

## BASAL EUDICOTS

### Ranunculales

#### Berberidaceae

**Herbs or shrubs, secondary tissue often yellow;** leaves alternate or basal, simple to compound, usually dilated or stipulate basally; flowers usually 3-merous, solitary, racemose or cymose, hypogynous, perfect, all parts free, calyx, corolla, and stamens often 2-whorled; **sepals** 4 or 6, sometimes caducous, **petaloid** in some; petals as many or more than sepals, sometimes reduced to nectaries; **stamens as many as and opposite petals, anthers opening by uplifted valves, or stamens twice as many and opening longitudinally; ovary 1, 1-loculed, pseudomonomerous,** tapering to a sessile stigma; ovules 1 - many; fruit a berry or capsule. 14 genera and 701 species, north temperate zone and tropical mountains, especially South America.

- Podophyllum peltatum* L. (mayapple)
- Caulophyllum thalictroides* (L.) Michx. (blue cohosh)
- Diphylleia cymosa* Michx. (umbrella-leaf)
- Jeffersonia diphylla* (L.) Pers. (twinleaf)
- J. dubia* Baker & Moore
- Berberis* sp. (barberry)

#### Ranunculaceae

**Herbs** or rarely shrubs or woody vines, **leaves usually alternate or all basal,** sometimes opposite or whorled, **often cleft or compound; stipules absent;** flowers single or in cymes, hypogynous, usually regular, 5-merous, and bisexual, all parts free; **sepals** usually present, usually imbricate, sometimes small and deciduous, **sometimes petal-like;** petals present or absent; **stamens usually numerous, spiral,** some often modified into nectariferous staminodes; **pistils simple, 1-many,** on a well-developed receptacle; ovules 1-many; stigma lateral or terminal; **fruit an achene, follicle, capsule, or berry.** 62 genera and 2,525 species, mainly north temperate.

- Anemonella thalictroides* (L.) Spach (rue anemone) [= *Thalictrum thalictroides* (L.) Eames and Boiv.]
- Hepatica acutiloba* DC. (sharp-lobed hepatica)
- Ranunculus* spp. (buttercups)
- Aquilegia canadensis* L. (wild columbine)
- Delphinium tricorne* Michx. (dwarf larkspur)
- Aquilegia* sp. (monkshood)
- Thalictrum dioicum* L. (early meadow rue)

#### Papaveraceae [Papaveroideae]

**Herbs**, shrubs, or small trees, **with milky or colored latex** and mostly alternate leaves; **flowers** large, **regular**, hypogynous, perfect; **sepals 2, caducous; petals 4 or more** (rarely absent), **free**, conspicuous; **stamens 4-many, free; ovary 1-2-loculed**, compound, of 2 or more carpels; **ovules numerous on 2 or more usually parietal placentas**; fruit a capsule, dehiscent by terminal pores or longitudinally. 23 genera and 230 species, mainly north temperate.

*Sanguinaria canadensis* L. (bloodroot)  
(*Eschscholzia californica* Cham. - California poppy)  
(*Dendromecon rigida* Benth. - bush poppy)  
(*Bocconia frutescens* L. – guacamayo)  
(*Papaver rhoeas* L. - corn poppy)  
(*P. somniferum* L. - opium poppy)  
(*Mecanopsis* sp. – blue poppy)

#### **Fumariaceae** [Fumarioideae]

Glabrous **herbs with compound leaves** and watery juice; **flowers** in racemes or panicles, perfect, hypogynous, **irregular**; sepals 2, small or caducous; **outer petals 2, connivent below**, free above, **one or both spurred or saccate basally, inner petals 2**, slender below, more or less dilated at apex and **connivent over stigma**; **stamens 4-6, filaments** elongate, usually **connate into 2 sets opposite outer petals**, each set bearing 1 medium 2-loculed and 2 lateral 1-loculed anthers; ovary 1-loculed, 2-carpelled; ovules 1-many; fruit a capsule or achene. 17 genera and 530 species, north temperate, especially warmer areas.

*Dicentra cucularia* (L.) Bernh. (Dutchman's-breeches)  
*D. canadensis* (Goldie) Walp. (squirrel corn)  
*D. eximea* (Ker) Torr. (bleeding heart)  
*Corydalis flavula* (Raf.) DC. (pale corydalis)

#### **Proteales**

## Nelumbonaceae

**Aquatic herbs from rhizomes; leaves peltate, concave, usually held above water on long petioles;** flowers large, solitary, axillary, held above water, bisexual; **sepals 2; petals 20-30, spiral in 2 series;** stamens 200-300, spiral, filaments slender; **pistils free,** 12-40 in 2-4 whorls, **sunken into a large spongy receptacle;** ovules 1(-2); **fruits achenes loose in openings in hardened receptacle.** 1 genus and 2 species, eastern North America and the Caribbean, Central and East Asia to northern Australia.

*Nelumbo lutea* (Willd.) Pers. (water chinquapin, American lotus)  
*(N. nucifera* Gaertn. – sacred lotus)

## Platanaceae

Trees or tall shrubs; **leaves alternate, stipulate, palmately-lobed and veined;** **axillary buds at first concealed beneath hollow petiole bases;** plants monoecious; **flowers minute, in spherical unisexual inflorescences;** spatulate sepals, petals, stamens, and pistils commonly each 3 or 4 (-8); filaments short, with elongate anthers; pistils simple, opposite petals and somewhat adnate to them, slender, 1-2-ovuled, with a long recurved style; **fruit multiple, a sphere of linear achenes,** each achene subtended by many long trichomes. 1 genus and 10 species, north temperate in distribution.

*Platanus occidentalis* L. (sycamore)  
*(P. orientalis* L. - oriental plane-tree)  
*(P. X acerifolia* (Aiton) Willdenow - London plane)

## Proteaceae

Evergreen trees and shrubs; leaves usually spiral, usually simple, to pinnate or bipinnate; flowers regular or irregular, 4-merous, usually bisexual, protandrous, in conspicuous racemes, umbels, heads, or panicles; sepals often petaloid, usually connate basally; corolla reduced to a 4-lobed nectary disc or (2-)4 scales or glands alternating with sepals; stamens with broad filaments adnate to calyx; pistil simple, sometimes not closed; ovules 1-2 or many; fruit a follicle, achene, or drupe; seeds often winged; endosperm absent. 77 genera and 1,600 species, tropical and subtropical, especially Southern Hemisphere.

*(Grevillea robusta* R. Br. –silky oak)  
*(Protea* sp. – protea)

