Economically Important Plant Families

Numbered Plant Familes Are Used On Botany 115 Exam #4 Submission Form

See A Numerical List Of All Plant Families Used On This Version Of Exam #4

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Look Up Plant Family Alphabetically

A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

1. **Aceraceae: Maple Family** Back To Alphabet Table

   Acerspp. Maple [Beautiful hardwoods, lumber and shade trees.]

   A. saccharum Sugar Maple [From sapwood during early spring; many commercial syrups contain artificial ingredients such as colorings, flavorings and preservatives.]

   Maple Syrup From The Sugar Maple Tree

2. **Actinidiaceae: Actinidia Family** Back To Alphabet Table

   Actinidia chinensis Kiwi or Chinese Gooseberry [Fuzzy green fruit with translucent pale green flesh surrounding narrow ring of tiny black seeds; the flavor suggests a blend of melon, strawberry and banana.]

   See Delicious, Fresh Kiwi Fruits

3. **Agaricaceae and Boletaceae: Mushroom Families** Back To Alphabet Table
   [Also Including The Cantharellaceae, Morchellaceae & Tricholomataceae]

   Agaricus campestris Field Mushroom (Agaricaceae)

   A. bisporus Button Mushroom [Common mushroom sold in supermarkets; the portobello mushroom is a variety of

this species.]

Boletus edulis King Bolete (Boletaceae)

Cantharellus cibarius Chanterelle (Cantharellaceae)

Morchella esculenta Morel (Morchellaceae)

M. elata Black Morel (Morchellaceae)

Lentinus edodes Shi-Take Mushroom (Tricholomataceae)

Go To The Wayne's Word Fungus Article
See A Cluster Of Delicious Fresh Morels
See A Delicious King Bolete (Boletus edulis)
Mr. Wolffia Overindulging On Boletus edulis
See A Basket Of Delicious Fresh Chanterelles
Some Mushrooms From Palomar Mountain
More Mushrooms From Palomar Mountain
More Mushrooms From Palomar Mountain

4. **Agavaceae: Agave Family** **Back To Alphabet Table**

Note: This Family Sometimes Lumped With The Liliaceae

Agave atrovirens Pulque Plant [Pulque is the fermented juice from the base of flower stalk; leaves of central cone are removed and the sap is allowed to collect in the cavity; mescal and tequila are distilled pulque; other species of **Agave** are also used for pulque.]

A. sisalina Sisal [Strong fibers from leaves.]

Phormium tenax New Zealand Flax [Strong leaf fibers 3 to 7 feet long.]

Sansevieria metalaea and other spp. Bowstring Hemp [Strong fiber from leaves; sometimes placed in the Liliaceae.]

Cordyline fruticosa Ti Plant [Many uses for fibrous leaves of this Polynesian plant.]

Go To Wood/Plant Fiber Crossword Puzzle
See Article About Plant Textile Fibers
Read About Legendary Hawaiian Ti Plant

Amaranthaceae: Amaranth Family **Back To Alphabet Table**

Amaranthus caudatus Jataco or Achita [Edible leaves used as a potherb; nutritious seeds cooked and eaten like cereal grains.]

Amaranthus retroflexus Pigweed [Edible leaves and seeds.]

A. cruentus, A. powellii, A. hypochondriacus Amaranth [Edible seeds ground into flour; amaranth flour was important South American cereal during pre-Columbian times; grown by the Aztecs and southwest Indians for

millennia, the small seeds are rich in lysine and the young leaves are high in calcium and iron.]

Red Inflorescence & Seeds Of Amaranth Species

5. **Amaryllidaceae: Amaryllis Family** **Back To Alphabet Table**

Note: This Family Sometimes Lumped With The Liliaceae

The following plants with edible bulbs are often placed in the lily family but are more correctly members of the Amaryllis Family--Amaryllidaceae:

Allium cepa Onion and Shallot [Edible bulbs; including many different varieties.]

A. ampeloprasum (**A. porrum**) Leek [Delicious edible bulb and leaves.]

A. sativum Garlic [Edible bulb; valuable seasoning and medicinal herb.]

A. schoenoprasum Chives [Leaves used for garnish and herb.]

See Fresh Red, White & Yellow Onions
Garlic: Seasoning & Medicinal Herb
See Bulb And Leaves Of A Fresh Leek

6. **Anacardiaceae: Cashew or Sumac Family** **Back To Alphabet Table**

Anacardium occidentale Cashew [The cashew "nut" is attached to a swollen, fleshy stalk (pedicel) called the cashew apple; the outer shell of the "nut" contains the allergen urushiol and can cause a dermatitis reaction similar to that of poison oak and poison ivy.]

Spondias mombin Hog Plum

S. purpurea Red Mombin

Harpephyllum caffrum Kaffir Plum

Pleiogynium solandri (**P. timorense**) Burdekin Plum

Mangifera indica Mango

Pistacia vera Pistachio Nut

P. lentiscus Gum Mastic

P. chinensis Chinese Pistache

Pachycormus discolor Elephant Tree [Native to Baja California; also see elephant trees (**Bursera** spp.) in Burseraceae.]

Gluta renghas Rengas Tree [Tropical Malaysian tree with beautiful heartwood; dangerous to work because of urushiol in resin.]

Melanorrhoea usitata Burmese Lacquer Tree [Sap contains urushiol.]

Semecarpus anacardium India Marking Nut Tree [Sap contains urushiol.]

Metopium toxiferum and **Comocladia dodonaea** [Caribbean shrubs that contain urushiol.]

Schinus molle Peruvian Pepper Tree [Female trees are the source of pink peppercorns.]

S. terebinthifolius Brazilian Pepper Tree [Female trees are the source of pink peppercorns.]

Toxicodendron vernicifluum Lacquer Tree. [From milky sap which darkens upon oxidation; sap contains urushiol.]

Note: Shellac is prepared from a resinous secretion on the twigs of several tree species by an insect, **Tachardia lacca** or **Laccifer lacca.** This insect is a member of the order Homoptera along with aphids, scale insects, mealy bugs, and cicadas.

T. diversilobum, **T. radicans**, and **T. vernix** Poison Oak, Poison Ivy, and Poison Sumac. All are painful experiences to hypersensitive people. Dermatitis reactions can also occur from handling the shells of cashew nuts and from eating mangoes.

See Photo Of A Delicious Fresh Mango
See Photograph Of Delicious Hog Plums
See Photograph Of Colorful Kaffir Plums
See Photograph Of Unusual Burdekin Plums
See Pistachio Nut--Technically A Drupe
See Leaf & Drupes Of Chinese Pistache
See Resin Globules From Gum Mastic Tree
See A Fabulous Cashew Apple And Nut
Pink Peppercorns From Peruvian Pepper Tree
Plants Of The Sumac Family (Anacardiaceae)
See WAYNE'S WORD Poison Oak Article
See The Seed Lac Excretion Of Lac Insect

7. Annonaceae: Custard Apple Family Back To Alphabet Table

Annona cherimola Cherimoya

A. muricata Soursop

A. reticulata Custard Apple

A. squamosa Sugar Apple

Asimina triloba Papaw

Cananga odorata Ylang-Ylang (Ilang-Ilang) [Flowers the are source of cananga oil used in perfumes.]

Asimina trilobata Pawpaw [A smaller, pulpy berry of the Annonaceae that grows wild in North America; it comes from a small deciduous tree native to forested regions of the eastern and southestern United States.]

See Soursop Growing On A Tree Trunk
See A Delicious, Ripe Cherimoya Fruit
Delicious, Ripe Sugar Apple On A Tree
See The Unusual Flowers Of Ylang-Ylang

8. **Apiaceae: Carrot Family (Umbelliferae)** **Back To Alphabet Table**

Anethum graveolens Dill

Anthriscus cerefolium Chervil

Apium graveolens Celery [Edible leaf stalks or petioles.]

Carum carvi Caraway

Coriandrum sativum Coriander [Seeds used as a tasty seasoning; aromatic leaves (called cilantro) used as garnish and in salsa and guacamole dishes.]

Cuminum cyminum Cumin

Daucus carota Carrot [Edible taproot; also called Queen Ann's lace when flowering.]

Foeniculum vulgare Fennel [Edible petioles; seeds used like anise for licorice flavoring in cady, medicines, perfumes, liquor and soap; true licorice from root of a perennial legume.

Pastinaca sativa Parsnip [Edible taproot; similar to the deadly poisonous water hemlock.]

Petroselinum crispum Parsley [Leaves used as garnish and possibly to freshen breath after eating.]

Pimpinella anisum Anise

Note: Two very poisonous species in this family with parsnip-like roots and parsely-like leaves that you do NOT want to use as greens in salads or cooked as vegetables. They typically grow along streams or in wet bottom lands:

1. **Cicuta douglasii** Water Hemlock [One large taproot in a salad can be fatal to an adult human; causes convulsions.]

2. **Conium maculatum** Poison Hemlock [The infamous hemlock supposedly used on Socrates; purple dots on stems; can be fatal without convulsions.

Herbs & Vegetables Of Carrot Family
See Coriander & Cilantro Compared
See Leaf Bases & Seeds Of Sweet Fennel
See The Large Edible Root Of Parsnip
See The Petioles & Root Of Celery
See Edible Taproots of Daucus carota
See Large Field Of Dill In Montana
See Poison Hemlock & Water Hemlock

9. **Apocynaceae: Dogbane Family** **Back To Alphabet Table**

Carissa grandiflora(**C. macrocarpa**) Natal Plum

Catharanthus roseus Madagascar Periwinkle [Source of the anti-tumor alkaloids vinblastine and vincristine.]

Dyera costulata Jelutong [Important Malaysian timber tree; jelutong latex mixed with chicle for chewing gum.]

Rauvolfia serpentina Snakeroot [Source of the medical alkaloid reserpine.]

See The South African Natal Plum
Plants Producing Medical Alkaloids
Plants Used For Rubber & Chewing Gum

10. **Aquifoliaceae: Holly Family** **Back To Alphabet Table**

Ilexspecies Holly [The bright red berries of several North American species are used for wreaths and colorful decorations at Christmas time.]

I. paraguariensis Yerba Mate [A popular tea is brewed from the dried, crushed leaves of this South American holly; in "mate cocido" the leaves are toasted during the drying process; yerba mate contains about 1% caffeine compared with more than 5% for guaraná.]

I. opaca, I. glabra and **I. cassine** Holly [North American species in which the dry, roasted leaves are occasionally used for teas.]

Yerba Mate Tea Sipped From A Gourd

11. **Araceae: Arum Family** **Back To Alphabet Table**

Colocasia esculenta Taro and Dasheen [Source of Polynesian dish poi; from starchy subterranean corms; some botanists refer to dasheen as variety **antiquorum**; cultivated plants with huge leaves called elephant ears.]

Monstera deliciosa Monstera or Ceriman [Edible multiple fruit or spadix.]

See Taro Corms And Taro Plants
See Fruit Of Monstera Deliciosa

12. **Araliaceae: Aralia Family** **Back To Alphabet Table**

Panax ginsengand **P. quinquefolius**Asian & North American Ginseng. [Medicinal tea from fusiform taproots.]

Tetrapanax papyriferus Rice Paper Plant [Paper made from the pith.]

Aralia racemosa American Spikenard [Medicinal herb tea from taproot; the taproot of another species called wild sarsaparilla (**A. nudicaulis**) is sometimes used in rootbeer.]

See The Remarkable Rice Paper Plant
Ginseng Root Used For Medicinal Tea
See An Aralia Called Wild Sarsaparilla

13. **Araucariaceae: Araucaria Family** **Back To Alphabet Table**

Agathis australis Kauri Pine [Important New Zealand source of copal resins for varnishes.]

A. dammara (**A. alba**) Amboina Pine [Another source of copal resins from East Indies & Malaysia.]

Araucaria columnaris Cook Pine or New Caledonia Pine [Timber tree native to New Caledonia with beautiful grain (knots) produced by whorls of limbs along main trunk.]

A. heterophylla Norfolk Island Pine [Timber tree with beautiful grain (knots) produced by whorls of limbs along main trunk.]

Note: Baltic amber is the polymerized resin from ancient araucariad forests dating back about 50 million years. The semiprecious gem called Whitby jet is the carbonized remains of ancient araucariad forests dating back about 160 million years.

See Bowl Made From The Beautiful Cook Pine
Article About Amber: Nature's Transparent Tomb
The Black, Semiprecious Gem Known As Jet

14. **Arecaceae: Palm Family (Palmae):** **Back To Alphabet Table**

Calamusspp. Rattan [From several species of climbing palms.]

Calamus (**Daemonorops**) **draco** Dragon's Blood [Bright red dye from resinous fruit; dragon's blood dye also obtained from resinous sap of **Dracaena draco** & **D. cinnabari** (Dracaenaceae).]

Ceroxylon andicola Wax Palm [From trunk.]

Copernicia prunifera (**C. cerifera**) Carnauba Wax Palm [Exudation on leaves.]

C. alba Carnaday Wax Palm [Waxy cuticle used as secondary industrial source of wax.]

Bactris gasipaes Pejibaye Palm [Small palm with spiny trunk; clusters of small orange fruits common in marketplace of Costa Rica during summer months.]

Butia capitata Jelly Palm [A South American palm native to Brazil; fleshy mesocarp of drupes with delicious flavor of apricots.]

Hyphaene ventricosa Vegetable Ivory Palm [From hard endosperm.]

Jubaea chilensis Chilean Wine Palm [Wine made from fermented sap.]

Metroxylon amicarum Ivory Nut Palm

Phytelephas aequatorialis Ivory Nut Palm [Hard endosperm used for buttons, chessmen, poker chips, dice, knobs, etc; today largely replaced with plastic polymers.]

Phoenix dactylifera Date Palm

Elaeis guineensis African Oil Palm [Seeds high in saturated fats.]

Serenoa repens Saw Palmetto [Small palm native to Florida Everglades region; berries used as herb to maintain healthy prostate gland.]

Areca catechu Betel-Nut Palm [Seeds commonly chewed by people throughout the far eastern region.]

Cocos nucifera Coconut. [The nutritious meat or "copra" within the seed is endosperm tissue (coconut milk is liquid endosperm); the "coconut apple" is a spongy, sweet mass of cotyledon tissue inside the seed cavity that dissolves and absorbs the endosperm; the "coir" fibers come from the fibrous husk or mesocarp.]

There are 2 main types or varieties of coconuts. The **niu kafa** types have an elongate, angular fruit, up to 6 inches in diameter, with a small egg-shaped nut surrounded by an unusually thick husk. **Niu vai** types have a larger more spherical fruit, up to 10 inches in diameter, with a large, spherical nut inside a thin husk. The **niu kafa** type represents the ancestral, naturally-evolved, wild-type coconut, disseminated by floating. The niu vai type was derived by domestic selection for increased endosperm ("meat" and "milk") and is widely dispersed and cultivated by humans. Both types of fruit can float, but the thicker, angular husk adapts the niu kafa type particularly well to remote atoll conditions where it can be found today.

See Noteworthy Plants Vegetable Ivory Article
Read About The Ocean Dispersal of Coconuts
See The Fruit Of A Coconut Called A Dry Drupe
See The Details Of A Sprouting Coconut Fruit
The Truth About The Infamous Coconut Pearl
See Pejibaye Palm (Peach Palm) In Costa Rica
See African Oil Palm & Palm Fruits In Costa Rica
See The Saw Palmetto Of S.E. United States
See Fleshy Drupes Of South American Jelly Palm
See The Betel-Nut Palm & Betel-Nut Necklace
See Unpollinated & Pollinated Fruits Of Date Palm
See Jubaea chilensis: The Chilean Wine Palm
See Remarkable Bay-leaf Thatch Palm In Belize
Wax From Leaves Of The Carnauba Wax Palm
Wax From Leaves Of The Carnaday Wax Palm

15. **Aspergillaceae: Aspergillus Family** **Back To Alphabet Table**

Aspergillus oryzae Miso Mold [A very important fungus used in the fermentation of soybeans to make miso paste and in the fermentation of rice to make sake.]

Penicillium spp. Blue Bread Molds [Although this genus includes some destructive molds of bread and citrus fruits, it also contains some valuable species, including **P. roqueforti** and **P. camemberti** which are responsible for Roquefort and Camembert cheese; vital antibiotic drugs such as penicillin are also produced by species of **Penicillium**, including **P. notatum** and **P. chrysogenum**.]

See Economically Important Fungi
See Miso Paste Made From Soybeans

16. **Asteraceae: Sunflower Family (Compositae)** **Back To Alphabet Table**

Anthemis nobilis Chamomile [From dried flower heads; weedy species called mayweed (**A. cotula**) in San Diego County.]

Matricaria chamomilla German Chamomile [From dried flower heads; weedy species called pineapple weed (**M. matricarioides**) in San Diego County.]

Artemisia dracunculus Tarragon. [Leaves used for seasoning.]

A. absinthium Wormwood or Absinthe [Vicent van Gogh (1853-1890) suffered from epilepsy and was treated with digoxin from the foxglove plant (**Digitalis purpurea**). His famous work, "The Starry Night" contains yellow circles around the stars, which are similar to visual problems described by patients with digoxin toxicity even today. Van Gogh also drank the liqueur absinthe on a regular basis. Absinthe is a green, bitter liqueur primarily flavored with wormwood (**Artemisia absinthium**), a European herbaceous perennial related to the native sagebrush species (**Artemisia**) of the western United States. Absinthe also contains thujone, a terpenoid component of many essential oils, including those found in **Artemisia** and the coniferous genus **Thuja**. Research has shown that thujone not only fuels creativity, but also that an overdose of the compound causes yellow-tinged vision. Either absinthe or digoxin toxicity may have contributed to van Gogh's increasing use of the color yellow in the last years of his life; or perhaps van Gogh may simply have loved the color yellow.]

Carthamus tinctorius Safflower. [Oil from seeds.]

Cichorium endivia Endive [Leaves used as garnish and herb.]

C. intybus Chicory. [Taproot roasted and ground, used as an adulterant in coffee; a weed in western U.S.]

Cynara scolymus Globe Artichoke [Immature flower heads are cooked and eaten; the tender receptacle and "meaty" phyllaries are dipped in butter.]

C. cardunculus Cardoon or Thistle Artichokes [Globe artichoke derived from this species and may be only be a variety rather than a separate species; inner leaves and petioles (leaf stalks) are edible; flower heads used for dry flower arrangements.]

Echinacea purpurea Echinacea [Herb used to boost immune system.]

Helianthus annuus Sunflower [Tasty, nutritious edible seeds produced in large heads; also valuable unsaturated oil from seeds.]

H. tuberosus Jerusalem Artichoke [Sunflower with edible tubers similar to small potatoes.]

Lactuca sativa Lettuce [Leafy compact head; many varieties, romaine lettuce with more elongate leaves; related to prickly lettuce (**L. serriola**), a common weedy species in San Diego County.]

Parthenium argentatum Guayule [Only important U.S. source of rubber.]

Silybum marianum Milk Thistle [A prickly herb used to detoxify the liver.]

Tagetes lemmonii Scented Marigold [An aromatic shrub with fragrant foliage used for a tea.]

Taraxacum officinale Dandelion [Leaves used in salads and cooked as a vegetable.]

Tragopogon porrifolius Salsify or Oyster Plant [Cooked taproot with flavor of oysters; weedy species in western U.S. resemble large, blue-flowered dandelions; cross pollination with yellow-flowered **T. dubius** resulting in sterile diploid (2n=12) and fertile tetrapolid (2n=24) hybrids; in fertile, blue-flowered tetraploids, all haploid sets (n=6) from each parent have a homologous set of chromosomes to pair up with during synapsis of meiosis I; hence viable

gametes and seeds are produced.]

Parachute Seeds Of Tragopogon Related To Salsify
See Photo Of Rubber-Producing Guayule Plant
See Photo Of Jerusalem Artichoke Or Sunchoke
Edible Sunflower Seeds & Valuable Sunflower Oil
See Edible Flower Heads Of The Globe Artichoke
Flower Head & Parachute Seeds Of Thistle Artichoke
See Photo Of The Flowers & Leaves Of A Dandelion
Chicory: A Dandelion Relative Used In Coffee
See The Root Of Japanese Burdock Or Gobo
See Photograph Of The Herb Called Echinacea
See Photograph Of The Herb Called Milk Thistle
See Photograph Of The Herb Called Tarragon
Photograph Of The Shrub Called Scented Marigold
See Photograph Of The Herb Called Absinthe
Sunflower Family: World's Largest Plant Family

17. **Bangiaceae: Porphyra Family** **Back To Alphabet Table**

Porphyraspecies. Nori [This genus includes a number of species of intertidal red algae that are collected for food in Asian countries; nori is commonly cultivated in shallow muddy bays of Japan; the dried blades are packaged and sold in Asian markets throughout the world; nori provides the tasty black wrapper around sushi, and is also wrapped around crackers and used in soups.]

Bangia fusco-purpurea Cow Hair or Hair Seaweed [An intertidal alga with a slender hairlike thallus; this species is eaten like fine pasta in many Asian dishes.]

See Photo Of Porphya & Sheets Of Dried Nori

18. **Berberidaceae: Barberry Family** **Back To Alphabet Table**

Podophyllum peltatum May Apple or Mandrake. [Podophyllum resin or podophyllin from roots and rhizomes; used as an emetic and cathartic; the antineoplasmic glucoside called podophyllotoxin is used in chemotherapy treatment for certain tumors.]

Berberis aquifolium Oregon Grape [The berries of several North American species are used in jams and pies; berries of several Middle Eastern species are dried and used like raisins.]

Berberis spp. Barberry. [Alternate host of wheat rust (**Puccinia graminis**), a serious fungus disease of wheat.]

See Oregon Grape & Middle East Dried Barberries

19. **Betulaceae: Birch Family** **Back To Alphabet Table**

Betulaspp. Birch. [Beautiful closed-grain hardwood.]

Corylus spp. (**C. americana** & **C. cornuta**) Hazelnut or Filbert

See The American Filbert Or Hazelnut In Its Leafy Involucre

See Noteworthy Plants Article About Filbert-Rubber Tree Hybrid

20. **Bignoniaceae: Bignonia Family** **Back To Alphabet Table**

Jacaranda mimosifolia Jacaranda

Tabebuia serratifolia Trumpet Tree or Pao d' Arco [South American hardwood lumber.]

T. impetiginosa Pao d' Arco [Herb from inner bark used for immune stimulant.]

Parmentiera edulis Guachilote [An interesting cauliflorous fruit related to the calabash.]

See Article About Wind Dispersal in Bignonia Family
See Photos of Wind Dispersal In The Bignonia Family
See Amazing Cauliflorous Fruits Of Parmentiera edulis

21. **Bixaceae: Annatto Family** **Back To Alphabet Table**

Bixa orellana Achiote or Annatto [Popular red dye (bixin) used for coloring butter and cheeses; dye derived from seeds of spiny red fruits; also used for body paint by South American Indians; chemically similar to beta carotene and may protect skin from UV light.]

See Photos Of Achiote (Annatto) Seeds and Fruits

22. **Bombacaceae: Bombax Family** **Back To Alphabet Table**

Ceiba pentandra Kapok [Silky hairs from capsule; used for waterproof fillers.]

Chorisia speciosa Floss Silk Tree

Ochroma pyramidale Balsa. [Specific gravity of only 0.19.]

Durio zibethinus Durian [An immense, malodorous, spiny fruit from Malaysia.]

Pachira aquatica Guiana Chestnut [Large woody seed capsule with edible seeds.]

See The Enormous, Spiny Durian Fruits
See Large Fruit Of The Guiana Chestnut
Cottony Fibers Of Kapok & Floss Silk Tree
See The Tropical American Balsa Tree

23. **Boraginaceae: Borage Family** **Back To Alphabet Table**

Cordia sebestena Ziricote [This Caribbean tree is also known as cericote and geiger tree; the beautiful, dark wood is used in wood carving.]

C. subcordata Kou. [A Polynesian species with a beautiful, dark-grained hardwood used in wood carving.]

See Beautiful Ziricote Wood Carvings

24. Brassicaceae: Mustard Family (Cruciferae) Back To Alphabet Table

Armoracia lapathifolia(**A. rusticana**) Horseradish [Pungent relish obtained from the large taproot; a delicious condiment with meat and seafood.]

Eutrema wasabi (**Wasabia japonica**) Japanese Horeseradish or Wasabi [The fleshy rhizome is the source of the green paste called "wasabi" that is commonly served with sashimi (raw fish) in Japan.]

Lepidium meyenii (also **L. peruvianum**) Maca [A wild mustard native to the Andes of South America; the dried, radishlike roots are cooked to form a sweet, aromatic porridge called mazamorra; powdered maca root is sold as a nutritious herb and food supplement; nineteen species of **Lepidium** are native and naturalized in California.]

Brassica campestris (**B. rapa** ssp. **sylvestris**) Field Mustard [A common weed in the western U.S.]

B. nigra (Black Mustard) & **B. alba** (White Mustard) [Seeds used for mustard condiment; black mustard is a common weedy species in San Diego County; mustard gas is a synthetic chemical containing sulfur and chlorine, it is not made from mustard seeds.]

B. rapa [Rapifera Group] Turnip [Edible root; sometimes referred to as **B. campestris**; turnip greens from edible leaves; n=10.]

B. rapa [Chinensis Group] Bok Choy (Pak-choi). [Cultivated in Asia for succulent leaves.]

B. rapa [Pekinensis Group] Chinese Cabbage

B. napus Rapeseed Oil and Canola Oil [Unsaturated oil from seeds; 3rd most important edible oil in U.S. after soybean & cottonseed oils.]

B. oleracea [Includes following varieties: cabbage (leafy head), kale (non-heading leafy sprout), collards (nonheading leafy sprout), broccoli (immature inflorescence and stalk or peduncle), cauliflower (immature inflorescence), brussels sprouts (tall-stemmed cabbage with small edible heads or buds along stem), kohlrabi (enlarged, edible, basal stem above the ground); all varieties with n=9 and 2n=18; broccoflower a hybrid between broccoli and cauliflower.]

B. napobrassica Rutabaga [Tetraploid hybrid between cabbage (n=9) and turnip (n=10); resulting fertile polyploid with 38 chromosomes, 2 sets of cabbage chromosomes (9 + 9) and 2 sets of turnip chromosomes (10 + 10).]

Rorippa nasturtium-aquaticum (**Nasturtium officinale**) Water Cress [An aquatic weed in southern California; edible leaves.]

Isatis tinctoria Woad [Important blue dye used in Europe during 1500s and 1600s; the glucoside dye indican in leaves; one of dyes used by Robin Hood's men for their green clothing.]

Raphanus sativus Radish [A very common weed in San Diego County; edible taproot with many varieties, including white and red radishes; giant oriental radishes 4 feet long and 40 pounds; the large Asian radish called "daikon" belongs to the **Longipinnata** group of radishes.]

Note: The bigeneric hybrid (**Raphanobrassica**) or Rabbage is a cross between the radish (**Raphanus** n=9) and cabbage (**Brassica** n=9). The diploid hybrid has two sets of chromosomes, one set (R) from the radish parent and one set (C) from the cabbage parent. [Note: The word "set" is defined here as one haploid set of chromosomes.] Since each set includes 9 chromosomes, the diploid rabbage has a total of 18 chromosomes. The diploid hybrid (RC) is sterile because the radish and cabbage sets of chromosomes are not completely homologous, and fail to pair up

during synapsais of meiosis I. A fertile tetraploid (4n=36) hybrid (RRCC) has also been developed. It produces viable gametes and seeds because the radish chromosomes have another radish set to pair up with (RR), and the cabbage chromosomes have another set to pair up with (CC). Unfortunately this wonder plant has the leaves of the radish and the roots of the cabbage.

See Brief Discussion About Monounsaturated Canola Oil
See Kohlrabi, Broccoflower, Brussels Sprouts, & Rutabaga
Bok Choy: A Leafy Mustard Commonly Cultivated In Asia
See Massive Taproot Of Wild Radish In San Diego County
See The Crispy Red Radish Cultivar Of The Wild Radish
See The Large, White Japanese Radish Called Daikon
See The Large Taproot Used In Spicy Horseradish Sauce
Water Cress: Naturalized Vegetable In Southern California
Maca: A South American Lepidium With An Edible Root
See Photograph Of A Field Of Woad In Eastern Oregon

25. **Bromeliaceae: Pineapple Family** **Back To Alphabet Table**

Ananas comosus Pineapple [Also fibers from leaves.]

Tillandsia usneoides Spanish Moss [Southeastern U.S.]

See Pineapple Plants On The Island Of Kauai

26. **Burseraceae: Torchwood Family** **Back To Alphabet Table**

Boswellia carteri Frankincense. [Resin obtained from bark.]

Commiphora abyssinica Myrrh

Protium copal Guatemalan Incense

Bursera simaruba Gumbo Limbo

B. odorata and **B. microphylla** Elephant Tree [Native to Baja California; also see another elephant tree (**Pachycormus discolor**) in Anacardiaceae.]

Photos Of Resins And Incenses From Plants

27. **Cactaceae: Cactus Family** **Back To Alphabet Table**

Opuntiaspp. Prickly Pear. [Stem segments edible and called "nopales" in Mexico; ripened fruit called "tuna" or "pitaya dulce."]

Opuntia ficus-indica and other spp. Source of the brilliant red cochineal dye [Actual dye from the red body fluids of cochineal insect (**Dactylopius coccus**), a homopteran related to aphids, scale insects and mealy bugs; female cochineal insects are brushed from the cactus pads, dried, and pigments extrated from dried bodies; one pound of dye represents about 70,000 insects; source of carmine red stain used in microbiology classes; cactus were introduced into Australia for this dye with disastrous consequences; by 1925, 60 million acres of valuable range land covered by prickly pear cactus.]

Lophophora williamsii Peyote. [Source of alkaloid mescaline.]

Trichocereus pachanoi San Pedro Cactus [Another South American source of mescaline.]

See The WAYNE'S WORD Alkaloid Article
See Photos of Peyote and San Pedro Cactus
See Photos of Cochineal Insect On A Cactus
See Fruit & Edible Stems (Nopales) Of Opuntia

Camelliaceaeae: Camellia Family See Theaceae

28. **Cannabaceae: Hops Family** **Back To Alphabet Table**

Cannabis sativa Indian Hemp or Marijuana [Resinous flowers and buds of female plant used medicinally and for casual smoking; resin contains several phenolic cannabinoids, including THC; important source of bast fibers from male plants; these plants occasionally sprout from seeds in well-watered, rural areas, such as the Palomar College campus.]

Humulus lupulus Hop Vine [Female inflorescences (hops) added to beer to clarify the brew, prevent bacterial action and to improve flavor.]

Information About THC From The Female Cannabis
Indian Hemp As A Source Of Bast Fibers For Textiles
See A Hop Vine And The Hops Used To Make Beer

29. **Cannaceae: Canna Family** **Back To Alphabet Table**

Canna indica Indian Shot [Round, hard, black seeds used in botanical jewelry.]

C. edulis Achira [Grown in Andes for starchy, tuberous rhizome.]

See Noteworthy Plants Article About Indian Shot

30. **Capparaceae: Caper Family** **Back To Alphabet Table**

Capparis spinosa Capers [Mediterranean shrub with tasty flower buds used for flavorings, relishes and sauces.]

See Tasty Flower Buds Called Capers

31. **Caprifoliaceae: Honeysuckle Family** **Back To Alphabet Table**

Sambucus spp. Elderberry

32. **Caricaceae: Papaya Family** **Back To Alphabet Table**

Carica papaya Papaya [Delicious cauliflorous fruit planted throughout the tropics.]

See Cauliflorous Papaya Fruits
See Delicious Ripe Papaya Fruit

33. **Chenopodiaceae: Goosefoot Family** Back To Alphabet Table

Beta vulgaris Beets [Other varieties include sugar beets and Swiss chard; sweet taproot used for beets and sugar beets; tender leaves used for Swiss chard.]

Chenopodium album Lamb's Quarters [An edible weed in California; tender leaves cooked and eaten like spinach.]

C. quinoa Quinoa [South American herb with edible seeds that are cooked and eaten like a cereal grain; used by native people since pre-Columbian times.]

Spinacia oleracea Spinach [Leaves consumed through pipe by Popeye; very nourishing vegetable rich in iron and folic acid.]

Family also includes Russian thistle or tumbleweed (**Salsola tragus**) and halophytic salt marsh species, such as pickleweed (**Salicornia**).

See Photo Of Beets & Swiss Chard
See Photo Of Fresh Spinach Leaves
See Photo Of Fresh Lamb's Quarters
See The Grainlike Seeds Of Quinoa

34. **Chrysobalanaceae: Chrysobalanus Family** Back To Alphabet Table

Chrysobalanus icaco Coco Plum [A shrub or small tree native to the American tropics with a sweet, plumlike fruit.]

See Photo Of Coco Plum In Belize

Clavicipitaceae: Ergot Family Back To Alphabet Table

Claviceps purpurea Ergot [A grain fungus infecting rye and related grasses; the source of synthetic LSD and several important vasconstricting alkaloids such as ergotamine.]

See The Infamous Ergot Fungus On Rye Grass

Clusiaceae: Clusia Family **See Guttiferae**

Combretaceae: Combretum Family Back To Alphabet Table

Anogeissus latifolia Gum Ghatti [A natural gum from the sap of a tree native to dry, deciduous forests of India and Sri Lanka; the common name "ghatti" is derived from the word "ghat" or mountain pass; this gum was originally carried by people over mountain passes or "ghats" to ports in India; the gum has properties intermediate between gum arabic and karaya gum; because it is a superior oil emulsifier with a higher viscosity, it is used in liquid and paste waxes and for fat soluble vitamins.

Terminalia catappa Tropical Almond [Malaysian tree naturalized along seashores of the Old and New World tropics, including Florida and the Hawaiian Islands; the oval, flattened, one-seeded fruit is commonly dispersed by ocean currents; the seed superficially resembles an almond and is eaten by natives.

Compositae: Sunflower Family **See Asteraceae**

35. **Convolvulaceae: Morning Glory Family** **Back To Alphabet Table**

Turbina corymbosaand **Ipomoea tricolor**Ololiuqui [New World morning glories with seeds containing the alkaloid ergine (d-lysergic acid amide), better known as natural LSD.]

Ipomoea batatas Sweet Potato [Edible, fascicled storage roots; many delicious varieties, including red "yams" and white sweet potatoes.]

Ipomoea aquatica Water Spinach [A popular, aquatic green vegetable in Asian countries.]

Note: True yams belong to the genus **Dioscorea** (Dioscoreaceae).

See WAYNE'S WORD Article About Morning Glories
See Water Spinach: An Edible Aquatic Morning Glory
See Noteworthy Plants Article About True Yams
See WAYNE'S WORD Article About Alkaloids

Cruciferae: Mustard Family **See Brassicaceae**

36. **Cucurbitaceae: Gourd Family** **Back To Alphabet Table**

Cucurbita pepo Summer Squash [Many varieties.]

C. maxima Winter Squash [Many varieties.]

C. moschata Butternut Squash

Note: Many pumpkins are varieties of **C. pepo**; however, the largest pumpkins probably come from **C. maxima**.

C. mixta (**C. argyrosperma**) Green-Striped Cushaws

C. ficifolia Malabar Gourd

Sechium edule Chayote

Luffa aegyptiaca and **L. acutangula** Luffa Sponge

Cucumis melon Melon [Many fabulous cultivars.]

C. sativus Cucumber

C. dipsaceus Teasel Gourds

C. metuliferus Horned Cucumber

Citrullus lanatus var. **citroides** Citron Melon

Citrullus lanatus var. **lanatus** Watermelon

Momordica charantia Bitter Melon

Siraitia grosvenorii (**Thladiantha grosvenorii**) Luo Han Kuo or Buddha's Fruit [A small Asian gourd with an extremely sweet pulp; a glycoside in the fruit is 150 times sweeter than sucrose and may have economic potential as a non-caloric sugar substitute.]

Lagenaria siceraria Hard-Shelled Gourds [Many shapes and sizes.]

See WAYNE'S WORD Gourd Article
See Buddha's Fruit (Luo Han Kuo)
Gourd Family Fruits: Squash & Melons
Cucumber Pickles & Teasel Gourd
See Dried Gourd Strips Use For Food
See The Unusual One-Seeded Chayote

37. **Cupressaceae: Cypress Family** **Back To Alphabet Table**

Juniperusspp. Junipers (e.g. **J. communis**) [Berries (cones) used to flavor gin; sloe gin flavored with sloe plum (**Prunus spinosa**).]

Cupressus spp. Cypress [10 endemic species in California; distributed throughout the state in arboreal islands; cones, foliage & bark variation in populations due to selection (glandular vs. eglandular foliage) and genetic drift.]

Chamaecyparis lawsoniana Port Orford Cedar

Calocedrus decurrens Incense Cedar

Thuja plicata Western Red Cedar

Cupressocyparis leylandii Leyland Cypress [A bigeneric hybrid between Monterey cypress (**Cupressus macrocarpa**) and Alaska cedar (**Chamaecyparis nootkatensis**).

There are other species used for lumber often called cedars.

Genetic Variation In California Cypress

38. **Cycadaceae: Cycad Family** **Back To Alphabet Table**

Cycas revoluta Sago Palm [Seeds eaten fresh and roasted; ground seeds should be thoroughly washed because they contain cycasin, a potent carcinogen; the heart of the trunk is baked and eaten, and is the source of sago, a starchy material also obtained from the central pith of palm trunks; sago starch is used in cooking and baking, like the starchy rhizomes of arrowroot (Marantiaceae) and achira (Cannaceae).]

C. circinalis [The large seeds used as in **C. revoluta**.]

Note: Seeds of additional species of cycads are used for food, including the African genus **Encephalartos** in the family Zamiaceae; in tropical and temperate climates, cycads are used extensively in landscaping.

See The Seeds Of Cycas circinalis

39. **Cyperaceae: Sedge Family** **Back To Alphabet Table**

Cyperus papyrus Papyrus [Fibers used in paper making.]

Eleocharis dulcis Water Chestnut [Edible, crunchy corms at base of stem.]

40. **Cylanthaceae: Cyclanthus Family** **Back To Alphabet Table**

Carludovica palmata Panama Hat Palm. [Leaf fibers used to make famous Panama hats which are made in Ecuador.]

See A Panama Hat Palm Growing Wild

Davidsoniaceae: Davidson's Plum Family **Back To Alphabet Table**

Davidsonia pruriens Davidson's Plum [A monotypic family containing a single species; the plum-like fruits hang in clusters that arise directly from the trunk (cauliflorous); although acidic, they are edible and make excellent jams and jellies.]

See Photo Of The Davidson Plum

41. **Dioscoreaceae: Dioscorea Family** **Back To Alphabet Table**

Dioscorea rotundataand **D. cayensis**Yams [Africa]; **D. alata**and **D. esculenta**Yams [Asia]; and **D. trifida**Yams [New World].

D. elephantipes Hottentot's Bread or Turtleback Plant

D. bulbifera Air Potato

See World's Largest Vegetable
See Yams Named After Dioscorides

42. **Dipterocarpaceae: Dipterocarpus Family** **Back To Alphabet Table**

Dipterocarpus turbinatus Gurjun Balsam

Shorea spp. (Incl. **S. aptera**, **S. hypochra**, **S. robusta** & **S. wiesneri**) Dammars

Dammars: East Indian and southeast Asian resins similar to copals. Like copals they are shiny and transparent when dry and are used extensively in the paint and varnish industry.

43. **Ebenaceae: Ebony Family** **Back To Alphabet Table**

Diospyros ebenum Ebony

D. kaki Japanese Persimmon

D. digyna Black Sapote (Black Persimmon)

D. virginiana Native Persimmon

See Delicious, Ripe Persimmon Fruit
See Black Sapote (Black Persimmon)
See A Chart Of World's Hardwoods
See "Elephant" Carved From Ebony

44. **Elaeagnaceae: Oleaster Family** **Back To Alphabet Table**

Elaeagnus angustifolia Russian Olive [Yellow fruits eaten fresh and made into jellies.]

E. philippinensis Lingaro [Pinkish-red, gland-dotted fruits are reportedly eaten in the Philippines.]

E. pungens Silverberry [Fruits used for jams, soft drinks and liqueurs in Japan.]

See The Unusual Gland-Dotted Fruits Of Lingaro
See Variety Of Russian Olive Called Trebizond Date

45. **Elaeocarpaceae: Elaeocarpus Family** **Back To Alphabet Table**

Elaeocarpus grandis Blue Marble Tree [The fleshy drupes resemble deep blue marbles. They are reportedly eaten raw in Australia and Fiji. The drupe contains a woody, intricately sculptured endocarp that surrounds several small seeds. The endocarps are often strung into attractive necklaces and leis.]

E. ganitrus (**E. sphaericus**) Rudraksha Bead. [The endocarps are known as "rudraksha beads," and were worn by Shiva worshippers at least since the 11th century.]

Rudraksha Beads & Striking Fruits Of Blue Marble Tree

Equisetaceae: Horsetail Family **Back To Alphabet Table**

Equisetum arvense Common Horsetail [A tea and capsules made from the dried stems of this and other species are used to maintain a healthy urinary system; the high silicon content is reportedly beneficial for cartilage, ligament and bone repair.]

Horsetail Tea For Repair Of Cartilage & Ligaments

46. **Ericaceae: Heath Family** **Back To Alphabet Table**

Arbutus unedo Strawberry Tree [An interesting European fruit tree related to the madrone tree of Pacific northwestern U.S.]

Erica arborea Briarwood [Mediterranean shrub with subterranean basal burl (lignotuber) that is fire-resistant and used for briarwood smoking pipes.]

Gaultheria procumbens Wintergreen [Oil from leaves.]

Gaylussacia baccata Huckleberry

Vaccinium spp. (**V. corymbosum** & **V. angustifolium**) Blueberry

V. macrocarpon & **V. oxycoccos** Cranberry

See Smoking Pipe Made From The Burl Of Briarwood
See Huckleberry & Bearberry In Rocky Mountains
See Hawaiian Huckleberry Near Rim Of Kilauea Crater
See Cranberries, An Interesting Shrub Of Acid Bogs
Strawberry Tree: An Interesting Fruit From Europe

47. **Erythroxylaceae: Coca Family** **Back To Alphabet Table**

Erythroxylum coca Coca Shrub [Leaves source of the tropane alkaloid cocaine; not to be confused with the cocoa or cacao tree (**Threobroma cacao**) in the Sterculiaceae.]

Information About The Tropane Alkaloid Cocaine

48. **Euphorbiaceae: Euphorbia Family** **Back To Alphabet Table**

Croton tiglium Croton [Croton oil from seeds; it is one of the most powerful purgatives known.]

Aleurites moluccana Candlenut or Kukui Nut [Seeds rich in unsaturated oil; seeds polished and used for necklaces in Hawaii.]

A. fordii Tung Oil [Outstanding unsaturated oil that dries fast and leaves a glossy finish on wood.]

Sapium sebiferum Chinese Tallow Tree

S. biloculare Arizona Jumping Bean

Sebastiana pavoniana Mexican Jumping Bean

Euphorbia pulcherrima Poinsettia

Hippomane mancinella Manchineel Tree [Apple-like fruits poisoned Columbus' crew on his 2nd voyage to Caribbean in 1493.]

Hura crepitans Monkey Pistol or Sandbox Tree [Interesting tropical tree with exploding seed capsules.]

Cnidoscolus angustidens Mala Mujer [Painful plant with stinging trichomes similar to nettle but much worse!]

Euphorbia antisyphilitica Candelilla Wax [From stems.]

Hevea brasiliensis Para Rubber Tree [Most important source of natural rubber.]

Manihot glaziovii Ceara Rubber Tree [Lesser known New World source of rubber latex.]

M. esculenta Cassava [Tapioca from storage roots.]

Ricinus communis Castor Bean [Castor oil from seeds; seeds also contain the protein ricin which is more poisonous gram for gram than cyanide or rattlesnake venom; grows wild in the western U.S.]

See Article About Rubber & Chicle
See Article About Castor The Bean

See Article About Mexican Jumping Beans
See Mala Mujer: Plant With Stinging Trichomes
Manchineel Fruit That Poisoned Columbus' Crew
See The Cassava Plant: Important Root Crop
See Tung Oil Tree And Candlenut (Kukui Nuts)
See Photos Of Candelilla And Candelilla Wax

49. Fabaceae: Pea Family (Leguminosae) Back To Alphabet Table

Legumes containing water soluble gums and natural dyes:

Acacia senegal Gum Arabic [From trunk.]

Astragalus spp. (incl. **A. gummifer**) Gum Tragacanth [Spiny "locoweeds" of Near East and Asia Minor; especially Zagros Mountains of Western Iran; valuable white gum in stems.]

Astragalus membranaceus Astagalus Root or Huang Ch'i [A Chinese Herbal Remedy For Boosting The Immune System.]

Ceratonia siliqua Carob Tree [Pods ground into carob flour; also the source of locust bean gum.]

Indigofera tinctoria Indigo [Beautiful blue dye from leaves.]

Caesalpinia echinata Brazilwood [Red dye from heartwood; source of the histological stain brazilin; wood also used for violin bows; planted on campus; major factor in colonization of Brazil by Portuguese.]

Caesalpinia sappan Sappanwood [Important red dye from heartwood before aniline dyes.]

Haematoxylum campechianum Logwood [Valuable red heartwood dye during 1500s & 1600s; major factor in colonization of British Honduras by England which later became Belize; source of the histological stains hematoxylin and hematein.]

Pterocarpus santalinus Red Sandalwood [Blood Red Dye From The Wood.]

True gums, such as locust bean gum from the carob tree (**Ceratonia siliqua**), gum arabic from **Acacia senegal**, gum tragacanth from **Astragalus gummifera**, and algin from the giant bladder kelp (**Macrocystis pyrifera**), are complex polysaccharides (made of many sugar molecules joined together) and are used as emulsifiers and thickening agents.

See The Carob Tree: A Cauliflorous Species
See Photos Of Logwood Tree In Central America
See Photo Of Brazilwood And Its Bright Red Dye
Powdered Red Sandalwood: A Bright Red Dye
Photos And Information About Gum Tragacanth
Astragalus Root: Popular Chinese Herbal Remedy

Inga edulis Ice Cream Bean

Dipteryx odorata Tonka Bean [Seeds from the egg-shaped fruits of this tropical South American tree are used as a substitute for vanilla; the seeds contain the fragrant phenolic compound coumarin which is used in the perfume industry.]

Glycyrrhiza glabra Licorice [From roots.]

Pachyrhizus erosus Jicama [From large taproot.]

Tamarindus indicus Tamarind

Medicago sativa Alfalfa

Trifolium pratense and **T. repens** Red and White Clover

Melilotus albus, **M. indicus** and **M officinalis** White, Indian and Yellow Sweet Clover [Wet or moldy sweet clover contains the anticoagulant compound dicoumarin (a double phenolic ring); dicoumarin is used in rat poison; it is formed by the union of 2 single-ring coumarin molecules; coumarin is found in fresh clover & alfalfa and produces the aroma of new mown hay.]

See Tonka Beans: A Source Of Fragrant Coumarin
See The Legume Fruits Of The Tamarind Tree
See The Tropical American Ice Cream Bean

Many species in the legume family have edible seeds (beans) and pods. The following is only a partial list of the many species, some with dozens of cultivated varieties:

Phaseolus lunatus (**P. limensis**) Lima Bean

P. vulgaris Common Bean & Kidney Bean

P. coccineus Red Runner Bean

Faba vulgaris Fava Bean (Broad Bean)

Glycine max (**G. hispida**) Soybean

Lens culinaris (**Lens esculenta**) Lentil

Pisum sativum Pea

Vicia faba Broad Bean

Cajanus cajan Pigeon Pea [Common vegetable seen in Caribbean marketplace.]

Cicer arietinum Chick Pea (Garbanzo Bean)

Vigna unguiculata Black-Eyed Pea (Cowpea, Southern Pea)

V. angularis Chinese Red Bean (Azuki Bean)

V. umbellata Rice Bean (Red Bean)

V. radiata Mung Bean

Arachis hypogaea Peanut

See The Red Runner Bean Of Central America
An Assortment Of Nineteen Varieties Of Beans
See String Bean, Sugar Snap Pea & Snow Pea
Fresh Green Pods Of The Popular Fava Bean
Garbanza Bean (Chick Pea) And Mung Beans
A Subterranean Peanut Out Of The Ground
See More Photos Of The Peanut Plant

Note: There are many tropical leguminous genera with beautiful seeds used for necklaces and bracelets, including **Mucuna**, **Dioclea**, **Entada**, **Abrus**, **Rhynchosia**, **Erythrina**, **Adenanthera**, **Sophora** and **Ormosia**. One example of a decorative bean is the circassian seed (**Adenanthera pavonina**), a magical bean from India that is commonly used in seed necklaces. See the Wayne's Word article about seed jewelry for more information and photos.

See Article About Magical Beans From India
See Wayne's Word Article About Seed Jewelry

Copal Resins and Balsams [Balsams are highly aromatic oleoresins.]:

Copaifera demeussei South African Copaifera Balsam

C. reticulata& **C. officinalis** Central & South American Copaifera Balsams

Myroxylon balsamum Balsum-of-Peru [Used in medicines, soaps and perfumes; gathered in Central America (El Salvador) by "balsameros."]

Prioria copaifera Copaiba Balsam from Central America

Hymenaea courbaril West Indian Locust [Source of copal varnish & incense.]

Hymenaea verrucosum East African Copal

See Noteworthy Plants Article About Prioria copaifera
See WAYNE'S WORD Article About Resins and Amber

50. **Fagaceae: Beech Family** **Back To Alphabet Table**

Castanea dentata Chestnut

C. sativa European Chestnut

Fagus grandiflora Beech

Lithocarpus densiflora Tanbark Oak [Bark good source of tannin; tannins unite with certain proteins, such as those in animal skins, to form a strong, flexible, resistant, insoluble substance known as leather; i.e. tannins convert animal hides into leather.]

Quercus spp. Oak [Beautiful open-grain, ring porous hardwood.]

Quercus suber Cork Oak [Cork obtained from thick, outer bark; planted on Palomar College campus.]

See Chestnuts Inside Their Spiny Involucre
See The Mature Acorns Of The Cork Oak
See Article About Wood Products And Cork

Flacourtiaceae: Flacourtia Family Back To Alphabet Table

Dovyalis abyssinica Abyssinian Gooseberry

D. caffra Kei Apple or Umkokolo

D. hebecarpa Ceylon Gooseberry or Ketembilla [Note: The Florida gooseberry or tropical apricot is an artificial hybrid between **D. abyssinica** and **D. hebecarpa**.]

Flacourtia cataphracta Runealma Plum

F. indica Madagascar Plum or Ramontchi

F. inermis Martinique Plum or Lovi-Lovi

F. rukam Rukam or Indian Prune

Pangium edule Buah Keluak or Kepayang [Also known as the kepayang tree of Indonesia & Malaysia; oily, hard-shelled seeds superficially resemble Brazil nuts; meaty seeds are edible after poisonous hydrocyanic acid is removed by soaking and boiling them in water; fermented seeds (called kluwak nuts) become chocolate-brown, greasy and slippery; cooked seeds are used in a number of Malaysian and Indonesian dishes.]

See Photo Of Peeled & Packaged Kluwak Nuts

51. Gelidiaceae & Gracilariaceae: Agar Families Back To Alphabet Table

Note: These are two families of red algae in the Division Rhodophyta:

Gelidium cartilagineum (and other species) Gelidium [An intertidal red alga used for agar.]

Gracilaria spp. Gracilaria [Another intertidal red alga used for agar.]

Alginates, carrageenans and agars are hydrophilic (water-loving) polysaccharides closely related to gums. Like gums, they absorb water and are used as thickening agents, emulsifiers and to prevent the formation of ice crystals in frozen deserts. They are also referred to as phycocolloids because they all come from algae (phyco) and they form jelly-like, colloidal suspensions in water. Agar is a phycocolloid obtained from several genera of red algae, including **Gelidium** and **Gracilaria**. Chemically, agar is similar to carrageenan, except that it has the superior quality of forming stiff gels in smaller concentrations. Agar gels have a superior capacity for changing into a liquid when heated, and then readily cooling back into a gel. They are unsurpassed for nutrient media used for tissue culture and in bacteriology (microbiology).

See Photo Of Gelidium pulcrum

52. Gigartinaceae: Gigartina Family Back To Alphabet Table

Note: This is a family of red algae in the Division Rhodophyta:

Chondrus crispus Irish Moss [An intertidal red alga species used for carrageenan.]

Alginates, carrageenans and agars are hydrophilic (water-loving) polysaccharides closely related to gums. Like gums, they absorb water and are used as thickening agents, emulsifiers and to prevent the formation of ice crystals in frozen deserts. They are also referred to as phycocolloids because they all come from algae (phyco) and they form jelly-like, colloidal suspensions in water. Carrageenans are extracted from a red alga called Irish moss (**Chondrus crispus**). Agar is another phycocolloid obtained from several red algae genera, including **Gelidium** and **Gracilaria**. Chemically, agar is similar to carrageenan, except that it has the superior quality of forming stiff gels in smaller concentrations.

See Photo Of Irish Moss (Chondrus crispus)

Gramineae: Grass Family See Poaceae

Grossulariaceae: Gooseberry Family See Saxifragaceae

53. **Guttiferae (Clusiaceae): Garcinia Family** **Back To Alphabet Table**

Mammea americana Mammee Apple

Clusia rosea Pitch Apple [Interesting strangler tree resembling a strangler fig.]

Garcinia mangostana Mangosteen [Considered the "queen of tropical fruits."]

Garcinia dulcis [Fruit similar to mangosteen, except the fleshy fruit has a yellow interior.]

Garcinia hanburyi & **G. morella** [A yellow dye called gamboge is obtained from the resin.]

See A Mammee Apple From Island Of St. John
See The Mangosteen: Queen Of Tropical Fruits
A Tasty Mangosteen Relative: Garcinia dulcis
See Clusia Rosea: A Strangler That Is Not A Fig

54. **Hamamelidaceae: Witch Hazel Family** **Back To Alphabet Table**

Hamamelis virginiana Witch Hazel [Witch hazel oil, outstanding treatment for hemorrhoids.]

Liquidambar styraciflua Sweet Gum

See Foliage & Seed Capsules Of Witch Hazel

Hydrophyllaceae: Waterleaf Family **Back To Alphabet Table**

Eriodictyon californicum Yerba Santa [An important medicinal herb used by native Americans and early settlers in California; leaves made into a tea and poultice to relieve colds, bronchitis, rheumatism and muscular aches & pains.]

See Yerba Santa In San Diego County

55. **Hypericaceae: St. John's-Wort Family** Back To Alphabet Table

Hypericum perforatum St. John's-wort [Flowers used as herb to treat symtoms of mild depression and mood swings; a European wildflower that is naturalized throughout North America; there are also native species of **Hypericum**in North America, including two species in San Diego County, California.]

St. John's-Wort: An Herb To Treat Depression

Illiciaceae: Star Anise Family Back To Alphabet Table

Illicium verum Star Anise [A tree native to southeast Asia and grown commercially in China for its aromatic seeds and fruits; licorice flavor used in Asian cuisine and in medicines; primary ingredient of Tamiflu used to treat the dreaded avian flu of humans .]

See The Unusual Fruits Of Star Anise

56. **Iridaceae: Iris Family** Back To Alphabet Table

Crocus sativus Saffron. [Yellowish-orange dye from elongate stigmas and tips of styles; saffron contains the glycoside crocin (derived from the diterpene crocetin); 4,000 stigmas yields one ounce of dye.]

See Saffron: Ground Up Autumn Crocus Stigmas

57. **Juglandaceae: Walnut Family** Back To Alphabet Table

Juglans cinerea Butternut

J. nigra Black Walnut

J. regia English Walnut

Carya illinoensis Pecan

C. ovata Shagbark Hickory

Note: The "hican" is a hybrid resulting from a cross between the pecan (**Carya illinoensis**) and the shagbark hickory (**C. ovata**).

Go To Nut Photos And See Pecans In Their Husks
See The Black Walnut And A Related Tiny Walnut

58. **Krameriaceae: Krameria Family** Back To Alphabet Table

Krameria grayiand **K. parvifolia**Krameria [Intricately branched, thorny shrubs of the Colorado Desert of southwestern U.S. and Mexico; partially parasitic on roots of adjacent shrubs; spiny fruits are a tenacious hitchhiker.]

See Tenacious Hitchhikers Of The Colorado Desert

Labiatae: Mint Family See Lamiaceae

59. **Lactobacillaceae: Lactobacillus Family** Back To Alphabet Table
[Also The Streptococcaceae, Propionibacteriaceae & Acetobacteraceae.]

Lactobacillus acidophilus Acidophilus Milk Bacteria [This bacteria converts lactose (milk sugar) into lactic acid, thus making it more digestible to lactose intolerant people.]

L. bulgaricus Yogurt Bacteria [A bacteria used in most yogurt and some cheese cultures; **L. delbrueckii** is also listed for yogurt.]

L. casei Cheese Bacteria [Promote the formation of cheese due to their action on milk protein (casein).]

L. plantarum Pickle Bacteria. [A lactic acid bacteria used in vegetable fermentations to produce pickles and fermented cabbage called sauerkraut.]

Streptococcus thermophilus in the Streptococcaceae is another yogurt-forming bacteria. **Streptococcus** species are also used in the production of sour cream, butter, buttermilk and cheese. The propionic acid which produces the odor and flavor of Swiss cheese comes from **Propionibacterium freudenreichii** ssp. **shermanii** of the Propionibacteriaceae. The unique flavor and odor of limburger cheese is produced by **Brevibacterium linens** of the Brevibacteriaceae. And the acetic acid of vinegar is produced by vinegar bacteria (**Acetobacter aceti**) of the Acetobacteraceae.

60. **Lamiaceae: Mint Family (Labiatae)** Back To Alphabet Table

Lavandula officinalis(**L. angustifolia**ssp. **angustifolia**) Lavender

Marrubium vulgare Horehound [Common in local hills near Palomar College.]

Melissa officinalis Balm or Lemon Balm [Leaves used as a flavoring for salads, soups and tea.]

Mentha piperita Peppermint

M. spicata Spearmint [Wild along San Luis Rey River Of San Diego County.]

Monarda didyma Bee Balm or Bergamot [Dried leaves and flowers used to make an aromatic tea; other species also used, including **M. citriodora** (lemon bee balm or lemon bergamot) and **M. austromontana** (Mexican bergamot); Note: The bergamot used in Earl Gray tea comes from **Citrus bergamia** (Rutaceae).]

Nepeta cataria Catnip

Origanum vulgare Oregano

O. majorana Marjoram

Rosmarinus officinalis Rosemary [Planted on campus.]

Salvia officinalis Sage [Also **S. clevelandii** in San Diego County.]

S. columbariae Chia [Common in local hills.]

Thymus vulgaris Thyme

Ocimum basilicum Basil

Satureja hortensis Savory

Mesona chinensis Jellywort [Plants are boiled in water and then cooled to make a gelatinous material called grass jelly, a refreshing beverage consumed in China.]

See The Delicious Cooking Herb Called Rosemary
See Photographs Of Sages (Salvia) In California
Lavender: Source Of Lavender Oil For Perfumes
Catnip: An Interesting Herb That Drives Cats Crazy
Lemon Balm: A Fragrant Herb Used As A Flavoring
Basil: A Fragrant Herb That Enhances Tomatoes
Horehound: An Herb Used To Make A Unique Candy
See Grass Jelly From Jellywort (Mesona chinensis)

61. Laminariaceae & Lessoniaceae: Kelp Families Back To Alphabet Table

Note: These are two families of brown algae in the Division Phaeophyta:

Macrocystis pyrifera Giant Kelp [A large kelp or seaweed growing in the kelp beds just beyond the surf zone along the coast of southern California; the large stipes and blades of this species are harvested by kelp cutters and are an important source of algin.]

Laminaria spp. Kelp. [Another species of brown alga that commonly grows in the intertidal zone. This species is harvested for food and algin.]

Alginates, carrageenans and agars are hydrophilic (water-loving) polysaccharides closely related to gums. Like gums, they absorb water and are used as thickening agents, emulsifiers and to prevent the formation of ice crystals in frozen deserts. They are also referred to as phycocolloids because they all come from algae (phyco) and they form jelly-like, colloidal suspensions in water. Alginates (also called algin) are obtained from species of **Laminaria** and another macroscopic brown algae called giant bladder kelp (**Macrocystis pyrifera**) that grows along the coast of southern California. In some fast food restaurants, shakes without the word "milk" were thickened with algin. For this reason they were called shakes rather than milk shakes. Carrageenans are extracted from a red alga called Irish moss (**Chondrus crispus**), and agar is another phycocolloid obtained from several red algae genera, including **Gelidium** and **Gracilaria**. Note: some species of brown algae kelp or seaweed are cooked and used for soups in Japan.

Pelagophycus: A Giant Kelp Off The Coast Of San Diego
See Giant Bladder Kelp: The Primary Source Of Algin
See Dried Kelp (Laminaria) Used For Food In Japan

62. Lauraceae: Laurel Family Back To Alphabet Table

Cinnamomum camphora Camphor Tree [Camphor oil from wood, twigs & leaves.]

C. zeylanicum Cinnamon [From bark.]

Laurus nobilis Sweet Bay

Persea americana Avocado or Alligator Pear

Sassafras albidum Sassafras [Spicy root bark used in teas, medicines and carbonated beverages, including some recipes for root beer; one of the primary flavorings of old-fashioned root beer is sarsaparilla from the roots of **Smilax officinalis**, a member of the lily family; like many other beverages sold today, most of the popular root beers contain synthetic flavorings.]

Umbellularia californica California Bay Tree or Oregon Myrtle

See Leaves & Fruit Of California Bay Tree
See The Trunk Of A large Cinnamon Tree
Branches & Products From Camphor Tree
See The Autumn Foliage Of Sassafras Tree
See Delicious Fruits Of The Avocado Tree

Lecanoraceae & Umbilicariaceae: Edible Rock Lichens Back To Alphabet Table

Lecanora esculenta Schirsad [Also thought to be the Biblical "mana" by some scholars.]

Umbilicaria phaea Rock Tripe [Several species from the northern latitudes are eaten.]

Rock lichens have played an important role in the survival of native people and explorers. In addition to providing food for their animals, Indians, Eskimos and Laplanders eat certain lichens. Leafy lichens called rock tripes (**Umbilicaria**) are eaten raw and are boiled into a thick, mucilaginous soup. Rock tripes are also added to salads or deep fried, and are considered a delicacy in Japan. Throughout history, peasants of Persia have avoided mass starvation by eating the abundant crustose rock lichen **Lecanora esculenta**. This lichen readily becomes detached in small patches and is blown off the rocks by wind, often accumulating in crevices and under shrubs. It is mixed with meal and made into a kind of bread called "schirsad" in Turkey and northern Iran. In fact, some biblical scholars think this lichen may have been the "manna" which saved the starving Israelites during their exodus from Egypt.

Rock Tripes Growing On Granite Boulder
Crustose Rock Lichens & Desert Varnish

63. Lecythidaceae: Lecythis Family Back To Alphabet Table

Bertholletia excelsa Brazil Nut [A giant tree of the Amazon rain forest in South America; the hard brown seeds are produced in large, thick-walled capsules weighing up to 5 pounds; seeds contain 65% to 70% unsaturated fat and literally burn like a candle.]

Lecythis ollaria Paradise Nut [Another giant rain forest tree with seeds produced in a thick, woody, potlike capsule.]

Couroupita guianensis Cannonball Tree [Large, fragrant, bat-pollinated blossoms develop on woody stalks that push out of the main trunk; the flowers give rise to cannonball-like fruits up to 8 inches in diameter that remain attached to the tangled flower stalks.]

See Photos Of Brazil Nuts & Their Pod
See Photo Of The Amazing Paradise Nut
See Photo Of Remarkable Cannonball Tree

Leguminosae: Pea Family See Fabaceae

64. Lemnaceae: Duckweed Family Back To Alphabet Table

Lemnaspp. Duckweed [Used for waste water treatment; also food for livestock and fish (aquaculture); important organisms in freshwater ecosystems.]

Wolffia spp. Watermeal [Potential high protein food source for people; does not contain calcium oxalate crystals as in **Lemna**; **W. globosa** is khai-nam (water-eggs) of Thailand, eaten by people as high protein supplement to their diet.]

See Mr. Wolffia's On-Line Lemnaceae Home Page

Lichen Dyes and Perfumes See Roccellaceae

65. **Liliaceae: Lily Family** **Back To Alphabet Table**

Aloe vera(**A. barbadensis**) Aloe [Gelatinous glycoside called aloin from succulent leaves used in soothing lotions, hemorrhoidal salves and shampoos.]

Asparagus officinalis Asparagus [Delicious, edible sprouting stems; contain amino acid asparagine with causes significant odor in urine; genus also includes the asparagus "ferns" used in landscaping.]

Chlorogalum pomeridianum Soap Plant [In local hills.]

Colchicum autumnale Autumn Crocus [Alkaloid colchicine from the bulblike corms.]

Smilax officinalis and other tropical American species. Sarsaparilla. [Flavoring from dried roots widely used in carbonated beverages and medicines; along with wintergreen (and sometimes ginger) this was the primary flavoring used in the original recipes for old-fashioned root beer; like many other beverages sold today, most of the popular root beers contain synthetic flavorings; several species of this trailing perennial herb are native throughout North America.]

See Noteworthy Plants Article About Soap Lilies
See Garden Asparagus Plants Growing On Maui
See Autumn Crocus: The Source Of Colchicine
See An African Species Of Aloe (A. kedongensis)

66. **Linaceae: Flax Family** **Back To Alphabet Table**

Linum usitatissimum Flax [Valuable stem fibers (bast fibers) used for linen; also source of linseed oil from seeds.]

See Article About Plant Textile Fibers

67. **Loganiaceae: Logania Family** **Back To Alphabet Table**

Buddleia davidii Butterfly Bush [Species of **Buddleia**are commonly grown as ornamentals for their showy clusters of blue and purple flowers; the fragrant flowers attract a variety of colorful adult butterflies.]

Fagraea berteroana [Native tree in Australia and Pacific Islands; Fragrant flowers used in perfumes and leis.]

Strychnos nux-vomica Strychnine Tree [Alkaloid strychnine from seeds.]

S. toxifera [One of the species containing a form of the alkaloid curarine which is used as an arrow poison.]

Note: Curare also obtained from bark and stems of **Chondrodendron tomentosum** (Menispermaceae). This is the source of curare for the Botany 115 Plant Family Exam #4.

See Article About The Beautiful Butterfy Bush
See Leaves and Fruit of Fagraea berteroana

68. **Malpighiaceae: Malpighigia Family** **Back To Alphabet Table**

Malpighia glabra Barbados Cherry [Bright red, cherry-like fruits often seen at Caribbean marketplace.]

69. **Malvaceae: Mallow Family** **Back To Alphabet Table**

Gossypiumspp. Cotton [Epidermal hairs on seeds; different varieties have different lengths of hairs or staple; fruit called a boll; also cottonseed oil; although called a fiber, cotton is not derived from fiber cells; the two primary old world species are the diploids **G. arboreum**and **G. herbaceum**while the main domesticated New World species are the tetraploids **G. barbadense**and **G. hirsutum**.]

Hibiscus cannabinus Kenaf or Gambo Hemp [Yields stem fibers 5 to 10 ft. long.]

H. tiliaceus Beach Hibiscus [Useful source of bast fibers for cordage.]

H. esculentus (**Abelmoschus esculentus**) Okra [This vegetable is actually a fruit.]

H. sabdariffa Sorrel and Roselle [Reddish capsules harvested at Christmas time in Dominica for a popular drink; roselle fibers similar to kenaf.]

Thespesia populnea Milo or Beach Hibiscus [Beautiful dark wood used for carvings and bowls.]

See A Cotton Boll--Source Of Cotton Fibers
See Beach Hibiscus Used For Its Bast Fibers
See A Sorrel Plant In Full Bloom
See Sorrel At Marketplace In Dominica
See Milo: A Beautiful Polynesian Hardwood
See Okra: A Vegetable That Is Also A Fruit

70. **Marantiaceae: Arrowroot Family** **Back To Alphabet Table**

Maranta arundinacea West Indian Arrowroot [Starchy rhizomes used for food.]

Powdered Caribbean Arrowroot (Maranta arundinacea)
See Article About Another Arrowroot (Canna edulis)

71. **Martyniaceae: Martynia Family** **Back To Alphabet Table**

Proboscidea parvifloraand other spp. Devil's Claws [Seed capsules used for food and in North American Indian basketry.]

See WAYNE'S WORD Article About Devil's Claws

72. **Meliaceae: Mahogany Family** **Back To Alphabet Table**

Swietenia macrophylla Honduras Mahogany

S. mahogani West Indian Mahogany [Found in Florida Keys.]

Sandoricum koetjape Santol or Kechapi [Malaysian tree with yellowish or reddish-brown, juicy fruits that smell like ripe peaches.]

See Photo Of The Seldom-Seen Fruit Of Sandoricum koetjape

73. **Menispermaceae: Moonseed Family** **Back To Alphabet Table**

Chondodendron tomentosum Curare [A deadly extract from the bark and stems of this Amazonian vine is used to coat the darts of blowguns.]

Note: Extracts from species of **Strychnos**, including **S. toxifera** of the logania family (Loganiaceae), are also used for curare. Another potent alkaloid used to coat the darts of South American blowguns comes from the skin of poison dart frogs of the family Dendrobatidae.

See The Amazonian Curare Vine
See Colorful Poison Dart Frogs

74. **Moraceae: Mulberry Family** **Back To Alphabet Table**

Artocarpus altilis(**A. communis**) Breadfruit

A. heterophyllus Jackfruit

Castilla elastica Panama Rubber

Ficus carica Edible Fig [Hundreds of cultivated varieties, some requiring a pollinator wasp (incl. 'Smyrna' & 'Calimyrna') and some which are parthenocarpic, incl 'Mission' and 'Kadota'.]

Ficus pumila Creeping Fig [Juice from the syconia is cooked and then cooled to make a gelatinous material called grass jelly, a refreshing beverage consumed in China.]

F. elastica India Rubber Tree

F. religiosa [One of the trees inhabited by lac insect that produces shellac.]

Broussonetia papyrifera Paper Mulberry [In Palomar College Arboretum; the bark is also used for tapa cloth.]

Brosimum utile & **B. alicastrum** Milk Tree or Palo de Vaca [In Costa Rica, the milky sap is used by locals as a substitute for cream in their coffee.]

Maclura pomifera Osage Orange [Hardest of all native hardwoods of eastern U.S.]

Morus spp. Mulberry [Some with edible fruits including the black mulberry (**M. nigra**); **M. alba** primary food for silkworm.]

Native to the Indo-Malaysian region, the jackfruit (**Artocarpus heterophyllus**) is grown throughout the tropics for its pulpy, edible fruits which may reach nearly 3 feet (1 m) in length and weigh up to 75 pounds (34 kg). Jackfruit and its close relative, breadfruit (**A. altilis**), belong to the diverse Mulberry Family (Moraceae). You have probably heard of the story of Captain Bligh, who tried to bring a load of breadfruit cuttings from Tahiti to the Caribbean in 1789 aboard the H.M.S. Bounty. Enchanted with the Tahitian way of life, his crew mutinied on the voyage.

See Photo Of An Amazing Breadfruit Tree In Tahiti
See Photo Of An Amazing Jackfruit Tree In Hawaii
See Comparison Photo Of A Breadfruit And A Jackfruit
See Photo Of The Remarkable Fruit Of Osage Orange
See Photograph Of The Very Delicious Black Mulberry
Flowers & Multiple Fruit Of The Pakistan Mulberry
Silk From A Caterpillar That Eats Mulberry Leaves
Photograph Of The Milk Tree (Brosimum) In Costa Rica
The Creeping Fig--One Of The Sources Of Grass Jelly
Read About Delicious, Wasp-Pollinated Calimyrna Figs
Photo Of Seed Lac: Resinous Excretion Of Lac Insect

Moringaceae: Moringa Family Back To Alphabet Table

Moringa oleifera(**M. pterygosperma)**Horseradish Tree [This tree is called "malungay" in Asian countries; a small, soft-wooded tree native to India but widely cultivated throughout the tropics; the long beanlike pods are used in soups and curries, and are made into pickles; the young, tender, mustard-favored leaves are eaten raw in salads, cooked as potherbs and placed in soups and curries; even the oily seeds are roasted or fried and apparently taste like peanuts; the pungent root is used as a substitute for the true horseradish of the mustard family or Brassicaceae.]

See Two Trees Related To The Horseradish Tree

75. Musaceae: Banana Family Back To Alphabet Table

Musa x paradisiaca(**M. sapientum**) Common Banana [A triploid, seedless hybrid between **M. acuminata**and **M. balbisiana**.]

M. acuminata Plantain

M. textilis Manila hemp or Abaca [Important leaf fiber; source of manilla rope.]

Genetics Of Triploid Seedless Banana
See Article About Plant Textile Fibers
See Photo Of The Manila Hemp Plant

76. Myristicaceae: Nutmeg Family Back To Alphabet Table

Myristica fragrans Nutmeg [Large seed is the nutmeg of commerce; reddish outer layer called aril is the source of the spice known as mace.]

See Nutmeg Fruit: The Source Of Two Spices

77. Myrtaceae: Myrtle Family Back To Alphabet Table

Eucalyptus camaldulensis Red Gum [Source of gum kino, a phenolic compound.]

E. globulus Blue Gum [Oil of eucalyptus (eucalyptol) from leaves.]

Pimenta dioica Allspice or Pimento [From dried unripe fruits.]

Pimenta racemosa Bay Rum Tree [Essential oil from leaves used in cologne.]

Psidium guajava Guava [Fruit rich in vitamins A, B, and C.]

P. cattleianum Strawberry Guava [Planted on campus.]

Feijoa sellowiana Pineapple Guava [Planted on Campus.]

Syzygium (**Eugenia**) **aromaticum** Clove [From unopened flower buds.]

Syzygium (**Eugenia**) **malaccensis** Mountain or Malay Apple

Syzygium (**Eugenia**) **jambos** Malayan Rose Apple

Syzygium (**Eugenia**) **paniculatum** Australian Brush Cherry

Eugenia uniflora Surinam Cherry

Myrciaria cauliflora Jaboticaba [Cauliflorous tree from Brazil with purple, grapelike berries that develop from the trunk and limbs.]

Leptospermum scoparium New Zealand Tea Plant [Leaves brewed into a tea to provide vitamin C for Captain Cook's crew.]

See Unusual Cauliflorous Berries Of Jaboticaba Tree
See Tropical Allspice Berries And Bay Rum Tree
See Cloves: Flower Buds From The Spice Islands
See Guava, Strawberry Guava & Pineapple Guava Fruits
See The Fruit And Flower Of Rose Apple Or Malabar Plum
See The Fruit Of The Mountain Apple Or Malay Apple
See The Fruit Of The South American Surinam Cherry
See The Colorful, Insipid Fruits Of Australian Brush Cherry
See New Zealand Tea Plant Used By Captain Cook's Crew

The name "gum" can be traced back to the voyage of Captain James Cook to the South Pacific in 1770. Captain Cook discovered the east coast of Australia, called New Holland at that time. In one harbor, the ship's naturalists found so many unusual and beautiful plants that they named it Botany Bay. Eight years later, a fleet of eleven English ships reached Botany Bay with 1,530 people, 736 of them convicts. This marked the establishment of England's most important prison camp of the nineteenth century, and the European settlement of a vast land called Australia. The actual discovery of the genus **Eucalyptus** is credited to the ship's botanist, Joseph Banks (later Sir Joseph Banks). One of the newly discovered species "red bloodwood" (**E. gummifera**) had a reddish gum exuding from its trunk, and the naturalists called it a "gum tree."

Other species of eucalyptus with persistent bark fall into five additional groups, called ironbarks (bark hard and deeply fissured), peppermint barks (bark finely fibrous), stringy barks (bark long and fibrous), boxes (bark rough and

fibrous), and bloodwoods (bark rough, cracked and scaly on trunk and large limbs). Another group of large trees, called ashes, have rough bark on the trunk but smoother bark on the branches. In fact, the mountain ash (**Eucalyptus regnans**) rivals the California redwoods as the world's tallest trees. With about 500 described species dominating more than 80 percent of Australia's forests, it is convenient to categorize them within different groups based upon their bark type. In fact, one of the most striking species with thick, deeply furrowed, persistent black bark is the red ironbark (**E. sideroxylon**), commonly planted at Palomar College. In addition to tree forms, there are numerous drought resistant, shrubby eucalyptus called mallees. Some of these resprout from subterranean lignotubers like many of our chaparral shrubs. One of these (**Eucalyptus macrocarpa**) produces spectacular red blossoms and the largest seed capsules of any eucalyptus. Some mallees of parched desert regions store water in their roots, a fact well-known to Australian aborigines.

See Spectacular Eucalyptus Macrocarpa in Full Bloom
See The Fire-Adapted Lignotuber of a Chaparral Shrub
See Photos Of Eucalyptus In Article About Hardwoods

Chemically the eucalyptus "gums" are rich in tannins (kinotannic acid) and are similar to another phenolic compound called catechu. They are known in the trade as kinos or gum kinos and are used as tannins to convert animal hide into leather. One of the main Australian sources of kino is the common red gum (**Eucalyptus camaldulensis**), naturalized throughout San Diego County. Kino gums are also used medicinally as astringents to relieve throat irritation, dysentery and diarrhoea. True polysaccharide gums, such as locust bean gum from the carob tree (**Ceratonia siliqua**), and chicle, a terpene gum from the latex sap of the sapodilla tree (**Achras zapota**), are chemically quite different. They all probably serve to seal off wounds and prevent bacterial and fungal infections.

Oil of eucalyptus (eucalyptol) is a volatile terpene compound (called an essential oil) which is distilled from the leaves of several species. It is used for flavorings, dentifrices, cough drops, and for the synthesis of menthol. The lemony fragrance from the leaves of lemon-scented gum (**E. citriodora**) is due to another volatile terpene called citronellal. One of the reasons that few plants will grow well beneath naturalized gum forests in southern California is that volatile terpenes from fallen leaves are leached into the soil, thereby inhibiting seed germination and growth of competing species.

The wood of different species of eucalyptus varies considerably, from wood as soft as pines to very hard, close-grained wood as dense as oak and hickory. Eucalypts constitute most of the forest vegetation of Australia and are one of the most important hardwood timber resources in the world. There are a number of species that provide excellent lumber for furniture, wood-carving and construction, including karri (**E. diversicolor**), spotted gum (**E. maculata**), blackbutt (**E. pilularis**), and jarrah (**E. marginata**). In fact, jarrah is stronger and more durable than oak and resistant to termites and marine borers.

During the late 1800s and early 1900s several species of gums (including **E. camaldulensis** and **E. globulus**) were extensively planted in California for lumber, firewood, windbreaks and railroad ties. Although the species selected for extensive plantings grew into forests very rapidly, the wood proved very undesirable for lumber and railroad ties because of extensive splitting during the drying process. Today, these extensive forests have forever changed the character of coastal southern and central California.

Nelumbonaceae: Water Lotus Family Back To Alphabet Table

Nelumbo nucifera Asian Water Lotus [The seeds are eaten raw and roasted; the thick, starchy rhizomes are boiled, stir-fried and pickled.]

See Flowers, Receptacle & Seeds Of Water Lotus

Nostocaceae: Nostoc Family (Kingdom Monera) Back To Alphabet Table

Nostoc commune Star Jelly [A freshwater cyanobacterium that is eaten raw, dried, stir-fried and in soups. It is sold dried in Asian markets.]

Nostoc flagelliforme Fat Choy or Fa Cai [A filamentous, terestrial cyanobacterium of northern and northwestern China; the Cantonese and Mandarin names mean "hair vegetable" because the hair-like strands resemble black hair when dry.]

More Information About Fat Choy
See Nostoc Balls In A Vernal Pool

78. **Nyctaginaceae: Four O-Clock Family** **Back To Alphabet Table**

Bougainvillea glabra Bougainvillea

Mirabilis laevis Wild Four O'Clock

79. **Oleaceae: Olive Family** **Back To Alphabet Table**

Fraxinusspp. Ash [Beautiful light open-grain wood.]

Jasminum officinale Jasmine [From flowers, used for perfume & teas.]

Olea europaea Olive [Native to the Mediterranean region; fresh olives (drupes) are extremely bitter due to oleuropein, a phenolic glucoside; olives soaked in lye (sodium hydroxide) to remove the bitter oleuropein; olives picked green are oxidized in air to produce black color; green olives kept submerged will retain green color; pitted green olives often stuffed with pimento, a bright red **Capsicum** cultivar; unlike most unsaturated plant oils which come from seeds, monounsaturated olive oil is obtained from the pulp or mesocarp of the fruit; virgin olive oil is obtained from the 1st pressing.]

Syringa vulgaris Lilac [Not the same as California lilac or **Ceanothus**.]

Read About Monounsaturated Olive Oil
See Canned & Mature Olives On Branch

80. **Orchidaceae: Orchid Family** **Back To Alphabet Table**

Vanilla planifolia(**V. fragrans**) Vanilla [From fermented and dried seed capsules called vanilla beans.]

V. pompona West Indian Vanilla

Note: Imitation vanilla flavorings sold in markets are synthetic vanillin containing artificial food coloring & preservatives; vanillin is a phenolic compound derived from lignin.

Photos & Information About The Vanilla Orchid

Oscillatoriaceae: Oscillatoria Family (Kingdom Monera) **Back To Alphabet Table**

Spirulina platensis Spirulina [A cyanobacterium found in alkaline and saline water; it is dried into a powder and sold as a nutritious, high protein food supplement.]

81. **Oxalidaceae: Oxalis Family** **Back To Alphabet Table**

Averrhoa carambola Carambola [An elongate, angular fruit composed of 5 carpels with a star-shaped cross section; the tartness is due to calcium oxalate crystals in the flesh which dissolve in the saliva forming oxalic acid.]

Averrhoa bilimbi Cucumber Tree [An interesting Malayan tree with edible cauliflorous fruits.]

Oxalis albicans ssp. **californica**, **O. corniculata** ssp. **corniculata**, and **O. cernua** Oxalis or Sour Grass [Native and naturalized species on the Palomar College campus.]

See Photo Of The Amazing Carambola Fruit
See Photo Of The Cauliflorous Cucumber Tree

Palmaceae: Palm Family **See Arecaceae**

Palmae: Palm Family **See Arecaceae**

82. **Pandanaceae: Pandanus Family** **Back To Alphabet Table**

Pandanus tectorius Pandanus [Polynesian plant resembling a palm with prop roots; leaves used for baskets, floor coverings, mats and thatching for houses; woody, seed-bearing sections (containing edible seeds) used for necklaces and leis.]

See Photos Of Remarkable Pandanus Plant

83. **Papaveraceae: Poppy Family** **Back To Alphabet Table**

Papaver somniferum Opium Poppy [Source of isoquinoline alkaloids codeine, morphine, &diacetylmorphine (heroin); also poppy seeds.]

See Opium Poppy: Source Of Narcotics & Poppy Seeds

84. **Passifloraceae: Passionflower Family** **Back To Alphabet Table**

Passiflora edulis, **ligularis**, &**quadrangularis**[Granadilla or passion fruit used in Hawaiian Punch; passion fruit vines planted on campus.]

See The Fruit And Blossom Of Passionflower

Phallaceae: Stinkhorn Fungus Family **Back To Alphabet Table**

Dictyophora indusiata Basket Stinkhorn or Bamboo Mushroom [A tropical stinkhorn fungus with a lacy, netlike veil that hangs down from the phalluslike head; dried stinkhorns are packaged and sold in Asian markets; they are cooked in water and eaten in vegetarian dishes.]

See Photos Of The Stinkhorn Fungus
See Photo Of The Basket Stinkhorn

85. **Phytolaccaceae: Pokeweed Family** **Back To Alphabet Table**

Phytolacca americana Pokeweed or Poke Salet [Native American weed or potherb; the young leaves are cooked and eaten like spinach.]

See Pokeweed And Closely Related Ombu Tree

86. Pinaceae: Pine Family Back To Alphabet Table

[An extremely important family for lumber and wood distillation products.]

Abies balsamea Canada Balsam [Oleoresin from bark used as a mounting medium for microscope work.]

Other species of **Abies** Fir [Used for boxes, crates, and Christmas trees.]

Picea spp. Spruce. [Wood used for pulpwood, boxes, etc. Because it is resonant it is much used for sounding boards of pianos and the bodies of violins and similar instruments; Sitka spruce (**Picea sitchensis**) is used for boats, oars, and other products; spruce gum comes from the sapwood of red spruce (**P. rubens**); very beautiful conifers.]

Pinus spp. Pines. [Economically important lumber trees.]

Pines are very important lumber trees, e.g. eastern white pine (**P. strobus**), lodgepole pine (**P. contorta**), and ponderosa pine (**P. ponderosa**); raw turpentines are oleoresins (liquid resins containing essential oils) exuded as pitch; "spirits" of turpentine from distilled pitch; rosin is left after the volatile "spirits of turpentine" are removed; most raw turpentine from longleaf pine (**P. palustris**), loblolly pine (**P. taeda**) and slash pine (**P. elliottii**); slash pine also used in pulpwood industry for making paper; European sources of turpentines include cluster pine (**P. pinaster**) and Scotch pine (**P. sylvestris**).

Pseudotsuga menziesii Douglas Fir [Most important timber tree in U.S.; common type of wood (plywood and 2 X 4's) sold at lumber yards.]

Tsuga spp. Hemlock (e.g. **T. canadensis**) [Also used for lumber, etc; bark is chief domestic source of tannin in U.S.]

Larix spp. Larch [Wood used for building construction, fences, etc.]

Other wood distillation products from pine family (mostly pines) is wood alcohol (methanol); however, hardwood angiosperms are the main source.

Also pine nuts from the following species of Pinyon Pines: **P. monophylla**, **P. edulis**, and **P. quadrifolia**.

Other native California pines: **P. sabiniana** (digger pine), **P. coulteri** (Coulter pine), **P. torreyana** (Torrey pine).

Pignolia Nuts from Italian Stone Pine (**P. pinea**) also planted on Palomar College campus.

See Article About Wood & Wood Products
See Images Of Spruce & Uses By Native People
See Images Of Larch (Larix), A Deciduous Conifer
Photos Of Resins & Incenses From Plants

87. Piperaceae: Pepper Family Back To Alphabet Table

Piper nigrum Black Pepper [The dried, black, seed-bearing berries are the source of "fresh ground pepper."]

Piper methysticum Kava Kava [Drink made from roots used in Polynesian religious and social life; a popular herb sold throughout the world as a mild sedative and tranquilizer.]

See Photo Of Fresh And Dried Black Peppers.
See Photo Of The Amazing Kava Kava Plant.

Plantaginaceae: Plantain Family Back To Alphabet Table

Plantago spp. Plantain or Psyllium [The thickening and swelling of soluble fiber extracts such as **Metamucil**® and **Hydrocil**® involves imbibition. These plant products contain a mucilaginous gum derived from the husks of psyllium seeds (**Plantago psyllium**and **P. ovata**). Psyllium powder readily absorbs water and forms a smooth bulky mass that moves through the intestinal tract. Insoluble fiber comes from the indigestible cellulose cell walls of fruits and vegetables. Both types of fiber are beneficial in maintaining a healthy colon, particularly in older adults with diverticulosis.]

See Close-up Photo Of Fresh Plantain Seeds

88. Poaceae: Grass Family (Gramineae) Back To Alphabet Table

This Is A Very Important Family For People And Herbivorous Animals!

1. Food for people and livestock: Rice (**Oryza sativa**), wheat (**Triticum aestivum**), rye (**Secale cereale**), oats (**Avena sativa**), barley (**Hordeum vulgare**), corn or maize (**Zea mays**), teosinte (**Zea mexicana**) the ancestor of corn (madre de maíz); sorghum (**Sorghum bicolor**), and many other species; also bamboo shoots used in Chinese and Cantonese foods.

Rye (**Secale cereale**) is a diploid plant (2n) composed of 2 sets of chromosomes (DD), each set with 7 chromosomes (D=7). [Note: The word "set" is defined here as one haploid set of chromosomes.] Therefore, the diploid number, or number of chromosomes in the rye sporophyte (DD), is 14. Bread wheat is a hexaploid (6n) composed of 6 sets of chromosomes (AA, BB & CC), each set with 7 chromosomes (A=7, B=7, C=7). Therefore, the number of chromosomes in the wheat hexaploid sporophyte (AABBCC) is 42. Triticale (**Triticosecale**) is a bigeneric hybrid between wheat (**Triticum aestivum** n=21) and rye (**Secale cereale** n=7). The resulting hybrid (ABCD) contains one set of rye chromosomes (D) and 3 sets of wheat chromosomes (ABC), a total of 28 chromosomes (7 + 21). It is sterile because the rye (D) set has no homologous set to pair up with during synapsis. This sterile hybrid seedling is treated with colchicine to produce a plant with twice as many chromosomes (i.e. 2A's, 2B's, 2C's and 2 D's), a total of 56. The fertile hybrid is an octoploid (8n) because it contains 8 sets of chromosomes. The diploid rye plant (DD) can also be crossed with tetraploid durum wheat (**T. turgidum** AABB) to produce a sterile triploid hybrid with 3 sets of chromosomes (ABD). This hybrid is treated with colchicine to produce a fertile hexaploid (6n) version of triticale (AABBDD).

Durum wheat (**Triticum turgidum**) is derived from wild emmer wheat of Syria. Emmer wheat is a tetraploid hybrid (4n=28) between einkorn wheat (**T. monococcum** or a relative) and a grass similar to the present-day goat grass (**T. speltoides** = **Aegilops speltoides**); or possibly **T. longissima** or **T searsii**. The original diploid (2n=14) emmer wheat was probably sterile because it contained only 2 sets of chromosomes, one from the einkorn parent (n=7) and one from the goat grass parent (n=7). Through a natural doubling of the chromosomes, a fertile tetraploid emmer wheat with 4 sets of chromosomes was produced. A mutation in the tetraploid emmer wheat, causing the bracts (glumes) enclosing the grain to break away readily, gave rise to the tetraploid durum wheat (**T. turgidum** or **T. turgidum** var. **durum**). The readily detachable grain makes the separation of the grain from the chaff relatively easy and is why durum wheat is called a "free-thrashing" type of wheat.

Tetraploid wheat also contains two proteins that combine to form a tenacious complex called gluten. Because of gluten, the wheat flour becomes elastic when mixed with water and kneaded, and when yeast is added, it rises into

firm loaves. Yeast cells in the dough undergo fermentation and release carbon dioxide which becomes trapped in the glutinous protein mass. Baking "sets" the dough by drying the starch and denaturing the gluten protein. As the dough bakes, the carbon dioxide gas expands into larger bubbles, thus producing the porous, spongy texture of bread. Corn does not make good loaves of bread because it lacks gliadin, one of the key proteins of gluten. Consequently, corn bread crumbles and falls apart easily.

See Photo Comparison Of Corn Bread & Wheat Bread

Bread wheat (**T. aestivum**) is also a free-thrashing type of wheat. It is a hexaploid (6n) hybrid, four sets from an emmer wheat parent and two additional sets from a wild, weedy species (**T. tauschii** = **Aegilops squarrosa**). The endosperm of this hybrid wheat is especially high in protein and surpasses other wheats for bread making.

2. Main source of sugar (sucrose): Sugar cane (**Saccharum officinarum**).

3. Alcoholic Beverages:

a. Beer. Malt sugar (maltose) from germinating barley; starch inside grains converted into maltose.

b. Sake. Made from fermented rice.

c. Other distilled beverages. Whiskey made from maize, rye, etc.; bourbon made primarily from maize; scotch made from barley malt; vodka made from wheat; rum is made from sugar cane; gin is made from barley malt and rye, and flavored with oil of juniper; brandy is distilled from wine or other fruit juices (it may be 65 to 70 percent alcohol or 130 to 140 proof; some German whiskies are made from potatoes.

4. Various types of timber bamboo used for construction and scaffolding: **Bambusa**, **Dendrocalamus**, etc.

5. Oil of Citronella: From leaves of **Cymbopogon nardus**.

6. Job's Tears (**Coix lacryma-job**) [A fascinating grass used for bead jewelry.]

Job's Tears, Teosinte, And Indian Corn
See Broomcorn: A Variety Of Sorghum
See Sorghum Or Milo (Sorghum bicolor)
See Photos Of Important Cereal Grasses
Bamboo: Economically Valuable Giant Grasses
See Sugar Cane On The Island Of Kauai

89. Polygalaceae: Milkwort Family Back To Alphabet Table

Polygala senega Senega Snakeroot [Drug senega from dried roots.]

90. Polygonaceae: Buckwheat Family Back To Alphabet Table

Fagopyrum sagittatum Buckwheat [Flour from achenes.]

Eriogoum Wild Buckwheat [A large genus of shrubs, annuals and perennials in California; one of the largest genera in California with over 112 different species; rivaled in size (in California) only by the genus **Carex**.]

Coccoloba uvifera Sea Grape [A spawling shrub or small tree along the shores of Caribbean islands; grapelike clusters of fruits noted by Columbus on his first voyage to the New World.]

Rheum rhaponticum Rhubarb [Eat petioles (leaf stalks) only because leaf blades contain high levels of toxic oxalates.]

Rumex hymenosepalus Wild Rhubarb [Wild in several coastal riverbeds, such as the San Dieguito Riverbed); also a tanning material from roots called canaigre containing about 30% tannin.]

A Sea Grape On The Caribbean Shore Costa Rica
See The Edible Petioles (Leaf Stalks) Of Rhubarb
See Nutritious Achenes Of The Buckwheat Family

91. **Portulacaceae: Purslane Family** **Back To Alphabet Table**

Portulaca oleracea Purslane [Common prostrate weed with edible, succulent leaves and stems; a C-4 plant, grows rapidly during hot summr months in southern California.]

Montia perfoliata (**Claytonia perfoliata**) Miner's Lettuce [Common native plant in California; leaves and stems used in salads; other weedy species in this family used as pot herbs.]

Purslane: A Delicious Pot Herb And Classic C-4 Plant

92. **Proteaceae: Protea Family** **Back To Alphabet Table**

Macadamia integrifoliaand **M. tetraphylla**Queensland or Macadamia nut [In Palomar College Arboretum.]

Banksia and **Hakea** [Drought resistent shrubs planted on Palomar College campus.]

See Helicopter Seeds of Banksia and Hakea
See Macadamia Nuts In Their Husks

Pseudomonadaceae: Pseudomonas Family **Back To Alphabet Table**

Xanthomonas campestris Xanthan Bacteria [Xanthan gum is produced by fermenting corn sugar with this bacteria; the bacteria produce xanthan as part of their cell walls; xanthan gum is used in many food products, including salad dressings and low cholesterol egg substitutes made from egg whites and vegetable gums.]

Pteridacaceae: Bracken Fern Family **Back To Alphabet Table**

Pteris ensiformis Hoko-shida or Sword Brake [In Asian countries the young, uncurling fronds (called fiddleheads) are cooked and eaten with rice or other vegetables.]

Pteridium aquilinum Braken Fern [Another species with edible fiddleheads; in San Diego County the gathering of fiddleheads is strictly prohibited because local populations of bracken fern could be decimated.]

Bracken Fern Fiddlehead In San Diego County

93. **Punicaceae: Pomegranate Family** **Back To Alphabet Table**

Punica granatum Pomegranate

[See A Ripe Pomegranate Fruit]

No Families With Q Included Here Back To Alphabet Table

94. **Resedaceae: Mignonette Family** Back To Alphabet Table

Reseda luteola Dyer's Weld

According to the textbook for this course **Plants In Our World** by B. B. Simpson and M. C. Ogarzaly (1995), woad was one of the dyes used to make the green outfits worn by Robin Hood's men deep in Sherwood forest. Their clothing was dipped in a blue dye bath of woad, and then in a bath of yellow weld from the leaves of **Reseda luteola**, a member of the mignonette family (Resedaceae). The mixture of blue and yellow produced the characteristic green color associated with England's legendary bandit who robbed from the rich and gave to the poor.

95. **Rhamnaceae: Buckthorn Family** Back To Alphabet Table

Rhamnus purshiana Cascara Sagrada [Laxative cascara from bark.]

Ziziphus jujuba Jujube [Small fleshy drupe; also one of the trees inhabited by the lac insect, a source of shellac.]

[See Jujube Fruits & California Desert Jujube]
[Photo Of Seed Lac: Excretion Of Lac Insect]

96. **Roccellaceae: Rocella Family** Back To Alphabet Table

Roccella tinctoria Roccella [The thallus of this lichen contains phenolic acids which serve as a purple-red dye; orcein, a purple-red chromosomal stain found in every microbiology laboratory, is derived from this lichen species.]

Lichen acids were the source of important dyes for cotton and wool in medieval Europe. Two purple and red dyes, orchil and cudbear, were obtained from the lichens **Roccella** and **Ochrolechia**. Lichen dyes were dissolved in human urine, and the yarns were immersed in this mixture. Ammonia salts in the urine functioned as mordants to make the dyes permanent. Pine lichen or wolf moss (**Letharia vulpina**), a beautiful chartreuse fruticose lichen that grows on the bark of pines and fir throughout the mountains of the Pacific United States, contains a mildly toxic yellow dye called vulpinic acid. The striking canary-yellow porcupine quills woven into the baskets of Klamoth and Yurok Indians were dyed with this lichen. A brownish dye from the foliose lichen **Parmelia omphalodes** is used to this day on hand-woven Harris tweeds from the Outer Hebrides.

Some lichens contain various phenolic acids and essential oils that produce fragrant odors in scented soaps and help fix the aroma of fine perfumes. For centuries a lovely fruticose lichen called oak moss (**Evernia prunastri**) has been collected in Europe for making perfume.Through a complex process of solvent extraction and distillation, oak moss has become an important ingredient in the manufacture of perfumes and high-quality cosmetics. This remarkable lichen occurs in California, but air pollution has eliminated it throughout most of its former range in southern California. Oak moss still clings to the branches of ponderosa pines on Palomar Mountain in San Diego County.

[See Article About Lichens And Desert Varnish]
[See Photos of Lichens Used For Dyes & Perfumes]

97. **Rosaceae: Rose Family** Back To Alphabet Table

Cydonia oblonga Quince

Eriobotrya japonica Loquat

Fragaria spp. (**F. x ananassa**, **F. virginiana**, **F. chiloensis**) Strawberry

Prunus americana Wild Plum [Also other plum species used for prunes.]

P. amygdalus Almond

P. armeniaca Apricot

P. avium & **cerasus** Cherry.

P. domestica Garden Plum

P. persica Peach

P. persica var. **nectarina** Nectarine

Pyrus communis Pear

Malus sylvestris (**Pyrus malus**) [Common Apple and also wild crab apples.]

Mesipulus germanica Medlar [A small, deciduous tree native to Europe and Asia Minor; the ripe, apple-shaped pomes are eaten raw and used in preserves.]

Quillaja saponaria Soapbark

Rosa spp. (**R. odorata**, **R. damascena**, **R. gallica**, **R. rugosa**) Rose [Numerous cultivated species and hybrid varieties; the fruits are called rose hips, an excellent natural source of vitamin C (ascorbic acid) used in vitamin supplements.]

Rubus spp. (**R. idaeus**, **R. occidentalis**, **R. ursinus**) Raspberry, Blackberry, Loganberry, & Dewberry.

Apple, Pear, Quince, Loquat, Peach & Cherry Fruits
See A Fresh Pluot: A Cross Between The Plum & Apricot
See A Fresh Greenish Almond Right From The Tree
See A Fresh Apricot With The Pit (Endocarp) Inside
See The Aggregate fruit Of A Rose Called A Rose Hip
See Aggregate Fruits Of The Blackberry And Strawberry

98. Rubiaceae: Madder Family Back To Alphabet Table

Cinchonaspp. (**C. ledgeriana**, **C. pubescens**, and **C. officinalis**) Quinine [From bark of several species native to the Andes of South America; important alkaloid in treatment of Malaria.]

Genipa americana Genip [Little-known fruit of the West Indies.]

Morinda citrifolia Painkiller Tree or "Noni."

Coffea arabica Arabian Coffee [From seeds.]

Rubia tinctorum Madder [Brilliant scarlet dye from roots; during Revolutionary War, the red coats of British soldiers were colored with this brilliant crimson dye.]

Gardenia jasminoides Gardenia [Perfume from fragrant blossoms.]

Nertera granadensis Pin Cushion Plant [Decorative little plant sold in southern California during fall months.]

See The Red Dye Plant Called Madder
See Coffee Plants On The Island Of Kauai
See The Painkiller Tree Called "Noni."
Pin Cushion Plant With Orange Fruits

99. **Rutaceae: Rue Family** **Back To Alphabet Table**

Casimiroa edulis White Sapote [Banana-peach flavor.]

Murraya koenigii Curry Leaf Tree [Leaves used in curries and curry powder.]

Citrus aurantiifolia Lime

C. aurantium Sour Orange (Bitter Orange) [One of the best oranges for making marmalade.]

C. bergamia Bergamot [Perfume from fruit rinds; essential oil from peel also used as a flavoring in hard candy, baked goods, desserts and Earl Gray tea. Note: Bergamot tea comes from leaves of **Monarda didyma** and **M. citriodora** (Lamiaceae), also called Oswego tea or bee balm.]

C. limon Lemon

C. maxima Shaddock (Pomelo)

C. medica Citron

C. reticulata (**C. nobilis**) Mandarin Orange or Tangerine

C. sinensis Sweet Orange

C. x paradisi Grapefruit: Shaddock (**C. maxima**) X Sweet Orange (**C. sinensis**)

C. x nobilis Tangor: Tangerine (**C. reticulata**) X Sweet Orange (**C. sinensis**)

C. x tangelo Tangelo: Tangerine (**C. reticulata)** X Grapefruit (**C. paradisi**)

Note: many other cultivated varieties of **Citrus** species.

Fortunella japonica Round Kumquat

F. margarita Oval Kumquat

See Assorted Fruits (Hesperidiums) Of The Citrus Family
See Tangelo Hybrid And Its Orange & Grapefruit Parents

See Large & Amazing Pomelo--Mother Of The Grapefruit
See The Delicious Lime And The Kumquat (Fortunella)
See The Sweet White Sapote: Not A Hesperidium
See The Curry Leaf Tree (Murraya koenigii)

100. **Saccharomycetaceae: Yeast Family** **Back To Alphabet Table**

Kluyveromyces marxianus Nutritional Food Yeast

Saccharomyces cerevisiae and **S. uuvarum** Beer, Wine and Bread Yeasts

Torulaspora delbrueckii Sherry Yeast

Because of their ability to ferment sugars, yeast fungi play a major role in the beer, wine and baking industries. In the brewery, ethyl alcohol (ethanol) from the fermentation process is the primary industrial product; in the bakery, carbon dioxide released from the fermentation process causes the dough to rise. There are numerous optimal strains of these fungi adapted for specific types of fermented products. Go to the **grass family** (Poaceae) to see the numerous alcoholic beverages made from yeast fermentation. Note: The yeast responsible for kefir grains and sourdough bread is **Torulopsis holmii** in the family Cryptococcaceae.

See The Hop Vine Used To Make Beer

101. **Salicaceae: Willow Family** **Back To Alphabet Table**

Populus balsamifera Balsam Poplar; **P. deltoides**Cottonwood;

P. tremuloides Quaking or White Aspen [Uses include a soft wood for boxes, etc. and as pulpwood in manufacture of paper.]

102. **Santalaceae: Sandalwood Family** **Back To Alphabet Table**

Santalum album Sandalwood [The valuable scented heartwood of this Old World species is the source of sandalwood oil; other species of sandalwood are also highly prized for their wood; deforestation of native Hawaiian forests was originally due to the exportation of sandalwood.]

Note: Red sandalwood (**Pterocarpus santalinus**) belongs to the legume family (Fabaceae). The powdered wood of red sandalwood is used for a bright red dye.

Read About Hawaiian Sandalwood

103. **Sapindaceae: Soapberry Family** **Back To Alphabet Table**

Sapindus saponaria Soapberry [Planted on Palomar College campus.]

Schleichera oleosa Lac Tree [Host for lac insect.]

Euphoria longana (**Dimocarpus longan**) Longan

Litchi chinensis (**Nephelium litchi**) Lychee

Nephelium lappaceum Rambutan

Blighia sapida Akee

Paullinia cupana Guarana [The "cola" of Brazil made from the dried, roasted seeds; guaraná contains more than 5% caffeine, compared with about 1% for yerba mate tea.]

Noteworthy Plants Article About Soaplily & Soapberry
See Photos Of The Delicious Logan, Lychee and Rambutan
See The High Caffeine "Cola Of Brazil" Called Guaraná
See Akee Fruit That Is Poisonous If Eaten At Wrong Stage

104. **Sapotaceae: Sapodilla Family** **Back To Alphabet Table**

Acras zapota(**Manilkara zapota**) Sapodilla or Naseberry Tree [Chicle, the latex sap of the sapodilla tree, commonly used in chewing gums, is actually an elastic terpene polymer (polyterpene) similar to natural rubber.]

Chrysophyllum cainito Star Apple [Interesting fruit of the Caribbean marketplace.]

Palaquium gutta Gutta-Percha [The milky latex sap yields a polyterpene rubber with a number of remarkable uses, from the cores of golf balls to root canals of your teeth.]

Pouteria sapota (**Calocarpum sapota** & **C. mammosum**) Mamey Sapote [Tropical American tree; large dark browm seeds used in Indian necklaces.]

Pouteria campechiana Eggfruit or Canistel [Tropical American tree with delicious, fleshy fruit containing large, brown, shiny seeds.]

See Article About Rubber And Chicle
See The Amazing Uses Of Gutta-Percha
Read About Mamey Sapote And Eggfruit
See The Large Fruit Of A Mamey Sapote
See An Eggfruit With Shiny Brown Seeds
Star Apple From Hawaiian Island Of Maui

Saururaceae: Lizard-Tail Family **Back To Alphabet Table**

Anemopsis californica Yerba Mansa [An important medicinal herb used by native Americans and early settlers in California; root made into a tea to relieve indigestion, asthma and to purify the blood; tea also used as liniment for rashes, cuts, bruises and sores; boiled leaves used as poultice for muscular aches and pains.]

See Yerba Mansa In San Diego County

105. **Saxifragaceae: Saxifrage Family** **Back To Alphabet Table**

Ribesspp. Currant and Gooseberry. [Also alternate host of white pine blister rust (**Cronartium ribicola**); since the white pine is more important economically as well as ecologically, the currants &gooseberries are eradicated in certain forested regions; gooseberries can be differentiated from currants because they are generally very spiny.

See California Gooseberries And Currants

106. **Scrophulariaceae: Figwort or Snapdragon Family** Back To Alphabet Table

Digitalis purpurea Foxglove [Heart stimulant (cardiac glycoside) digoxin and digitoxin from leaves.]

Plants Producing Medical Glycosides

107. **Simmondsiaceae: Jojoba Family** Back To Alphabet Table

Note: Jojoba was formerly placed in the Buxaceae.

Simmondsia chinensis Jojoba [Native shrubs; seeds are edible; oil from seeds used as substitute for whale oil; oil used for wax, polish, and candles.]

See Noteworthy Plants Article About Jojoba Oil

108. **Solanaceae: Nightshade Family** Back To Alphabet Table

Atropa belladonna Belladonna [Alkaloid atropine from lvs.]

Capsicum annuum Red, Wax, Bell and Jalapeno Chile Peppers. [Many different varieties of peppers; paprika from dried fruit of one variety.]

C. baccatum South American Peppers Known as "Ajis."

C. chinense Habanero Peppers [Very hot!]

C. frutescens Tabasco Peppers

C. pubescens South American "Rocotos" and Mexican "Manzanos."

Datura stramonium Jimsonweed [Source of drug stramonium from leaves and flowering tops; contains the alkaloids hyoscyamine, scopolamine and atropine; Indians used liquid from crushed roots of **D. stramonium**, **D. wrightii** and **D. meteloides** for hallucinogenic effect during puberty ritual; drug is very poisonous and is dangerous.]

Duboisia hopwoodii Pituri [Alkaloid scopolamine from leaves.]

Hyoscyamus niger Black Henbane [Alkaloid hyoscyamine from leaves.]

Lycopersicon esculentum Tomato

Physalis ixocarpa Tomatillo

Nicotiana tabacum Tobacco

Solanum melongena Eggplant

S. tuberosum Potato [Edible tubers; average baked tuber about 100 kilocalories, unless topped with mounds of butter and sour cream.]

S. quitoense Naranjilla [A large perennial herb of the Andes with orange, tomatolike fruits.]

Note: Black Pepper is from dried unripe fruit (berry) of **Piper nigrum**, a member of the family Piperaceae.

See Article About Plant Alkaloids
See Article About Chile Peppers
See Tomato, Tomatillo & Eggplant
Fascinating Story Of The Irish Potato

109. **Sterculiaceae: Sterculia Family** **Back To Alphabet Table**

Cola nitida Cola [Seeds used in soft drinks &contain alkaloid caffeine.]

Theobroma cacao Cacao [Seeds contain alkaloid theobromine and are source of chocolate; sweet chocolate has sugar and milk added.]

Sterculia urens Gum Karaya or Sterculia Gum [Native to rocky hills and plateaus of India, the sap of this tree is the source of a valuable water-soluble gum that forms a strong adhesive gel when mixed with a small amount of water; because of its resistance to bacterial and enzymatic breakdown, it has been used for dental adhesives and as a binder in bologna and other lunch meats; it is also used in salad dressings, cheese spreads, whipped toppings and hair setting gels.

S. lychnophora Poontalai or Pang da Hai [Seeds imbibe water and expand into a gelatinous mass that is used to make a beverage in southeast Asia.]

S. foetida Java Olive [Although the flowers have a putrid odor, the seeds are eaten raw, roasted or fried.]

See The Gelatinous Seed Of Sterculia lychnophora
See The Seed Called Java Olive or Indian Almond
See The Remarkable Cauliflorous Cacao Fruit

110. **Taxaceae: Yew Family** **Back To Alphabet Table**

Taxus brevifolia Pacific Yew [Bark and needles are the source of taxol, a valuable drug for the tratment of ovarian and breat cancers.]

See Pacific Yew Foliage And Seeds

111. **Taxodiaceae: Taxodium Family** **Back To Alphabet Table**

Sequoia sempervirens Coast Redwood [Important lumber tree because of decay resistant wood; tallest tree species on earth, rivaled in height by the giant **Eucalyptus regnans**of Australia.]

Sequoiadendron gigantum Giant Sequoia [Most massive living thing on earth, 36 ft. in diameter and over 1200 tons; mostly protected in several California National Parks such as Yosemite, Sequoia and King's Canyon.]

Taxodium distichum Bald Cypress [Deciduous conifer of swamps with peculiar knees or pneumatophores; wood resistant to decay.]

See WAYNE'S WORD Botanical Record-Breakers
See Article About The Taxodium Family (Taxodiaceae)

Ternstroemiaceae: Tea Family **See Theaceae**

112. **Theaceae: Tea Family (Ternstroemiaceae)** **Back To Alphabet Table**

Camellia sinensis Tea

The grade of tea depends on the age of the leaves. In "golden tips" the youngest bud only is used; in "orange pekoe" the smallest leaf; in "pekoe" the second leaf; in "pekoe souchong" the third leaf; in "souchong" the fourth leaf; and in "congou" the fifth and largest leaf to be gathered. In green tea the leaves are dried and appear dull green; in black tea the leaves are fermented and then dried; "oolong tea" is only partially fermented and is intermediate between black and green. The various pekoes, souchongs, and congous are black teas, while gunpowder and hyson are the most important grades of green tea.

Camellia japonica: A Close Relative Of The Tea Plant

113. **Tiliaceae: Basswood Family** **Back To Alphabet Table**

Corchorus capsularisand **C. olitorius**Jute [Valuable stem fibers woven into burlap, sackcloth and tough twines.]

Tilia americana American Basswood or Linden [In Palomar College Arboretum.]

T. cordata European Linden

Go To Wood/Plant Fiber Crossword Puzzle

114. **Trapaceae: Water-Caltrop Family** **Back To Alphabet Table**

Trapa bicornis Water Caltrop or "Ling Chio" [Asian water plant with strange woody fruit resembling the head of a bull; starchy seed inside fruits in cooked and eaten.]

T. natans Water Caltrop [Another species of water caltrop with 4-pronged woody fruit.]

See Noteworthy Plants Article About Water Caltrop

115. **Tuberaceae (and Terfeziaceae): Truffle Families** **Back To Alphabet Table**

Tuber melanosporum Black Truffle

T. magnatum White Truffle

T. gibbosum Oregon White Truffle

Of all the edible fungi, truffles (**Tuber** spp.) are perhaps the most fascinating. They are truly the ne plus ultra of mushroom cuisine. Truffles are the fruiting bodies (ascocarps) of mycorrhizal ascomycetous fungi. Unlike other common forest mushrooms, truffles are subterranean and resemble small pebbles or clods of dirt beneath the soil. Truffles emit the odor of certain mammalian steroids and are irresistible to some mammals, including female pigs. This particular steroid is found in the saliva and breathe of male pigs (boars) and explains the natural lust and talent sows have for truffle hunting. Pigs and dogs can detect truffles from as far away as 50 yards, and there is even a case of a dog jumping over a hedge and running across a field to find a choice truffle under a beech tree 100 yards away. Since the fabled truffles of France and Italy retail for more than $500 a pound, a good swine or canine truffle sniffer is a valuable asset.

Read About Truffles In Fungus Article
See Some Dried Oregon White Truffles

Umbelliferae: Carrot Family See Apiaceae

116. **Urticaceae: Nettle Family** **Back To Alphabet Table**

Boehmeria nivea Ramie [Strong fibers from stems (stronger than cotton and flax); made into lustrous China grass cloth.]

Go To Wood/Plant Fiber Crossword Puzzle
See Article About Plant Textile Fibers

117. **Verbenaceae: Verbena Family** **Back To Alphabet Table**

Tectona grandis Teak [Wood is hard and does not warp, split, or crack, and is very resistant to termites and decay; elephants are often used in lumbering operations.]

118. **Vitaceae: Grape Family** **Back To Alphabet Table**

Vitis labrusca North American Grape [Many varieties, including the Concord grape.]

Vitis vinifera European Wine Grape [Many varieties of wine grapes and edible table grapes.]

There are many varieties of grapes. In the European tightskins, which are used for wines, the skin does not separate readily from the pulp. Grapes are one of the oldest cultivated plants. They have been grown in Egypt for 6,000 years. They were highly developed by Greeks and Romans. Fermentation is brought about through the action of wild yeasts which are present on the skins of the fruit (whitish powder). The maximum alcoholic content of natural wines is about 12 to 16% (24 to 32 proof). Higher alcoholic content will kill the yeast cells. Brandy is made from distilled wines and has a much higher alcoholic content (up to 140 proof!). Red wines are made from grapes with colored skins (with anthocyanin), while white wines are made from white grapes (or red grapes with skins removed). In dry wines the sugar is almost completely fermented. In sweet wines fermentation is stopped before all the sugar is converted. The North American grapes are larger and more hardy than the European. The fruit is round with a more watery flesh and a thin skin that slips off very easily. They are used for eating and for making grape juice (concord grapes), jams, and jellies. Of course, grapes are also the source of raisins.

See 'Thompson Seedless' & 'Red Seedless' Grapes

No Families With W Included Here **Back To Alphabet Table**

No Families With X Included Here **Back To Alphabet Table**

No Families With Y Included Here **Back To Alphabet Table**

119. **Zingiberaceae: Ginger Family** **Back To Alphabet Table**

Zingiber officinale Ginger [Rhizome is the source of an important spice (oleoresin) used in ginger ale, ginger beer, and gingerbread.]

Curcuma domestica Turmeric [**Curcuma longa** also listed for turmeric; dried, ground rhizome used in curry powder and as a yellow dye.]

Elettaria cardamomum Cardamom

[A highly aromatic spice derived from the seeds and dried fruits; used in curry powder, seasoning for sausages, incenses, perfumes and medicines.]

See A Turmeric Hybrid In Full Bloom
See A Ginger Rhizome: A Valuable Spice

120. **Zygophyllaceae: Caltrop Family** **Back To Alphabet Table**

Guaicum officinale Ligum Vitae [One of the world's hardest ironwoods (specific gravity of 1.37); used for bushing blocks on propeller shafts of steamships; also source of gum guaiac, resin providing the natural, self-lubrication qualities of the wood; resin used medically to test for presence of hidden blood; peroxidase enzymes in blood cells oxidize chemicals in resin, resulting in a blue-green color change.]

Tribulus terrestris Puncture Vine [Old World sprawling weed that is responsible for many punctured bicycle tires in the American southwest.]

Larrea tridentata Creosote Bush [Dominant shrub of Colorado Desert of southwestern U.S. and Mexico.]

One of the most common questions asked by my students on desert field trips is whether creosote comes from the creosote bush. The answer is an unequivocal no. The commercial source of creosote is derived from the distillation of coal tar. It is produced by high temperature carbonization of bituminous coal. Wood creosote is obtained from the distillation of wood tar from several woods of the eastern United States. Wood creosote is a mixture of phenolic compounds that are used medicinally as an antiseptic and expectorant. Under no circumstances should coal tar creosote be taken internally. Although creosote bush does not grow in the chaparral plant community of California, the dried leaves of this shrub are the source of "chaparral tea," a controversial herbal remedy with antitumor properties. The leaves contain a powerful antioxidant that apparently destroys tumor cells; however, there are reported cases of liver toxicity, including toxic hepatitis and jaundice.

See The Resinous Leaves Of Creosote Bush
Gum Guaiac & Other Uses For Lignum Vitae

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