythraceae*

Species

***Lagerstroemia speciosa* Pers.**

Local Names

Banaba (P)

Sector/s: Health & Wellness





## H&W-16

# Orange Jasmine, Cosmetic Bark tree

(Also known as Indian Wood Apple, Elephant Apple)

Another evergreen tree that is native to Okinawa and Southeast Asia, the Orange Jasmine grows naturally on limestone landforms from up to 3-6m tall. The bark is thin and has a white gray color.

It is said that it was given the English name Jasmine, because it blooms small white flowers and have a strong sweet aroma. Its fruit is egg-shaped and about 1cm long; and when it is young, it is green, but as it gets mature it starts to turn red. It has a similar smell to a mandarin, and it is eaten raw or processed into jam. It is also popular as ornamental plants because of its cute flowers and fruits that have pleasant odors. It is also used in hedges.

Known as Thanakha in Myanmar, the powdered barks of plants like Silk Jasmines, and *Feronia limonia* L. Swingle *Rutaceae* have been used for a long time as a face powder for blocking the sun's harmful effects.

### Active Ingredient/s:

It has been discovered that the bark has protective effect against UV-rays and it is being mixed in cosmetics. The leaves and roots are said to be effective for blood circulation acceleration, relieving pain, having anti-inflammatory effects and *anthelmintic* activity.

### Main Usage:

The leaves are used as a spice in curry. The wood is fine and rich in luster and it is very heavy and hard. Because it is strong, it is made into handicrafts, such as sculptures, seals, combs, canes, and handles of knives and farm tools.

Family

*Rutaceae*

Species

***Murraya paniculata* (L.) Jack**

Local Names

Oren Jasmin (M), Thanakha (Mm),  
Hoa Lai Vang (V)

Sector/s: Health & Wellness



An evergreen shrub native to Southeast Asia, lime grows from 3 to 5m tall and has dark green colored leaves that have a lustrous surface with sharp thorns on the leaf axis. It produces white flowers of about 3cm in diameter on the tip of the branches and yields a spherical or a spheroidic fruit of a diameter of 3 to 4cm.

The skin of the fruit is thin and green or yellow. The flesh has a light blue-green color. It has a strong acidic taste with plenty of juice that has a fresh but slightly bitter aroma. 50% of the fruit's weight is made up by the juice and 6 to 8% of it is acid. In Southeast Asia, the most commonly used lime is one that is called the sour lime that belongs to the small fruit species.

#### Active Ingredient/s:

It contains a large amount of Vitamin C although it is slightly less than lemon (lemon: 45mg, lime: 33mg/100gFW). Its essential oils' main components are *limonene* and *γ-terpinene*. They are said to have effects on refreshing the mind and the body and in improving appetite.

#### Main Usage:

In addition to being used as a condiment, it is also processed to make sweets and beverages. Moreover, by putting a half cut lime into a finger bowl and washing ones fingers in it while squeezing the lime, it can effectively remove the hand's bad scent. These are also used in aroma therapies and in various types of spices.

#### Family

*Rutaceae*

#### Species

***Citrus aurantifolia* (Christm.)**

#### Swingle

#### Local Names

Limau (B), Krouch' mar [C], Jeruk Nipis (I), Ma-Nao (T), Maak Nao, Limau Nipis (M), Ghanh San (V)

Sector/s: Food & Beverage / Health & Wellness



## H&W-18

*“Ali’s Umbrella”* is another evergreen shrub that is native to Indonesia and Malaysia. It grows throughout the tropical regions of Southeast Asia to West Malaysia. Its stem almost never divides into different branches. It grows in a very slow pace, taking about 10 years for its stem to reach a diameter of 15cm. It is a dioecious plant that grows various anthotaxis of small flowers that bear a green colored fruit of 0.5 to 1cm in diameter.

The fruit’s flesh is deep red colored. The tree bark and the roots are used for medicinal purposes, but its taste is very bitter.

### Active Ingredient/s:

- Has long been used as an aphrodisiac
- Has a relieving fatigue
- Used as medicine for treating malaria
- Has an effect in increasing the male hormone testosterone
- Has an anti-tumor efficacy

### Main Usage:

- In recent years, however, since it was discovered that it has medicinal value by ingesting it, *Ali’s Umbrella* has become widely available as an ingredient in energy drinks sold in places like convenience stores.
- It is also processed into different varieties of food supplements.

## Ali’s Umbrella

Family

*Simaroubaceae*

Species

***Eurycoma longifolia* Jack**

Local Names

Pasak bumi (I), Tongkat Ali (B) (M),  
Cay ba binh (V)

Sector/s: Health & Wellness





## H&W-20

# Cochin Turmeric, Long Zedoary, Wild Turmeric

This perennial herb native to India is also widely cultivated in countries like Indonesia and Laos. It grows purple, striated leaves that are about 1m in size. The pink or red flowers are wrapped in yellow-green bracts and form cone-shaped racemes. The rhizomes are cylindrical and look similar to ginger. The flesh is white purplish.

The leaves and inflorescences are edible but usually the rhizomes are used as spices or as source for starch. The rhizomes have a strong bitter taste but have a pleasant aroma. The main component of the oil, which only constitutes 1-1.5% of the rhizomes, is the *sesquiterpenalcohol*.

Different from autumn turmeric and spring turmeric, it almost does not contain the yellow pigment *curcumin*.

### Active Ingredient/s:

In addition to being used as a spice, it has been used as folk medicine for a long time and is said to have aphrodisiac effects, improving menstrual disorder, lowering hypertension, and have effects against cardiac diseases, gout, ulcers, and allergies.

### Main Usage:

Food supplements

Family

*Zingiberaceae*

Species

***Curcuma zedoaria* Rosc.**

Local Names

Plei [C], Jahe Hitam (I), King Dam (L)(T), Halia (M), Luyang Itim (P), Gung Den (V)

Sector/s: Health & Wellness



## H&W-21

The Scorpion Bush is an evergreen shrub that grows to 1-3m tall, mostly in Okinawa, China, Taiwan, India, and Malaysia. Their leaves are 3-6cm long, bright green, and have jaggy edges like those of a saw.

It produces small flowers with five petals that yield a fruit with a red skin and yellow flesh. The fruit contains four (4) seeds inside.

The leaves can be brewed into tea; and because it has various good health effects, it is frequently drunk as a health tea.

### Active Ingredient/s:

*Microphylone* and *rosmarinic* acid that suppress the release of histamine, which is the cause for allergy disease

### Main Usage:

- Effective against diarrhea, enterogastritis, and gastric pain, so it can be used as a medical herb.
- The leaves are effective for alleviating symptoms like allergies, irritations, and herpes
- Contains a lot of fluoride - by gargling with the decocted liquid, it has an effect on making one's teeth stronger and preventing cavities.

## Scorpion Bush

Family  
*Boraginaceae*

Species  
***Ehretia microphylla* Lam.**

Local Names  
The (B)(M), Tsaang Gubat (P)

Sector/s: Health & Wellness



The star-anise is an evergreen tree native to China. It yields a compound fruit of 3cm in diameter that has a star shape with 6-8 angles. When it matures, it turns brown and lignifies. When it breaks, flat egg-shaped brown seeds show out.

It looks very similar to the fruit of an *I. anisatum* L, or the Japanese Star-Anise ("*shikimi*"), which contains a highly toxic substance, *anisatine*, in all the plant. Therefore, it should be handled with real good care because if it is mistakenly consumed, it could lead to death.

Young fruits are harvested; and the dried ones are made into powder and used as spice. It has a spicy aroma and bitterness similar to that of anise and fennel and can be used by itself as spice or as one of the ingredients for five-spice powder. It is used quite often in Chinese food.

Star Anise Oil can be obtained by steam distilling the branches, the leaves, and the fruits. This is highly volatile and is used as aromatic oil in dishes and drinks.

#### Active Ingredient/s:

- The shikimic acid contained in the fruit is one of the ingredients for the curative medicine of influenza.
- It is also said to be good for the stomach and have a stimulant action; therefore, it is used as a medicinal plant.
- *Anethole* is the main substance in the oil.

#### Main Usage:

- Spice for cooking

#### Family

*Illiciaceae*

#### Species

***Illicium verum* Hook. f.**

#### Local Names

Kark [C], Sangke (P), Poy Kuk (T), Hoi (V) Bunga Lawang (B)(M), Poch

Sector/s: Food & Beverage / Health & Wellness





## F&B / H&W-23

A perennial succulent plant, originally from Barbados island in Caribbean Sea, true aloe vera can grow as tall as 1m. Its leaves are wider and thicker compared to the other species.

It has a gelatinous mesophyll inside the bitter out bark. It is elastic but not bitter, hence, suitable for eating raw.

### Active Ingredient/s:

- Mucopolysaccharide (MPS) in gelatinous mesophyll, which is said to be viscous and has a water therapeutic action. It is said to be effective for intestinal disorders.
- Phosphate acid and protein combined to MPS are said to have restorative effect to heal injury, ulcer and gastritis.
- Traditionally used as burn, sunburn or injury cover pack because of its moistening and cooling effect.

Most of the 300 species in the genus are CITES-listed species, but true aloe is treated as an exception.

### Main Usage:

- Food (raw)
- Food supplement and drink
- Cosmetics, lotion, ointments and soaps

[CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora]

## True Aloe, Barbados Aloe

Family

*Liliaceae*

Species

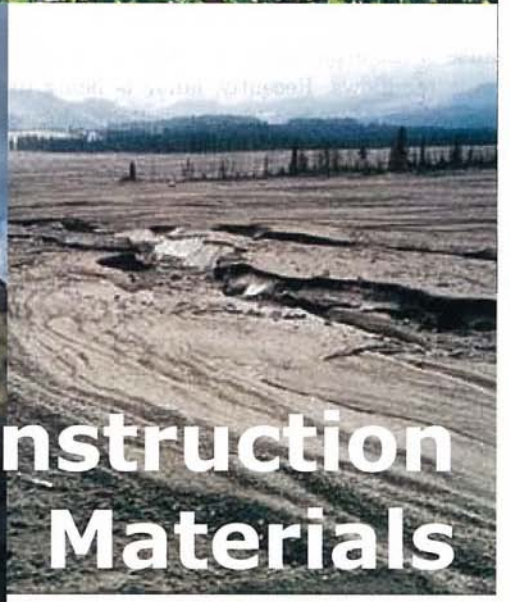
***Aloe vera* L.**

Local Names

Lidah Buaya (B)(I), Pro teal kantuy Krapue [C], Vanh-Hang-Jor-Ra-Ke (L)(T), Aloe Vera (M), Lo Hoi (V)

Sector/s: Food & Beverage / Health & Wellness





# Construction Materials

## G&H / H / F / H&W / CM-1

Volcanic Mudflow, or lahar, is accumulated pyroclastic material and water that flows from a volcano, typically along a river valley. The term “lahar” originated in Indonesia.

Lahars have the consistency of concrete: fluid when moving and solid when stopped. They can be extremely dangerous because of their energy and speed. Large lahars can flow several dozen meters per second and can flow for many kilometers causing catastrophic destruction in their path.

Because of the eruption of Mt. Pinatubo in 1991, in the Philippines, there are many volcanic mudflows. Recently, lahar is being used by mixing it with asphalt when coating roads. Moreover, the local tile producers have succeeded in producing a new building and industrial product by mixing crushed lava with other materials.

The most popular use for volcanic mudflow is the lava itself or as souvenirs made by mixing lava with resin. Other than these, larger ones are sculptured into candle stands, vases, flower pot, and other interior accessory objects and gift objects.

## Volcanic Mudflow / Lahar

### Local Names

Lahar (B)(P), Phuok Phnom Phlueng [C]

Sector/s: Gifts & Houseware / Handicraft  
/ Furniture / Health & Wellness /  
Construction Materials





Marble stones are created when underground limestone is exposed to heat and pressure. It is mostly composed of calcite, a crystalline form of calcium carbonate. Marble stones come in a variety of colors like white, pink, red, brown, green, and black depending on its area of production. It also has different patterns like spots and stripes. Marble dust can be combined with cement or synthetic resins to make reconstituted or cultured marble.

Pure white marble is the result of metamorphism of very pure limestone. The characteristic swirls and veins of many colored marble varieties are usually due to various mineral impurities such as clay, silt, sand, iron oxides, or chert, which were originally present as grains or layers in the limestone. Green coloration is often due to serpentine resulting from originally high magnesium limestone or dolostone with silica impurities. These various impurities have been mobilized and re-crystallized by the intense pressure and heat.

Colorless marbles are a very pure source of calcium carbonate, which is used in a wide variety of industries. Finely ground marble powder is a component in paints, toothpaste, and plastics; calcium carbonate can also be reduced under high heat to calcium oxide (also known as "lime"), which has many applications including being a primary component of most cements.

Because of its high-class impression, marble is used in interior decoration, walls of the entrance and hallways, tables, kitchen, and washing stands. It is also extensively used for sculpture, as a building material, as well as souvenir items. As a rock, it is soft and easily scratched, so it is preferable for indoor use.

**Local Names**

Batu Marmar (B)(M), Thma Keo (Tleum Thma) [C], Hin-On (L)(T), Marmol (P), Da Marble(V)

Sector/s: Gifts & Houseware / Handicraft  
/ Furniture / Construction Materials



Gum Tree is the general term for eucalyptus trees. It is an evergreen tree that has from around 400 to 500 species, which divided into many different species only within the closed environment of Australia. They mostly grow in Tasmania and Australia.

Gum trees are strong against the cold and dry environment; and, the tallest ones grow close to 70m tall. They grow rapidly and because they can also grow in worn out alkaline soil, it is used quite often for large-scale forestation projects.

The quality of wood that can be obtained from eucalyptus varies depending on the specie. It varies from light and soft wood to hard and heavy wood, and from light-colored to deep-colored wood. However, most have air-dried specific gravity of about 0.65 to 1.10 and are from middle to heavy weight. Wood from these trees is obviously used as a building material, but is also used as pulp and as fuel.

#### Active Ingredient/s:

The main substances that can be extracted from the leaves are citronellal and cineole that are known for having anti-septic, anti-poisoning, and pain-relieving effects. Moreover, smelling its peppermint-like fresh and stimulating aroma has an effect of clearing one's nose, throat, and improving one's mood.

#### Main Usage:

Because of this effect, the eucalyptus is processed into various different products, such as aroma-oil, inhalers, tea, antiseptic sprays, and soap.

#### Family

*Myrtaceae*

#### Species

***Eucalyptus* L'H'erit.**

#### Local Names

Kayu Putih (B), Deum Preng Kjal [C],  
Mai Vick (L), Eucalyptus (T), Khuynh  
Diep (V)

Sector/s: Gifts & Houseware / Handicraft  
/ Furniture / Health & Wellness /  
Construction Materials



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# Acknowledgement / Photo Credits

This is the English version that is translated and added information by the Centre.

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Department of Science & Technology (P); Golden Hope Food & Beverage SDN. BHD. (M); Fiber Industry Department Authority/Department of Agriculture (P); Images Philippines; JasmineEmporium.com; mikemina.com; My Linh Fragrances & Flavours Co., Ltd. (V); Nano's World; and Wikipedia, The Free Encyclopedia, as the ready source of additional information.

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Vientiane, Lao P.D.R.  
T: 856-21-216207 / 241914 F: 856-213623

## MALAYSIA

Malaysia External Trade Development Corporation (MATRADE)  
Menara MATRADE Jalan Khidmat Usaha, Off Jalan Duta  
50480 Kuala Lumpur, Malaysia  
Tel: 60-3-6207-7077 Fax: 6203-7182 (division. line) /  
6203-7037 (general line)

## MYANMAR

Ministry of Commerce, Directorate of Trade  
228-240, Stand Road, Yangon, Myanmar  
Tel: 95-67-40009 / 408252 / 408261 / 95-1-373364 / 37120-09  
Fax: 95-67-40004 / 408243 / 95-1-253028 / 95-1-371218

## PHILIPPINES

Center for International Trade Expositions and Missions (CITEM)  
International Trade Center, Sen. Gil J. Puyat Avenue Extension  
Cor. Roxas Boulevard, Pasay City, Metro Manila, Philippines  
Tel: 63-2-831-2201 to 09 Fax: 832-3965 / 834-0177

## SINGAPORE

International Enterprise Singapore (IE Singapore)  
230 Victoria Street #09-00 Bugis Junction Office Tower  
Singapore 188024 Tel: 65-6337-6628 Fax: 65-6337-6898

## THAILAND

Ministry of Commerce  
Department of Export Promotion (DEP)  
44/100 Sanam Bin Nam, Nonthaburi Rd., Bangkasor Ampur Muang V  
Nonthaburi 11000, Thailand  
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## VIETNAM

Ministry of Trade  
Vietnam Trade Promotion Agency (VIETRADE)  
20 Ly Thuong Kiet str, Hanoi, Vietnam  
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