

# Apiaceae (Carrot Family) Traits & Keys for Newfoundland and Labrador

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## Apiaceae Family Traits (formerly known as the Umbelliferae)

- Annual, biennial, or perennial herbs, usually with hollow stems (solid in *Daucus*, *Eryngium*, *Pimpinella*). The sap of some species can cause caustic rashes (e.g., *Heracleum*, *Pastinaca*). Some species are used as foods, herbs, or spices, while others are very poisonous.
- Leaves are alternate and petiolate; the petiole bases are slightly to greatly enlarged and sheath the stem, often enclosing the developing inflorescence; stipules are absent.
- The inflorescence is a **compound umbel** (or a head in *Eryngium*); the primary umbel has few to several rays (branches) that end in smaller, secondary umbels, called **umbellets**; the primary umbel is often subtended by an **involucre** of several bracts, while umbellets are often subtended by few to several smaller bractlets, forming an **involucel**. Flowers are **5-merous**, usually bisexual, but unisexual flowers also occur in some species (e.g., *Sanicula*).
- Sepals are either absent or very small, at most 5-toothed; the 5 petals are usually white, occasionally yellow or green, seldom pink or lavender; the tips (apices) of the petals are often curved inward, giving the petals a notched appearance; petals of flowers on the edge of an inflorescence are often larger than the other petals; 5 stamens alternate with the petals and are attached to the top of the ovary.
- The compound ovary is inferior, with 2 fused carpels and 2 locules (seed chambers); the 2 styles have a thickened base called a **stylopodium**. A nectar-producing disk is situated on top of the ovary and surrounds the stylopodium.
- The fruit is a **schizocarp**, composed of 2 **mericarps**, each containing 1 seed; the surface of the schizocarp is usually ribbed, winged in some species. Each mericarp is attached below the stylopodium to a branch of the Y-shaped **carpopore** (the central axis of the fruit); fruits usually split apart from the bottom upward.
- Oil tubes (**vittae**) often occur between the ribs on the outer surface and on the inner surface of each mericarp, called the **commissure**; the vittae contain volatile oils.

## Key to Apiaceae Species in Newfoundland and Labrador

- 1a. Cauline leaves simple, firm, with spiny margins; flowers arranged in dense, thistle-like heads to 1 dm tall, subtended by 8–10 silvery-grey, spiny, involucre bracts; petals and bracts subtending individual flowers are green to silvery-blue; fruits are obovoid, 3.8–5 mm long, with 3 scales at the apex; a short-lived, self-seeding perennial, about 1 m tall, occasionally escaping from nearby gardens; not native to NL, persistence in naturalized populations is undetermined. .... *Eryngium giganteum* (giant sea holly)
- 1b. Cauline leaves palmately or pinnately compound (pinnate, bipinnate, tripinnate, or ternate), leaves thin to slightly succulent, margins serrate or entire; several flowers are arranged in umbellets, borne on 1–3 long rays and forming a loose, irregular, compound umbel; or flowers in compound umbels, with 3–150 rays and umbellets of several to many flowers; petals are usually white, occasionally yellow, green, or pink- or lavender-tinged in some species; fruits are ribbed, prickly, or smooth. .... **2**
  - 2a. Leaves palmately compound with 5–7 oblanceolate lobes, margins are coarsely serrate; the loose, long-rayed compound umbels have 2 to few primary rays, each bearing a short-stalked central and 2–4 long-stalked, spherical umbellets of 20–60, greenish-white, bisexual and/or unisexual male flowers; umbellets have 3–8 ovoid fruit (schizocarps) covered with numerous hooked prickles. ....  
..... *Sanicula marilandica* (black sanicle)
  - 2a. Leaves variously pinnately compound, either pinnate, bipinnate, tripinnate, or ternately compound, with 3 main leaf divisions, each pinnately divided (pinnatifid) to bipinnately compound; flowers are all bisexual, arranged in flat-topped, domed, or spherical compound umbels, usually with white, yellow, or green petals, seldom tinged with pink or lavender; fruit surfaces are ribbed, sometimes winged. .... **3**
- 3a. Leaves pinnately compound, with 2 to many pairs of entire, lobed, or pinnatifid (partially divided to the midrib) leaflets. .... **4**
- 3b. Leaves bipinnately or tripinnately compound, with leaves divided 2×–3× into smaller leaflets, or leaves sometimes with 3 sections of about equal size (ternately compound), with each section further divided into pinnate or bipinnate segments. .... **7**
  - 4a. Petals yellow; compound umbels with 5–25 umbellets (secondary umbels); flowering stems erect, usually 5–15 dm tall; leaves pinnately compound, to 4.5 dm long, with 5–15 leaflets; the terminal leaflet often 3-lobed, margins are coarsely serrate to incised; fruits oval, flat, 5–7 mm long. **Caution:** this roadside weed contains harmful compounds (furocoumarins) that can cause a blistering rash if the sap is applied to moist skin and exposed to sun. Gloves should be used when handling this plant. .... *Pastinaca sativa* (wild parsnip)

- 4b. Petals white; compound umbels with 7–45 umbellets (secondary umbels); flowering stems erect, 3–20 dm tall; leaves pinnately compound or pinnate-pinnatifid (with the leaflets deeply lobed), to 5 dm long, with 3–17 leaflets; the terminal leaflet unlobed or lobed, margins are finely to coarsely serrate or pinnatifid; fruits small and ovoid, 2–3 mm long, or oval and flat, 7–8 mm long. .... **5**
- 5a. Native plants of wet terrestrial habitats or in shallow water; emergent leaves pinnate, with 5–17 linear-lanceolate leaflets, 3–15 cm long × 6–13 mm wide; submersed leaves bipinnate, the leaflets finely dissected, submersed leaves may appear emergent when water levels drop. .... ***Sium suave*** (water parsnip)
- 5b. Introduced plant of disturbed terrestrial habitats (roadsides, fields, parks, etc.); leaves pinnate or pinnate-pinnatifid, leaflets small (to 2.5 cm long) or large (5–10 cm long), ovate to rounded in outline, with serrate, coarsely serrate, or deeply lobed margins. .... **6**
- 6a. Flowering stems 3–9 dm tall; leaves mainly basal, numerous in a loose rosette; basal leaves are pinnate, with 9–17 ovate to nearly round leaflets, 1.5–2.5 cm long, margins serrate; cauline leaves are pinnate-pinnatifid and have narrow lobes; fruits are ellipsoid to ovoid, 2–2.5 mm long. .... ***Pimpinella saxifraga*** (burnet saxifrage)
- 6b. Flowering stems 1–15 dm tall; leaves cauline, large, pinnate, with 3–7 deeply pinnatifid, coarsely toothed leaflets, 5–10 cm long; fruits are oval, flat, and 7–8 mm long; an introduced weed, restricted to a few roadside locations in St. John's and Trepassey. **Caution:** this roadside weed contains harmful compounds (furocoumarins) that can cause a blistering rash if the sap is applied to moist skin and exposed to sun. Gloves should be used when handling this plant. ....  
.....***Heracleum sphondylium*** (common hogweed, eltro)
- 7a. Leaves bipinnate, with each pinnate segment divided into 3–5 ovate leaflets with serrate margins. .... **8**
- 7b. Leaves bipinnate-pinnatifid (with upper portions of each pinnate segment divided only part-way to the midrib), tripinnate, or ternately compound (with leaves divided into 3 pinnate (or bipinnate) segments of about equal size); each pinnate segment with 3–9 or more leaflets; margins serrate, incised, or entire. .... **11**
- 8a. Plants of coastal, shoreline habitats; 3–6 dm tall, stems glabrous, reddish-purple or reddish-striped (reddish at least at the base); leaves bipinnate and ternate, with somewhat fleshy, shiny leaflets, 2.5–5 cm long; compound umbels are flat-topped, about 4–6 cm across, with 8–20 rays, involucre bracts lacking or very few, involucre bractlets 1 to few, linear; fruits are ellipsoid, 8–10 mm long; each mericarp has 3 prominent ribs. .... ***Ligusticum scoticum*** (beach lovage)
- 8b. Plants of forested or disturbed habitats; 1.5–10 dm tall; stems and leaves glabrous or pubescent, green; leaves bipinnate and ternate, with thin (membranaceous), dull

leaflets; compound umbels are flat-topped or open, with only 3–7 rays; involucre and involucels lacking; fruits are ellipsoid and glabrous, or narrowly lanceolate and covered with stiff, appressed bristles. .... 9

- 9a. Plants introduced (garden escapes), usually found near gardens, old homesteads, or where garden refuse has been discarded; stems green, glabrous; leaflets oblong to ovate, 3–8 cm long; lower leaflets are often 2- to 3-lobed; some cultivars have white variegated margins; compound umbels are 6–12 cm broad, with 10–25 rays and umbellets; fruits are ellipsoid, 3–4 mm long, and glabrous; styles are longer than the stylopodium, 1.5 mm long, and divergent to reflexed. .... ***Aegopodium podagraria*** (goutweed)
- 9b. Native plants of forests, wooded thickets, or ravines; stems green, pubescent; leaflets lanceolate to ovate, 1.5–9 cm long; compound umbels have few (3–7) long, ascending to divergent rays, each with few umbellets of 2–3 flowers; fruits are narrowly oblanceolate, blackish, and covered with stiff, appressed bristles; styles ascending (*Osmorhiza*). .... 10
- 10b. Plants 1.5–7 dm tall; leaflets 1.5–6 cm long; umbels with 3–5 divergent rays and 3–5 umbellets; fruits 8–12 mm long, blunt at the apex; the stylopodium is wider than long, styles are 0.3–0.5 mm long and erect. ....  
..... ***Osmorhiza depauperata*** (blunt sweet cicely)
- 10a. Plants 4–10 dm tall; leaflets 2–9 cm long; umbels with 3–7 ascending rays and 3–7 umbellets; fruits 11–18 mm long, with a 2 mm long beak; the stylopodium is conical and longer than wide, styles are about 1 mm long and erect. ....  
..... ***Osmorhiza berteroi*** (mountain sweet cicely)
- 11a. Leaves bipinnate, tripinnate, or ternate, 1–25 dm long, with large, lanceolate to ovate leaflets, 1–5 dm long, margins serrate, coarsely serrate, or incised; petiolar sheaths strongly inflated; compound umbels spherical, hemispherical, domed, or flat-topped; fruits compressed (wider than thick) or flat and longer than wide. .... 12
- 11b. Leaves bipinnate, tripinnate, or ternate, 0.5–5 dm long, with finely divided, narrow or pinnatifid leaflets, margins coarsely toothed or entire; petiolar sheaths not strongly inflated; compound umbels domed, flat-topped, or concave; fruits elliptic to orbicular (1.5–6 mm long) and somewhat compressed (wider than thick), or ± cylindrical, long (5–25 mm long) and narrow, round (terete) or 5-angled in x.s. .... 16
- 12a. Compound umbels nearly spherical, hemispherical, or domed, with 20–50 umbellets; petals all of similar size, white, greenish-white, green, pinkish, or lavender; styles spreading to recurved in fruit; fruits ellipsoid, compressed (wider than thick), with 3 ribs and 2 lateral wings on each mericarp (*Angelica*). .... 13
- 12b. Compound umbels domed to flat-topped, with 15–150 umbellets; petals white, deeply notched, outer petals of marginal flowers enlarged; styles ascending to spreading in fruit; fruits flat, oval, longer than wide, with elongate, teardrop-shaped

oil tubes (vittae) present on both surfaces of each mericarp (*Heracleum*).

**Caution:** these plants contains harmful compounds (furocoumarins) that can cause a blistering rash if the sap is applied to moist skin and exposed to the sun. Gloves should be used when handling these plant. .... 15

- 13a. Plants restricted to coastal, shoreline habitats; stems 0.3–1.5 m tall, green, tinged with purple; larger leaves 1–3 dm long; compound umbels domed, to 1.5 dm across; involucrel bractlets numerous, longer than the mature pedicels, narrowly elliptic, with ciliate margins; petals greenish-white to white; stylopodia are greenish-yellow; immature fruits green to purplish (brown at maturity), ellipsoid, 4–7 mm long, forming a single dense head in fruit; mericarps have 3 broad, corky ribs and no wings. ....  
..... ***Angelica lucida*** (seabeach angelica)
- 13b. Plants often found near the coast, but not restricted to coastal habitats; stems 1–3 m tall, usually purple or green streaked or tinged with purple; larger leaves 1–6 dm long; compound umbels spherical to hemispherical, to 3 dm across; involucrel bractlets equal to or shorter than the mature pedicels, linear to lanceolate, margins entire; petals greenish-yellow, white, pink, or lavender; stylopodia are green, white, or pinkish; immature fruits green or green and white (brown at maturity), oblong, 4–10.5 mm long; individual umbellets are distinct in fruit; mericarps have 3 ribs and 2 lateral wings. .... 14
  
- 14a. Native species of coastal and forested habitats, usually in areas over basic (e.g., limestone) substrates; plants 1–3 m tall; compound umbels spherical or nearly spherical, 1–3 dm across; petals greenish-yellow, stylopodia green; fruits 5.5–7.5 long (to 10.5 mm long in some plants along the Strait of Belle Isle). ....  
..... ***Angelica atropurpurea*** (purplestem angelica)
- 14b. Introduced species of roadside fields and disturbed areas, spreading north from southwestern Nfld.; plants 1.5–2 m tall; compound umbels domed or hemispherical; to 1.5 dm across; petals white, pinkish, or lavender, stylopodia white or pinkish; fruits 4–5 mm long. .... ***Angelica sylvestris*** (woodland angelica)
  
- 15a. Plants 1–3 m tall, perennial; stems vertically ridged, green, often suffused with purple, softly and evenly pubescent; compound umbels 1–2+ dm across, with 15–30 rays and umbellets; flowering stems sometimes branched below the central compound umbel, producing 1–10 lateral compound umbels; fruit obovate, obcordate at the apex, 7–12 mm long, glabrous, the outer surface with 4 elongate oil ducts (vittae) in the upper half of each mericarp; native plants, common throughout NL, especially in coastal and riparian areas. .... ***Heracleum maximum*** (cow parsnip)
- 15b. Plants 1–4+ m tall, biennial; stems green with raised purple blotches and a stiff bristle emerging from each blotch, not vertically ridged; compound umbels 2–8 dm across, with 50–150 rays and umbellets; flowering stems often branched below the central compound umbel, producing 2–15+ lateral compound umbels; fruit elliptic, rounded at the apex, 6–

- 19 mm long, pubescent with immature; the outer surface with 4 elongate oil ducts (vittae) extending about three-fourth the length of each mericarp; a rare introduced garden escape in Nfld., known only from a few sites in the St. John's area. ....  
..... ***Heracleum mantegazzianum*** (giant hogweed)
- 16a. Involucre of 5–7 pinnately divided bractlets; compound umbels flat-topped to concave, 4–10 cm across, flowers white, except for a central dark reddish-purple flower; in fruit, the compound umbels becoming deeply concave (nest-like); fruits are bristly, with numerous stiff bristles along each rib. ....  
..... ***Daucus carota*** (Queen Anne's lace)
- 16b. Involucre absent, or of simple undivided bractlets; compound umbels domed to flat-topped, not concave, 2–10 cm across, flowers all white; fruits ribbed or smooth, never bristly. .... **17**
- 17a. Leaves usually bipinnate, occasionally tripinnate, 20–30 cm long, with few, narrow, filiform or linear leaflets, 1–2 mm wide, with entire margins; or leaflets flat, linear, less than 5 mm wide, with coarsely toothed (occasionally entire) margins; fruits are ovoid to elliptic, less than 5 mm long. .... **18**
- 17b. Leaves fern-like, bipinnate to usually tripinnate, or further divided, ovate to triangular in general outline, 10–50 cm long, with flat, ovate, pinnate-pinnatifid leaflets; more than 5 mm wide; fruits are 4.5–25 mm long. .... **19**
- 18a. Plants of wet habitats, especially marshes and pond margins; leaves with flat, linear leaflets, less than 5 mm wide, margins entire to sparsely toothed; small ovoid bulbils, 1–3 mm long, are often present in the axils of upper leaves; fruits do not often develop, but when present, are ovoid, flat across the top, and less than 2 mm long; **Warning:** all parts of this plant are extremely poisonous. ....  
..... ***Cicuta bulbifera*** (bulblet water-hemlock)
- 18b. Introduced plants of roadsides and abandoned fields; leaves with thread-like (filiform) to linear leaflets, 1–2 mm wide; lower leaves have flat, pinnatifid leaflets; bulbils are lacking; fruits are elliptic, 3–5 mm long, with the aroma and taste of caraway. .... ***Carum carvi*** (wild caraway)
- 19a. Native plants of dry to wet habitats (turfy limestone barrens, fens, or forested fens), usually much less than 7.5 dm tall; leaves are 15–20 cm long, with pinnatifid leaflets, and glabrous; umbellets are subtended by 5–8 linear involucre bractlets with entire margins; fruits are elliptic, 4.5–6 mm long × 4 mm wide, with 3 prominent ribs and 2 short, lateral wings. .... ***Conioselinum chinense*** (hemlock parsley)
- 19b. Introduced plants of disturbed habitats, abandoned fields, or roadsides, 3–20 dm tall; leaves are large, 10–50 cm long, with numerous pinnatifid leaflets, finely hairy on the lower surface; umbellets are subtended by 4–8 lanceolate to ovate bractlets with hairy

margins; fruits are long and narrow, 5–25 mm long × 1–4 mm wide, and dark brown to black at maturity. .... **20**

20a. Plants not noticeably fragrant; involucre bractlets are ovate, green to pink-tinged, and reflexed; fruits are narrowly oblanceolate, 5–10 mm long × 1–1.5 mm wide, terminating in a beak about 1 mm long, glabrous and shiny, terete (round) in x.s., green to yellow-green when immature, dark brown to black at maturity, styles erect in fruit. .... ***Anthriscus sylvestris*** (wild chervil)

20b. Plants fragrant, with a strong scent of licorice or anise; involucre bractlets are lanceolate, light green, and spreading; fruits are narrowly cylindrical to fusiform, 15–25 mm long, tapering at the apex, but not beaked, vertically ridged and 5-angled in x.s., green and pubescent when immature, dark brown to black when ripe; styles spreading in fruit. .... ***Myrrhis odorata*** (garden myrrh)

**Note:** The Apiaceae Comparison Charts are in a separate PDF.

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