Apiaceae Lindley
(= Umbelliferae A.L.de Jussieu)
(Carrot Family)

Herbs to lianas, shrubs, or trees, aromatic; *stems often hollow in internodal region; with secretory canals containing ethereal oils and resins, triterpenoid saponins, coumarins, falcrinone polyacetylenes, monoterpenes, and sesquiterpenes;* with umbelliferose (a trisaccharide) as carbohydrate storage product. Hairs various, sometimes with prickles. *Leaves alternate, pinnately or palmately compound to simple, then often deeply dissected or lobed,* entire to serrate, with pinnate to palmate venation; petioles ± sheathing; stipules present to absent. Inflorescences determinate, modified and forming simple umbels, these arranged in umbels, racemes, spikes, or panicles, sometimes condensed into a head, often subtended by an involucre of bracts, terminal. Flowers usually bisexual but sometimes unisexual (plants then monoecious to dioecious), usually radial, small. *Sepals usually 5, distinct,* very reduced. *Petals usually* 5, *occasionally more, distinct,* but developing from a ring primordium, sometimes clearly connate, *often inflexed,* imbricate to valvate. *Stamens 5,* but occasionally numerous; filaments distinct; pollen grains usually tricolporate. *Carpels usually 2-5,* occasionally numerous, *connate;* ovary inferior, usually with axile placentation; styles ± swollen at base to form a nectar-secreting structure (stylopodium) atop ovary; stigmas usually 2-5, tiny, capitate to truncate, or elongate. Ovules 1 in each locule, with 1 integument and a thin-walled to less commonly thick-walled megasporangium. *Fruit a drupe with* 2-5 *pits, or* a schizocarp, *the* 2 *dry segments (mericarps) often attached to an entire to deeply forked central stalk (carpophore); globular to elongated oil canals (vittae) often present in schizocarpic fruits;* fruit surface smooth or ribbed, sometimes covered with hairs, scales, or bristles, sometimes flattened or winged; endosperm with petroselenic acid (Figures 8.123, 8.124).

Floral formula: *, 5, (5), 5, $\overline{(2-5)}$; drupe, schizocarp

Distribution: Nearly cosmopolitan, diverse from tropical to temperate regions.

Genera/species: 460/4250. **Major genera:** *Schefflera* (600 spp.), *Eryngium* (230), *Polyscias* (200), *Ferula* (150), *Peucedanum* (150), *Pimpinella* (150), *Bupleurum* (100), *Oreopanax* (90), *Hydrocotyle* (80), *Lomatium* (60), *Heracleum* (60), *Angelica* (50), *Sanicula* (40), *Chaerophyllum* (40), and *Aralia* (30). Some of the numerous genera occurring in the continental United States and/or Canada are *Angelica, Apium, Aralia, Carum, Centella, Chaerophyllum, Cicuta, Conioselinum, Daucus, Eryngium, Hedera, Heradeum, Hydrocotyle, Ligusticum, Lomatium, Osmorhiza, Oxypolis, Panax, Pastinaca, Ptilimnium, Sanicula, Sium, Spermolepis, Thaspium, Torilis,* and Zizia.

Economic plants and products: Apiaceae contain many food and spice plants: *Anethum* (dill), *Apium* (celery), *Carum* (caraway), *Coriandrum* (coriander), *Cyuminum* (cumin), *Daucus* (carrot), *Foeniculum* (fennel), *Pastinaca* (parsnip), *Petroselinum* (parsley), and *Pimpinella* (anise). However, many are extremely poisonous, such as *Conium* (hemlock, which Socrates is said to have used for suicide) and *Cicuta* (water hemlock). *Panax quinquefolia* and *P. ginseng* (ginseng) and various species of *Aralia* (wild sarsaparilla) are important medicinally. A few genera contain useful ornamentals, including *Hedera* (English ivy), and *Schefflera* (umbrella tree).

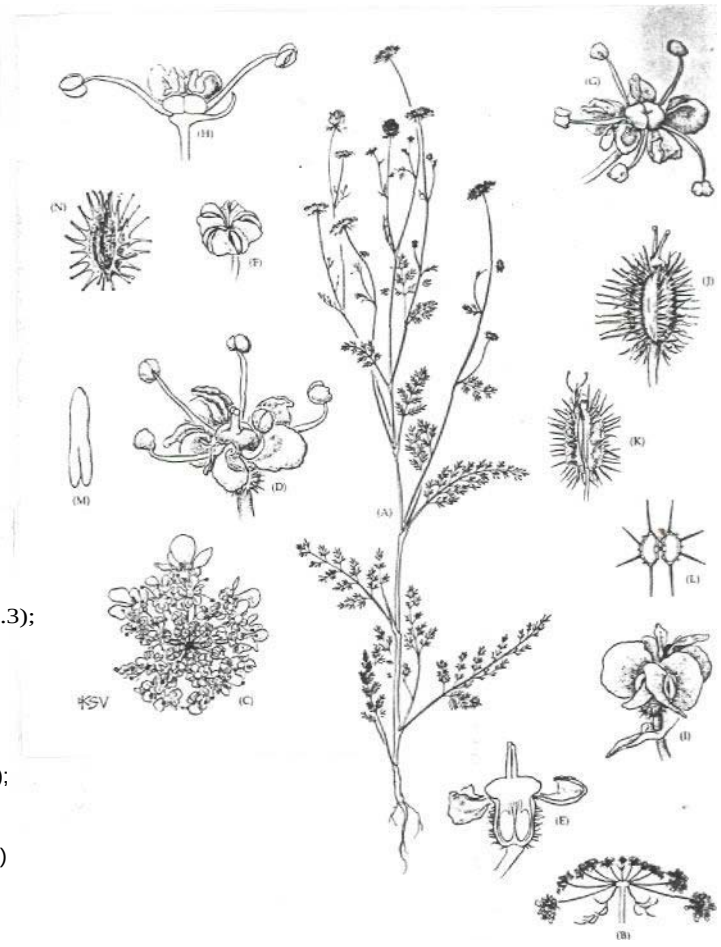

Figure 8.124 Apiaceae (Umbelliferae), subfamily Apioideae. (A-M) *Daucus carota*: (A) flowering plant (x 0.3); (B) inflorescence in longitudinal section, a compound umbel (x 0.5); (C) an umbellate unit from inflorescence (x 6); (D) bisexual flower, note stylopodium, swollen region at base of style (x 18); (E) bisexual flower after fall of stamens, in longitudinal section, note ovules (x 18); (F) bud, staminate flower (x 7); (G) staminate flower, note stylopodium in center (x 18); (H) staminate flower in longitudinal section (x 18); (I) sterile central flower (x 11); (J) schizocarp (x 11); (K) dried schizocarp showing central carpophore (x 11); (L) fruit (schtzocarp) in cross-section (x 11); (M) embryo (greatly magnified). (N) *D. pusillus:* schizocarp (x 11). (From Wood 1974, *A student's atlas of flowering plants,* p. 78.)