

USEFUL PLANT FAMILIES
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Henry David Thoreau “The woods and fields are a table always spread”

Approximately 350,000 species of flowering plants have been named in the world. There are around 15,000 genera and only around 500 flowering plant families (Heywood, Brummitt, Culham, & Seberg, 2007). You will know something significant about the majority of plants that you see in the temperate world if you learn the top 30 families around you.

Often it is possible to guess whether a plant is edible, medicinal, or poisonous simply by the family it is in. However, this is not always the case. One example is the carrot family, which contains many vegetables and spices as well as some of the most poisonous plants in the world! Learning the scientific names of plants helps to aid certainty in identification. Many plants that are very different share the same common names. All identified species have a distinct two part scientific name that is used by botanists all over the world. The first part is the genus or generic name. The second part is the species or specific name. The genus is always capitalized and the species is not. Both names are both usually underlined or *italicized*. An example is *Daucus carota* this is the name for the cultivated carrot.

Plants that share a genus name are similar but often differ in leaf shape, size, habitat, or other characteristic. Plants that have the same species name often look almost exactly the same but may still look rather different due to breeding. Modern family names for plants take the name of a typical genus in the family and then add *aceae* to the ending. For example the name of the Aster family is *Asteraceae*. In the notations below sp. = one species and spp. = multiple species of the same genus. Common names are followed by scientific names in parentheses.

The world contains thousands of edible plants. North America has at least 4,000 edible species of plants alone (Couplan, 1998). Many indigenous groups would make use of hundreds of local plants on the continuum between food and medicine. Now in the world 95% of nutrition comes from 30 plants (Cunningham, 2007). 75% of our food comes from eight crops led largely by wheat, corn, rice and soy.

When picking wild plants make sure that you get the plants positively identified. Know what part to use (leaves, roots, flowers, fruits). Also know how to use (fresh, steamed, sautéed, in tea, infused or tinctured) and what time of year to harvest. It is often easiest to start by going out with experienced people. A good guide is also essential. Take the time to know the few really toxic plants as much as choice edibles. Don't pick by roadsides or other chemically intensive areas. **Don't ever eat flowers from a florist or other synthetic chemical intensive source.**

If you only need the top then leave the roots of perennials. Don't over harvest. Use all of your senses. Give thanks!!!

What follows are some major plant families to know for food, medicine and various other uses.

Amaranth Family – Amaranthaceae

The Amaranthaceae is closely related to the spinach family. It is home to the **Amaranth** (*Amaranthus* spp.) Many are known as pigweeds. All are edible. Eat the leaves when young. Use seeds like poppy seeds. Members can be high in oxalic acid and nitrates. Cooking is preferable to eating raw. Many make good cut flowers both fresh and dry especially **Cockscomb** (*Celosia* spp.) and **Globe amaranth** (*Gomphrena* sp.). A single plant can make tens of thousands of seeds. One of the few grains with all eight essential amino acids.

This family now includes the previously distinct Spinach family (*Chenopodiaceae*) You will recognize many popular foods including **Spinach** (*Spinacia oleracea*), **Swiss chard** and **Beets** (*Beta vulgaris*) and **Quinoa** (*Chenopodium quinoa*). It also contains the choice wild edible **Lambsquarters** (*Chenopodium album*). **Epasote** (*Chenopodium ambrosioides*) is used in Mexican cooking in small quantities to flavor beans and expel worms. Be aware of oxalic acid which can inhibit calcium absorption and only eat in moderation. Combining with dairy helps offset effect i.e. Spinach lasagna. Oxalic acid is water soluble and can be removed by steaming or blanching. Members may also take up nitrates which are also water soluble. One plant of *Chenopodium* can make tens of thousands of seeds.

Aster Family - Asteraceae

This is the second biggest family in the world containing between 23,000-32,000 species. Many members are especially important for liver detoxification, promotion of digestion, and immunity. The family includes many food and medicine crops both cultivated and wild: **Artichoke** (*Cynara scolymus*), **Beggar's Ticks** (*Bidens* spp.), **Chickory** (*Cichorium intybus*), **Cone flower** (*Echinacea* spp.) **Marigold** (*Tagetes* spp.), **Lettuce** (*Lactuca sativa*), **Jerusalem artichoke** (*Helianthus tuberosus*), **Spilanthes** (*Acmella* spp.) **Sunflower** (*Helianthus annuus*), **Dandelion** (*Taraxacum officinalis*) etc. One of my teachers Song is quoted as saying that "If people realized how amazing Dandelion is for them it would be a rare plant!" It is one of the most nutritious plants on earth rich in vitamins A,B,C,E, iron, phosphorous, potassium, and calcium. It is also good for calcium stones. If you weed em eat em! Many make good cut flowers fresh and dry i.e. Blackeyed Susans (*Rudbeckia* spp.) **Goldenrod** (*Solidago* spp.), **Ageratum** (*Ageratum* spp.), **Strawflower** (*Helichrysum* spp.).

Bean, Pea, and Clover Family – Fabaceae

This is probably the third biggest family in the world with approx 18,000 species. Most members aid in fixing nitrogen in the soil with the partnership of special bacteria that live in their roots. Nitrogen is an essential plant nutrient. Therefore, many members of this family are often used as cover crops. They are also one of the chief sources of protein for vegetarians. Many members are toxic and should never be sampled without positive identification. The family is so big and diverse that it is often split into three sub families. **Red bud** (*Cercis canadensis*) and **Black locust** (*Robinia pseudoacacia*) flowers are choice edibles. **Red clover** (*Trifolium pratense*) is good in tea. The exotic invasive, **Kudzu** (*Pueraria lobata*) is an imminently useful plant for food, medicine and crafts. Many members of this family are used as natural dyes. Also good for beneficial insects.

Beech Family – Fagaceae

This family contains the **Oaks** (*Quercus* spp.), **Chestnuts** (*Castanea* spp.) and **Beeches** (*Fagus* spp.). All produce edible nuts. Some are more choice than others. White oaks in particular such as (*Quercus alba*) and **Chestnut oak** (*Quercus prinus/montana*) are prime. Many great edible and medicinal mushrooms grow on this family as well i.e. Boletes, Hen of the Woods, Chicken of the Woods, Turkey Tails and more.

Broccoli Family - Brassicaceae

This is a very important food family for the temperate world. One species *Brassica oleracea* alone accounts for **Broccoli, Kale, Cabbage, Brussels sprouts, Kohlrabi** and **Cauliflower**. These are all varieties of that same species. Varieties of *Brassica rapa* include **Pak choy, Napa cabbage, and Turnips**. This family also contains many wild edibles including **Wild cresses/Toothworts** (*Cardamine* spp. & *Barbarea* spp.) and **Garlic mustard** (*Alliaria petiolata*) The Brassicaceae family is crucial in any diet for vitamins A, B1, B2, B6, C, E, K, and the minerals calcium, iron, and magnesium. Cook lightly to preserve nutrients and save any pot liquor to retain water soluble elements. May uptake heavy metals so don't collect in polluted areas.

Buckwheat/Smartweed Family – Polygonaceae

This family contains the cultivated crop **Buckwheat** (*Fagopyrum* spp.) and the prevalent **Smartweeds** (*Polygonum* spp.) It also has the **Docks** (*Rumex* spp.) and **Rhubarb** (*Rheum* sp.) Oxalic acid is in this family.

Celery Family - Apiaceae

This is one of the major families for culinary herbs. Yet, it is also the home to the **POISON HEMLOCK** (*Conium maculatum*) and **WATER HEMLOCK** (*Cicuta maculata*). Neither of these plants are closely related to the tree named **Hemlock** (*Tsuga* spp.) which is in the Pine family. Family members tend to bring in beneficial insects. Cultivated members: **Celery** (*Apium graveolens*), **Fennel** (*Foeniculum vulgare*), **Parsley** (*Petroselinum crispum*), and **Dill** (*Anethum graveolens*). Many great wild edibles and medicinals too i.e. **Sweet Cicily** (*Osmorhiza* spp.) **Honewort** (*Cryptotaenia canadensis*) and **Osha** (*Ligusticum* spp.). Due to the extremely poisonous nature of some members in this family always be extra careful to **POSITIVELY IDENTIFY!!!** Many make good fresh cut flowers like **Queen Anne's lace** (*Daucus carota*), **Ammi** (*Ammi* spp.) and **Eryngium** (*Eryngium* spp.).

Madder/Coffee Family - Rubiaceae

Includes **Gardenia** (*Gardenia* spp.), **Noni** (*Morinda* spp.), & **Cat's claw** (*Uncaria tomentosa*). Fourth largest plant family with 13,000 species. Most live in the tropics. **Cleavers** (*Galium aparine*) is a U.S. native and gentle lymph cleanser **Partridge berry** (*Mitchella repens*) has medicinally. **Sweet woodruff** (*Galium odorata*) has been used to spice May wine for festivities in Germany. Madder (*Rubia tinctoria*) is one of the most famous dye plants in the world.

Mint Family - Lamiaceae

One family everyone should know! All mints have square stems and opposite leaves. Though, not all square stemmed opposite leaved plants are mints. This is a big family for culinary flavors and many members have characteristic smells. Several members volunteer readily and often grow wild. They often bring beneficial insects to the garden while repelling pests. Also a great source for edible flowers. Many plants in this family aid digestion and soothe stomach aches. Includes: **All heal** (*Prunella vulgaris*), **Basil** (*Ocimum basilicum*), **Bee balm** (*Monarda* spp.) **Lavender** (*Lavendula* spp.), **Marjoram** (*Origanum majorana*) all the **Mints** which tend to be (*Mentha* spp.). One mint that is not a *Mentha* sp. is the native **Mountain mint** (*Pycnanthemum* spp.) **Oregano** (*Origanum vulgare*), **Rosemary** (*Rosmarinus officianalis*), **Thyme** (*Thymus vulgaris*) are a few more culinary herbs This family also contains the wild edible/medicinals **Ground ivy** (*Glechoma hederacea*), **Skullcap** *Scutellaria* spp. and **Lemon balm** (*Melissa officianalis*). Many make good cut flowers i.e. **Anise Hyssop** (*Agastache* spp.), **Bergamot** (*Monarda* spp.), and **Lamb's Ear** (*Stachys byzantium*).

Grass Family- Poaceae

This is one of the most important food families in the world. It includes most major grains i.e. **Corn** (*Zea maize*) **Wheat** (*Triticum* spp.) **Rice** (*Oryza sativa*) **Barley** (*Hordeum vulgare*) and **Oats** (*Avena sativa*). Many wild grasses are also edible i.e. **Fox tail millet** (*Setaria* spp.) Most grasses also make good cut flowers both fresh and dry. They are also some of our worst weeds and a cause of seasonal allergies.

Nettles Family – Urticaceae

This family is mainly known for **Stinging nettles** (*Urtica dioica*). The formic acid is destroyed during cooking or drying. High in vitamins A,C,D and the minerals calcium, iron, phosphorous, selenium, and also relatively high in protein. They should be harvested when young before blooming because they may form calcium carbonate crystaloliths. The plant is also known to bind immunoglobulin G, reducing sensitivity to food allergies (Willard in Elpel) the plant also has high amounts of acetyl choline which aids brain function. It is native to Eurasia and can be grown from divisions. **Wood nettle** (*Laportea canadensis*) is a native version both edible and useful for fiber. Another fiber plant is Ramie (*Boehmeria* sp.)

Onion Family - Amaryllidaceae

This family is home to many of the veggies we use to flavor our food. These plants and teas made from them can also be used to repel insects in the garden. Some of the major members include **Leek** (*Allium ameloprasum*), **Onion** (*Allium cepa*), **Scallions** (*Allium fistulosum*), **Garlic** (*Allium sativum*) and **Chives** (*Allium schoenoprasum*). There are also many wild species of *Allium* that can be substituted for the cultivated spp. Many *Alliums* are also used as natural dyes and medicinally.

Pine Family - Pinaceae

The Pinaceae is one of the most used plant families for timber trees. Loblolly Pines (*Pinus taeda*), Monterey Pines (*Pinus radiata*) and Slash Pines (*Pinus eliotti*) are put into plantations in various parts of the world. Beer can be made as well as tea from the needles of Fir (*Abies* spp.) Pine (*Pinus* spp.) and Spruces (*Picea* spp.). The smoke from resinous yellow pines especially their cones should not be inhaled in large quantities. Balsam fir (*Abies balsamea*) can also cause contact dermatitis. Eastern Hemlocks (*Tsuga* spp.) have been devastated by the Hemlock Woolly Adelgid but a recently introduced beetle may save them and a medicinal mushroom (*Ganoderma tsugae*) grows from the dead. These trees have been around for millions of years and support a rich web of biological diversity including trout and other special plants and animals.

Pink Family - Caryophyllaceae

This family is home to one of the greatest wild edibles and medicines ever **Chickweed** (*Stellaria media*) and other species. It is also the home of **Dianthus** and **Carnations**, both (*Dianthus* spp.) which both have edible flowers.

Purslane Family – Portulacaceae

This family is home to **Purslane** (*Portulaca oleracea*) a cosmopolitan weed that is the highest vegetable source for omega 3 fatty acids. This family is also home to **Spring beauty** (*Claytonia* spp.). Only eat a few of these when abundant or in case of emergency. Leaves and tubers are both edible.

Rose Family – Rosaceae

The Rosaceae is one of the major families for fruits in the temperate world including Apples (*Malus* spp.), and Pears (*Pyrus* spp.). Plums, Cherries, Apricots, Peaches, Nectarines, and Almonds are all in the same genus (*Prunus*). Juneberries (*Amelanchier* spp.), Hawthorns (*Crataegus* spp.) and Mountain Ash (*Sorbus* spp.) are a few wild genera that are foraged for food. Many shrubs including cane fruits (*Rubus* spp.) and Roses (*Rosa* spp.) are also edible. Apple wood is used to smoke food and impart a special flavor. Cyanogenic glycosides are present in some members of the Rosaceae. However, they are rarely eaten at levels high enough to cause serious damage. Many of these plants support an array of wildlife as well.

Squash Family - Cucurbitaceae

This family contains **Cucumbers** (*Cucumis sativus*) and **Squashes** (*Cucurbita* spp.). Many wild members are not edible. Some are powerful medicinal. **Sweet Tea vine** (*Gynostemma pentaphylla*) is an adaptogen with invasive tendencies. **Bitter Melon** (*Momordica charantia*) is an invasive vine from the tropics used to help control diabetes.

Tomato Family - Solanaceae

The Solanaceae is a very important food family that includes **Tomatoes** (*Solanum lycopersicum*) **Potatoes** (*Solanum tuberosum*) **Eggplant** (*Solanum melongena*) **Tomatillos** (*Physalis* spp.) and **Peppers** (*Capsicum* spp.). It also houses many poisonous and entheogenic plants.

Walnut/Hickory Family – Juglandaceae

This family contains the **Hickories** (*Carya* spp.) including **Pecans** (*Carya illionensis*) and the **Walnuts** (*Juglans* spp.) including **Black walnut** (*Juglans nigra*) and **English walnut** (*Juglans regia*). **Black walnut** is also a powerful medicinal. Many plants in this family have also been used for natural dyes.

Wood Sorrel Family - Oxalidaceae

This is known as the family of **Wood Sorrel** (*Oxalis* spp.). The tasty sharp flavor is good in salads but be aware of excess oxalic acid. **Starfruit** (*Averrhoa carambola*) is also in this family which is apparent from astringency though not by growth form.

Major Families by Use

Best families for edible flowers: Violet (Violaceae), Aster (Asteraceae), Brassica (Brassicaceae), Mint (Lamiaceae), Hibiscus (Malvaceae)

Best families for beneficial insects: Carrot (Apiaceae), Bean/Pea (Fabaceae), Broccoli, (Brassicaceae), Mint (Lamiaceae)

Best families for cut flowers: Aster (Asteraceae), Mint (Lamiaceae), Amaranth (Amaranthaceae), Grass (Poaceae), Statice (Plumbaginaceae)

Most common poisonous families: Tomato (Solanaceae), Buttercup (Ranunculaceae), Lily (Liliaceae) Poison Ivy, (Anacardiaceae), Euphorb (Euphorbiaceae), Bean/Pea (Fabaceae)

Web Resources

www.botanyeveryday.com A website to help facilitate! Online botany classes, resources, schedule of events

www.wildmanstevebrill.com Home page of one of America's most famous foragers

www.foraging.com A warehouse of annotated web links in relation to foraging and wild foods

www.plants.usda.gov Every plant in North America with pictures!

<http://herb.umd.umich.edu/> Ethnobotany database for Native Americans

<http://www.edibleplants.com/> Webpage for Dr. John Goude also where you can join Forage Ahead yahoo group

<http://www.ars-grin.gov/duke/> Dr. James Duke's phytochemical and ethnobotanical database

<http://www.theplantlist.org> Correct scientific names for all the plants of the world!

Sources/Suggested Reading

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Recipes

Basic Pesto

Ingredients:

- 2C Fresh herbs
Basil, Parsley, Cilantro, Wild Cress, Chickweed, Sorrel, Garlic Mustard, Nasturtium, etc.
- 2 Large garlic cloves or similar amount of other Allium family member
- ½ C Freshly grated hard cheese, Parmesan, Romano (optional). Don't add cheese if freezing
- ¼ C Nuts or Seeds: Almonds, Pine Nuts, Walnuts, Pecans, Sun Seeds, Pumpkin seeds, Acorns, etc.
- ½ C Olive oil or other oil
- Salt and Pepper to taste

Instructions for pesto:

Combine all ingredients in food processor, blender or mortar pestle
Save nuts and/or seeds till last to preserve texture

Basic Dressing

Ingredients:

- 2/3C Oil (Olive, Sunflower, Safflower)
- 1/3C Acid (Vinegar, Lemon Juice, Orange Juice)
- 1/4C Fresh Herbs (2Tablespoon dry)
- One Clove garlic or similar amount of other Onion/Allium family member
- Sea salt to taste

Instructions for dressing:

Combine ingredients in blender adding oil last while blender running to ensure emulsification

Herbal Tea

Ingredients:

- 1C Fresh herbs per gallon (1/2C dry)

Options:

- Mint Family Peppermint, Applemint, Spearmint, Monarda, Horehound (sparingly), Mountain mint, Lemon Balm, Pineapple Sage, Thyme, Rosemary, Holy Basil
- Aster Family Yarrow, Dandelion, Sweet Goldenrod, Echinacea
- Carrot Family Fennel, Sweet Cicely
- Cinnamon Family Sassafras, Spice Bush
- Random Medicinals Ginger, Tumeric, Cayenne, Lemon Juice, Astragalus, Honeysuckle flower
- Medicinal Mushrooms Reishi, Shitake, Maitake, Chaga
- Adaptogens Goji berries, Ashwaganda, Ginseng, Holy Basil, Schisandra, Jioagulan,
- Sweeteners Honey, Licorice, Stevia, Maple Syrup

Instructions for tea:

Bring water to a boil then turn off heat
Steep ingredients to desired length of time (At least 15-20 minutes to overnight)
Strain and sweeten if desired to taste