

Phenolic acids are primarily found in fruits (such as raspberries, cranberries, apples, grapes, pears, strawberries, blueberries), vegetables (like spinach, kale, collard greens, broccoli, cauliflower, cabbage), and whole grains (oats, barley, quinoa). They are also present in medicinal and food plants like *Cynomorium coccineum* L., *Prunus domestica* (L.), and *Vitis vinifera* L. (grape).

Flavonoids are widely distributed in fruits, vegetables, grains, bark, roots, stems, flowers, tea, and wine. Specific sources include:

- **Anthocyanidins:** Red, blue, and purple berries (blueberries, strawberries, cranberries, raspberries), red and purple grapes, red wine, red cabbage, plums, cherries.
- **Flavan-3-ols (Catechins, Proanthocyanidins, Theaflavins, Thearubigins):** Teas (especially white, green, oolong, black), cocoa-based products, apples.
- **Flavonols:** Onions, scallions, kale, broccoli, apples, berries, teas, yellow wax peppers, ancho peppers, canned kale, grapes, tomatoes, potatoes, Brussels sprouts, squash, cucumbers, lettuce, green beans, peaches, blackberries, spinach.
- **Flavones:** Parsley, thyme, celery, hot peppers, chamomile, mint, ginkgo biloba, citrus fruit peels, green pepper, dandelion, perilla, olive oil, peppermint, rosemary, navel oranges, oregano.
- **Flavanones:** Citrus fruits and juices (oranges, grapefruits, lemons), tomatoes.
- **Isoflavones:** Soybeans, soy foods, legumes (red clover, psoralea, lupin, fava beans, kudzu, peanuts, chickpeas, alfalfa sprouts).

Terpenoids are a large and diverse group found in almost all living organisms, especially plants. Well-known examples and their sources include:

- Citral
- Menthol
- Camphor
- Salvinorin A (from *Salvia divinorum*)
- Ginkgolide and bilobalide (from *Ginkgo biloba*)
- Cannabinoids (from cannabis)
- Beta carotene (provitamin A found in many plants)
- Oxygenated terpenoid resins (from *Dalechampia* plants)
- Linalool, limonene,  $\beta$ -pinene (monoterpenes from fig, sweet rocket)
- 1,8-cineole (monoterpene from cabbage)
- Eugenol, caryophyllene oxide,  $\alpha$ -pinene,  $\alpha$ -humulene,  $\alpha$ -phellandrene (from cinnamon and clove)
- Geraniol (various plant species)
- $\alpha$ -pinene,  $\gamma$ -terpinene (from eucalyptus)
- Gingerol (from ginger - *Zingiber officinale*)
- Eugenol (from Holy Basil - *Ocimum sanctum* Linn)

Alkaloids are commonly found in about 20 families of flowering plants. Some of the most important families rich in alkaloids include Apocynaceae, Asteraceae, Berberidaceae,

Boraginaceae, Fabaceae, Papaveraceae (poppy family), Ranunculaceae (buttercups), Rubiaceae, Rutaceae, and Solanaceae (nightshades). Specific examples and their sources include:

- Morphine (from opium poppy - *Papaver somniferum*)
- Strychnine (from *Strychnos nux vomica*)
- Quinine, quinidine (from *Cinchona* species - Peruvian bark)
- Ephedrine
- Nicotine (from tobacco - *Nicotiana tabacum*)
- Atropine, hyoscyamine, scopolamine (from *Datura stramonium*, deadly nightshade - *Atropa belladonna*, henbane - *Hyoscyamus niger*)
- Cocaine (from Bolivian coca - *Erythroxylum coca*)
- Vinblastine, vincristine (from Madagascar periwinkle - *Catharanthus roseus*)
- Reserpine (from Indian snakeroot - *Rauvolfia serpentina*)
- Caffeine (from tea - *Camellia sinensis*, coffee - *Coffea arabica*, kola - *Cola nitida*, guarana - *Paullinia cupana*, maté - *Ilex paraguayensis*)
- Theobromine (from chocolate - *Theobroma cacao*)

Phytosterols are naturally occurring in small amounts in various plant-based foods. Major sources include:

- Vegetable oils (sesame oil, wheat germ oil, olive oil)
- Nuts (pistachios, almonds, walnuts, pecans, cashews)
- Seeds (pumpkin seeds, sunflower seeds, flaxseed, chia seeds, sesame seeds)
- Whole grains and cereals (wheat germ, rye bread, rice bran, oat bran, whole wheat, brown rice)
- Fruits (apples, avocados, blueberries, bananas, strawberries)
- Vegetables (broccoli, red onion, carrots, corn, Brussels sprouts, spinach, cauliflower, cabbage, sweet potatoes, asparagus)
- Legumes (dried peas, dried beans, lentils, peanuts)
- Dill, sage, oregano, thyme, paprika, cocoa butter oil.