

# The Families and Genera of Vascular Plants

Edited by K. Kubitzki

*Volume XV*

## Flowering Plants Eudicots

Apiales, Gentianales (except Rubiaceae)

Joachim W. Kadereit · Volker Bittrich (Eds.)



## Apiaceae

Apiaceae Lindl., *Intr. Nat. Syst. Bot.*, ed. 2: 21 (1836), nom. cons. et nom. alt.

Umbelliferae Juss., *Gen. Pl.*: 218 (1789), nom. cons. et nom. alt.

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Annual, biennial or perennial, monocarpic or polycarpic, caulescent or acaulescent, glabrous or pubescent or glandular-pubescent herbs, rarely suffrutescent or woody subshrubs, shrubs or

and having a narrowed, inflexed apex (less commonly with broad insertion and/or lacking the inflexed apex), sometimes lobed (or shortly notched to deeply bifid), dorsally glabrous or

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## Характеристика семейства

Annual, biennial or perennial, monocarpic or polycarpic, caulescent or acaulescent, glabrous or pubescent or glandular-pubescent herbs, rarely suffrutescent or woody subshrubs, shrubs or trees, evergreen or deciduous; with taproots, rhizomes, or unbranched to branched rootstocks, sometimes swollen and tuberiform; with schizogenous secretory canals throughout the plant. Stems erect, ascending, decumbent, prostrate or rarely creeping; branched or unbranched; with multilacunar (or rarely trilacunar) nodes, internodes sometimes fistulose. Leaves alternate, rarely opposite or verticillate; petioles usually present and typically sheathing at base, often inflated,

A single key to all of the world's umbellifer genera proved difficult to devise, and even more difficult to use. Therefore, seven separate keys were constructed for the native and naturalized genera of Apiaceae in each of the following major regions of the world (Fig. 7).

- |  |       |   |       |
|--|-------|---|-------|
| A. <i>North &amp; South America</i> (G.M. Plunkett)  | p. 25 | E. <i>Eastern, Southeastern and South Asia</i> (M.G. Pimenov, E.V. Kljuykov, and T.A. Ostroumova) | p. 67 |
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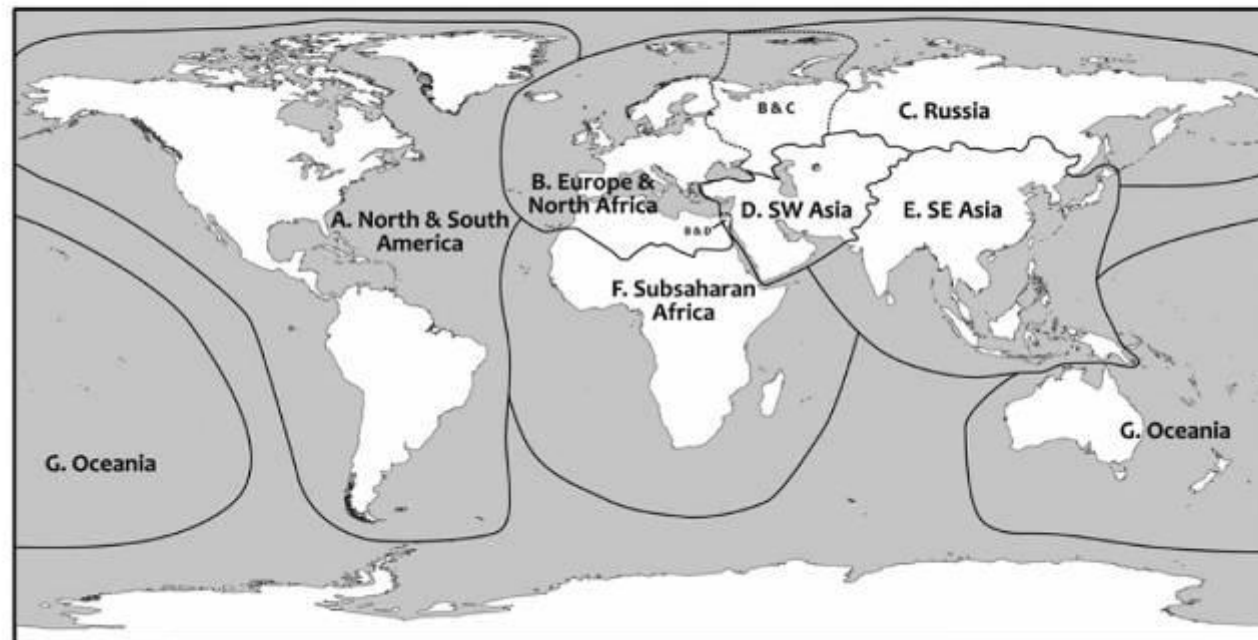


Fig. 7. Apiaceae. Map showing regions of the world used for the subdivision of the keys

- a lax panicle **452. *Trochiscanthes***
- Lower (aerial) leaves 1-pinnate into ovate segments; umbels not arranged in a lax panicle,  $\pm$  alternate, often leaf-opposed or terminal 358
358. Plants creeping or creeping and then erect, 5–40 cm; rays 2–7; leaf segments up to 1.2 cm long; vallecular vittae 1, commissural 2 **199. *Helosciadium***
- Plants erect, (30)40–150 cm; rays 7–30; leaf segments up to 5–10 cm long; vallecular vittae 3, commissural 4–6, or numerous forming a ring inside the fruit, around the endosperm 359
359. Rhizomatous stoloniferous plant; bracts often dentate or incised; vittae sunken in the pericarp **84. *Berula***
- Root with fasciculate tubers; bracts entire; vittae superficial, not sunken in the pericarp **406. *Sium***
360. Involucre lacking or much reduced 361
- Involucre present 366
361. Lower leaves triangular in outline 362
- Lower leaves oblong in outline 365
362. Root hollow, septate and tuberous, without fibrous remains of leaves; lower leaves with ultimate segments 3–9 cm long, narrowly lanceolate, 0.5–1 cm wide, strongly serrate **113. *Cicuta***

- Vallecular vittae 3–4, commissural 4–12 369
368. Lower leaves with very numerous (> 20) pairs of primary segments, the lobes appearing as if whorled; herbaceous plant; rays 6–15 **451. *Trocdaris***
- Lower leaves with 2–3 pairs of primary segments; plants woody at base; rays 3–5 **395. *Seseli***
369. Cauline leaves reduced to scale-like petioles; fruits 5–6.5 mm, lateral ribs thick, prominent, the dorsal rib not prominent **313. *Palimbia***
- Cauline leaves like the basal but smaller; fruits (2.5–) 3–5 mm; ribs subequal, filiform, slightly prominent 370
370. Lower leaves triangular in outline, primary segments usually stalked; rays (12–)15–35 **198. *Hellenocarum***
- Lower leaves oblong in outline, primary segments sessile; rays 3–8(–10) **98. *Carum***

### ***C. Key to the Native and Naturalized Genera of Apiaceae in Russia***

1. Flowers in simple umbels or in dense multi-flowered capitula 2

developed, wing-like; vittae large, vallecular 1, commissural 2. Seed face plane.

One species, *S. foeniculoides* (Maire & Wilczek) Jim.-Mejías & P. Vargas, endemic to Morocco and Mauritania. Close to *Foeniculum*, *Ridolfia* and *Pseudoridolfia*.

385. *Schrenkia* Fisch. & C.A. Mey. Fig. 23  
[Pimenov]

*Schrenkia* Fisch. & C.A. Mey. in Schrenk, Enum. Pl. Nov. 1: 65 (1842); Terentjeva et al., Phytotaxa 195 (4): 251–271 (2015), phylog., rev.  
*Kosopoljanskia* Korovin (1923).

Glabrous or puberulent perennials or low subshrubs with lignified rootstocks or taproots. Leaves bipinnate; leaflets ovate, lanceolate, or linear, deeply toothed. Bracts entire or pinnatifid, sometimes caducous; rays frequently rigid; bracteoles short, linear. Petals white; styles short, reflexed; stylopodium conical. Fruits glabrous, mericarps globose to narrowly ovoid; ribs inconspicuous or filiform, covered with prickles or short hairs, or glabrous; commissure rather broad; inner mesocarp layer hard, lignified; vittae many, obscure in mature fruits. Seed face plane to concave.  $2n = 22$ .

14 species, Middle Asia, NW China. Stony hillsides, among xerophilic shrubs, limestone and sandstone cliffs, scree. Closely related to *Lipskya* and *Schtschurowskia*.

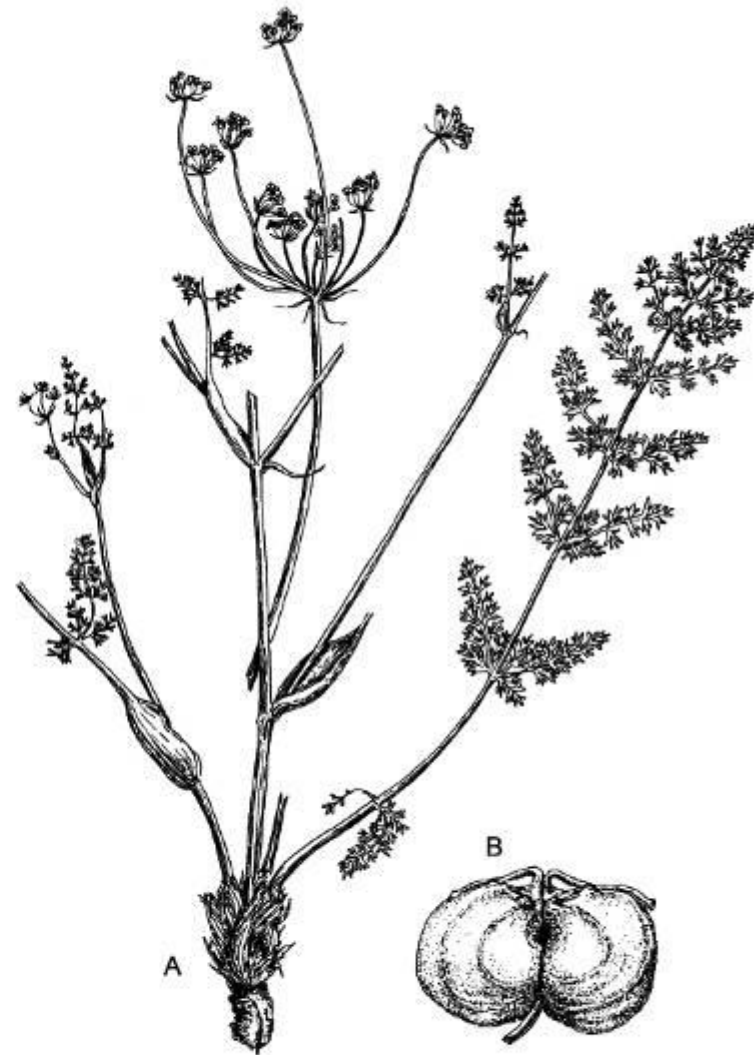


Fig. 23. Apiaceae, Apioideae. *Schrenkia vaginata*. A Habit. B Fruit. (Orig., illustration by Elena Mzhelskaya)

fruits, commissural absent. Seed face slightly

somewhat sulcate.  $2n = 22$ .

Seven species, tropical Africa. Open woodlands and grasslands. Phylogenetically isolated but similar to *Physotrichia*.

149. *Diplotaenia* Boiss. [Pimenov]

*Diplotaenia* Boiss., Ann. Sci. Nat. III, 1: 308 (1844); Pimenov et al., Willdenowia 41: 67–74 (2011), rev.

Glabrous perennials with branched rootstocks. Basal leaves 3–4-ternate or 3–4-pinnate; leaflets linear to oblong-ovate, or trifid. Bracts and bracteoles several or many, lanceolate; rays long. Petals white; styles rigid, reflexed; stylopodium conical. Fruits strongly compressed dorsally; ribs prominent but unwinged; carpophore bifurcated; commissure broad; vittae large, vallecular 1–3, commissural 2–4. Seed face concave.

Four species, SW Asia (E & S Anatolia, N Iran). Limestone ravines, stony mountain meadows. Molecular data suggest *Prangos*, *Bilacunaria*, and *Azilia* are related genera.

150. *Donnellsmithia* J.M. Coult. & Rose [Plunkett]

*Donnellsmithia* J.M. Coult. & Rose, Bot. Gaz. 15: 15 (1890); Mathias & Constance, N. Amer. Fl. 28B(1): 75–81

151. *Dorema* D. Don [Pimenov]

*Dorema* D. Don, London & Edinb. Phil. Mag. 9: 47 (1831); Pimenov, Bjull. Moskovsk. Obšč. Isp. Prir. Otd. Biol. 93, 2: 76–90 (1988), rev.

Glabrous or puberulent perennials. Leaves mainly basal, pinnatisect; leaflets lanceolate to rhombic. Umbels simple, in branched panicles, sessile or with short peduncles; bracts reduced, or several, caducous. Petals yellow or greenish-yellow; styles short; stylopodium flat. Fruits glabrous or pubescent, dorsally strongly compressed; dorsal ribs filiform, marginal narrow-winged; carpophore bifid; commissure broad; vallecular vittae solitary or several, commissural 2–8, or vittae reduced. Seed face plane.  $2n = 22$ .

12 species, Asia (SW to Middle and Pakistan). Sandy deserts, salt slopes, gypsum limestone, in xerophilic vegetation. Two sections (Pimenov 1988). The source of the medicinal aromatic gum ammoniac; leaves used as fodder in desert pastures. Phytochemical and some molecular data support maintaining the genus as distinct, but Panahi et al. (2015) suggested that the genus is nested within *Ferula*.



vallecular vittae many, rib oil ducts large, solitary.  
Seed face broadly and deeply sulcate.

224. *Komarovia* Korovin Fig. 21 [Pimenov]

*Komarovia* Korovin, Commem. Vol. 70th Ann. V. L. Komarov 427 (1939); Pimenov et al., *Komarovia* (St. Petersburg) 1: 61–73 (1999), taxon., molec. phylog.

Glabrous perennials with massive thickened rootstocks. Leaves 2–3-ternate; leaflets lanceolate. Bracts and bracteoles absent; rays few or several, long, thin. Petals yellow; styles short, divergent; stylopodium conical, undulate at margin. Fruits slightly compressed dorsally, of two unequal mericarps: one having 3, the other 4 prominent ribs; carpophore bifid; commissure rather narrow; mesocarp parenchymatous; vallecular vittae 1, commissural 2; rib oil ducts in prominent ribs. Seed face semi-lunar, with a large deep groove.  $2n = 20$ .

One species, *K. anisosperma* Korovin, Asia (Uzbekistan, Tadzhikistan). Rocks, stony slopes. Molecular studies suggest a relationship to *Parasilaus*, *Cyclorhiza*, and *Calyptroscadium*.

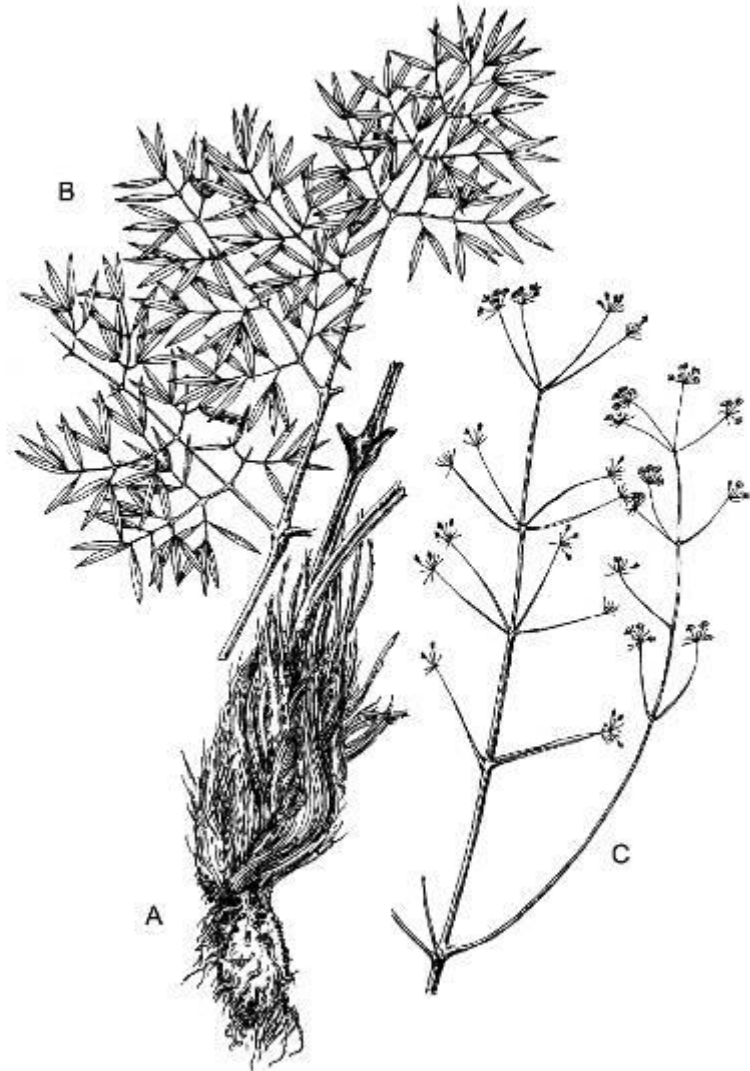


Fig. 21. Apiaceae, Apioideae. *Komarovia anisosperma*. A Plant base. B Leaf fragment. C Fragment of inflorescence. (Orig., illustration by Elena Mzhelskaya)

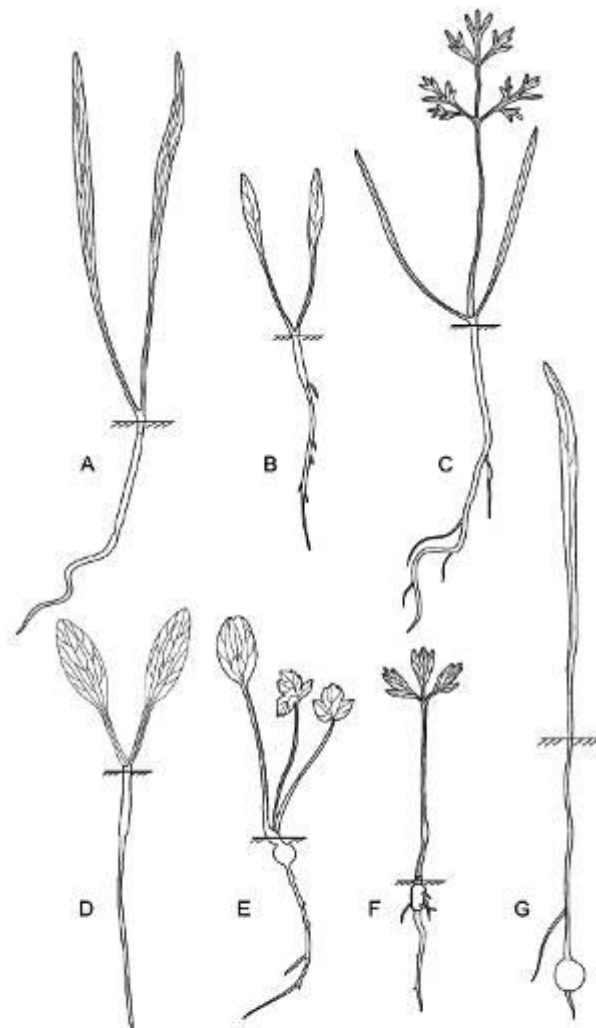


Fig. 6. Apiaceae. Seedlings, highlighting cotyledon variation. A-D Typical dicotyledonous seedlings. A *Ferula tingitana*, with narrowly oblong cotyledons. B *Oenanthe pimpinelloides*, with narrowly lanceolate cotyledons. C *Scandix grandiflora*, with linear cotyledons. D *Mediasia macrophylla*, with ovate-lanceolate cotyledons. E-G Pseudo-monocotyledonous seedlings. E *Scaligeria napiiformis*, with a single ovate cotyledon, bilobed at the tip. F *Acronema commutatum*, with a single leaf-like, ternately dissected cotyledon. G *Bunium microcarpum*, with a single narrowly oblong cotyledon. (Orig., illustrations by Svetlana Petrova)

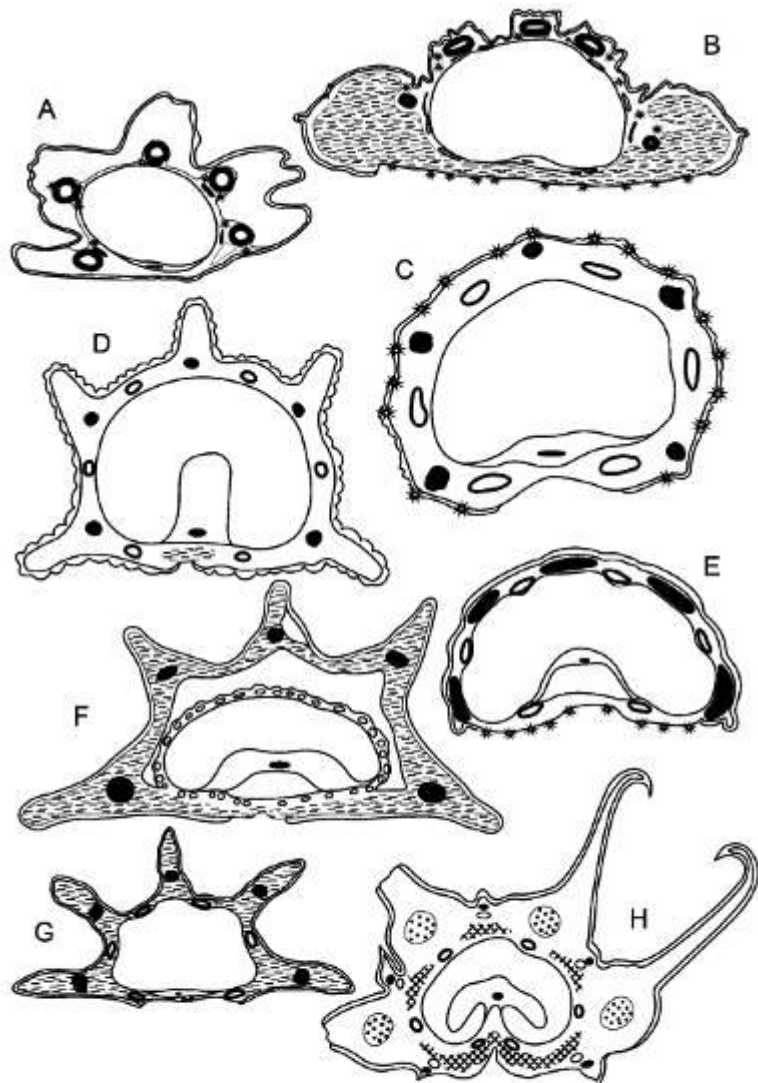


Fig. 2. Apiaceae. Line drawings highlighting major features of the transverse sections of mericarps of the following species: A *Astrantia major*. B *Eryngium maritimum*. C *Ammi majus*. D *Aulacospermum anomalum*. E *Chaerophyllum prescottii*. F *Angelica decurrens*. G *Cnidium monnieri*. H *Caulalis platycarpus*. Scale bars = 1 mm. (Orig., illustrations by Tatiana Ostroumova)

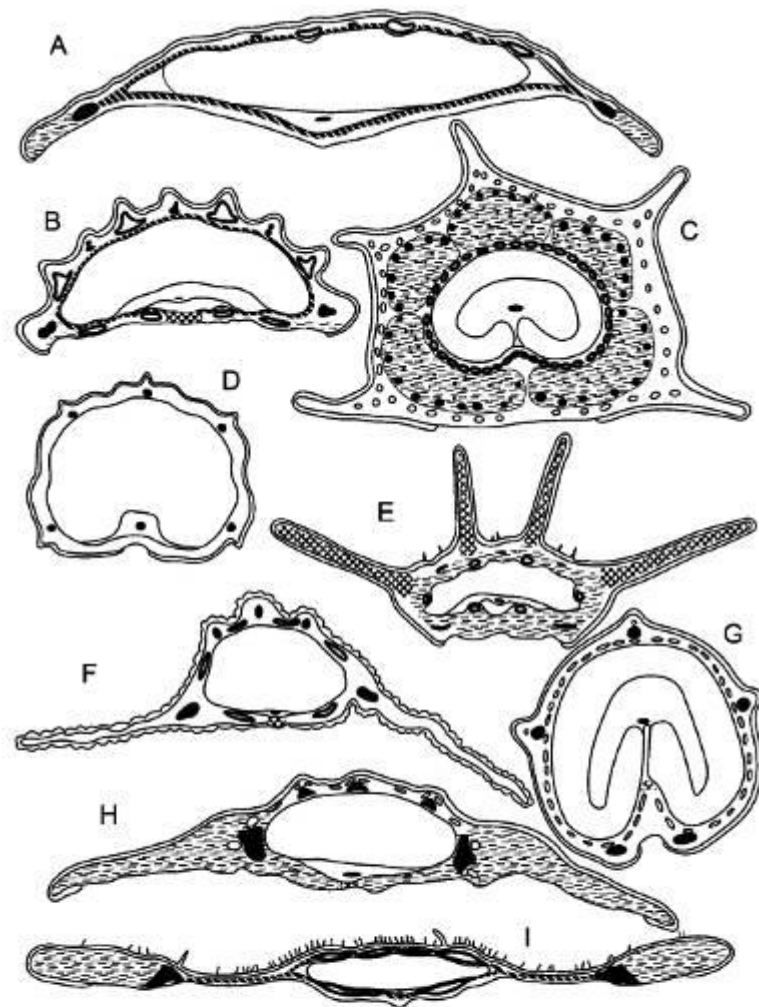
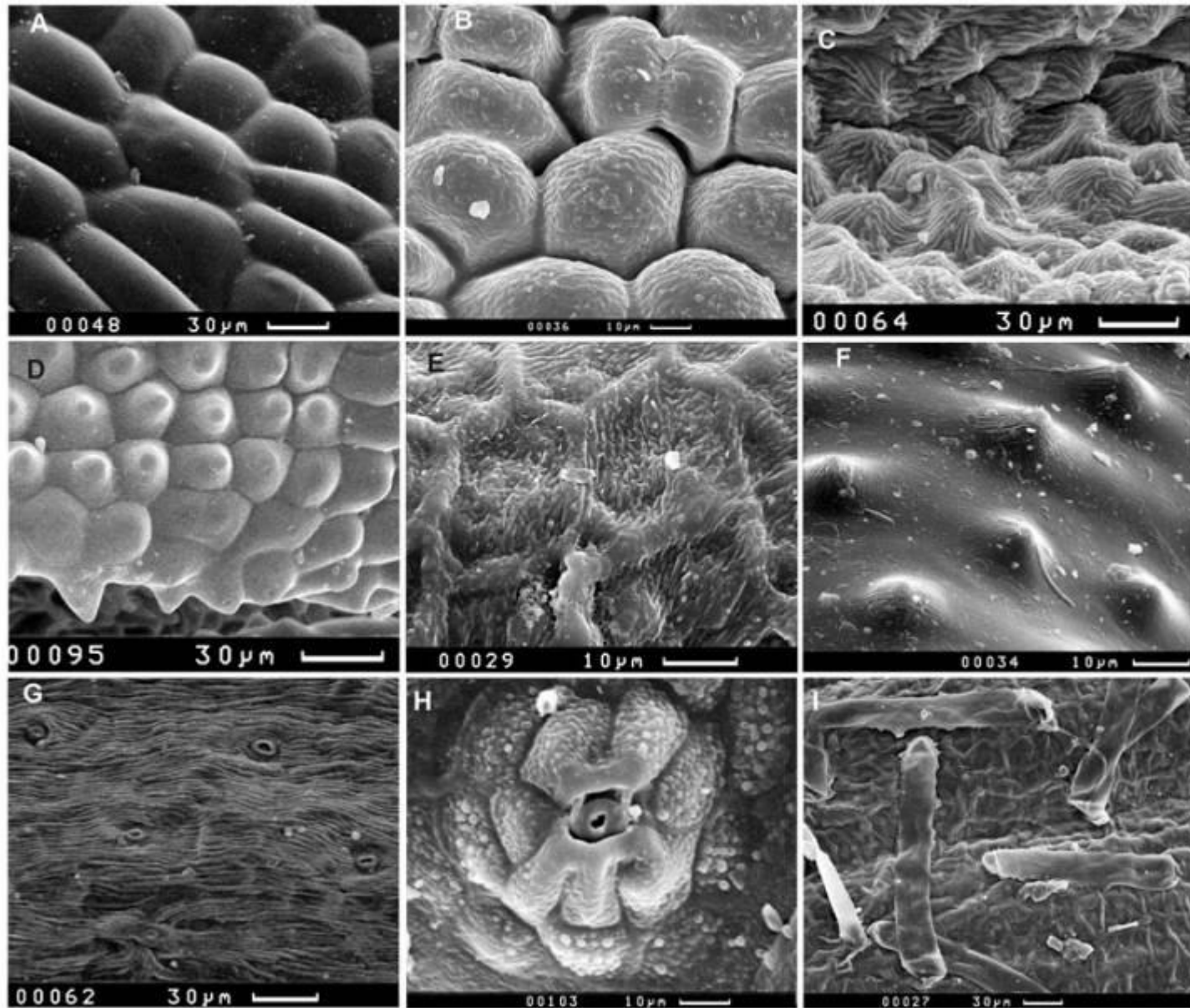


Fig. 3. Apiaceae. Line drawings highlighting major features of the transverse sections of mericarps of the following species: A *Heracleum chorodanum*. B *Laser trilobum*. C *Prangos ferulacea*. D *Bupleurum rotundifolium*. E *Laserpitium latifolium*. F *Ostericum tenuifolium*. G *Smyrniolum olusatrum*. H *Rhizomatophora aegopodioides*. I *Zosima absinthifolia*. Scale bars = 1 mm. (Orig., illustrations by Tatiana Ostroumova)



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