

# Some taxonomic problems in the genus *Daphne* L.

## Některé taxonomické problémy v rodu *Daphne*

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**Abstract.** A new subdivision of the genus *Daphne* L. is proposed. This genus is divided into 15 subgenera and 10 sections; two are newly described. One new name is published. Brief notes on the representatives of particular taxons are presented.

**Keywords:** *Daphne*, taxonomy, system.

## Introduction

The genus *Daphne* belongs to the taxonomically complicated tribe *Daphneae* C. A. Meyer of the family *Thymeleaceae*. Evolutionary relationships within the genus *Daphne* and at the generic level in the whole tribe are rather unclear. The primary centre of the evolution of the genus is found in SW China. In the mountain regions of Eurasia, less distinct centres of evolutionary radiation of *Daphne* are situated. It should be emphasized that modes of differentiation in the genus are substantially different in European and Chinese groups. About 90 species in Europe and Asia, extending to Australia and the Pacific.

**fam. *Thymeleaceae*** [nom. conserv.] C. F. Meissner in DC. Prodr. 14:493 (1857); Eichler, Bl.-diagn. 2:491 (1878); Baillon, Nat. Hist. Pl. 6:102 (1880); Gilg in Engl., Naturl. Pflanzenfam. 3(6a):216 (1895); Rehder, Bibl. Cult. Tr. Shr. 478(1949); Gundersen, Fam. Dicot. 120 (1950).

*Vepreculae* L., Phil. Bot. 33 (1751), p.p.

*Thymelaeae* Jussieu, Gen. Pl. 76 (1789).

*Daphnoideae* Ventenat, Tabl. Reg. Veg. 2:235 (1799).

*Daphnaceae* J. St.-Hilaire, Expos. Fam. Nat. 1:180 (1805).

*Aquilarineae* R. Brown, Cong. 25 (1818); De Cand. in Prodr. 2:59 (1825).

*Thymeleae* Durande in Spach, Hist. Nat. Veg. Phan. 10:434 (1841).

*Thymelaceae* Lindley, Nat. Syst. ed. 2:194 (1836).

*Aquilariaceae* Lindley, Nat. Syst. ed. 2:196 (1836).

subfam. DAPHNOIDEAE Supprian in Engl. Bot. Jahrb. 18:306 (1891).

*Thymelinae* Endlicher, Gen. Pl. Suppl. 4(2):59 (1847), ut trib.

*Thymeleae* Meissn. in DC Prodr. 14:493 (1857).

*Thymelaeoideae* Gilg in Engl., Naturl. Pflanzenfam. 3(6a):216 (1895).

The family is widely distributed in the temperate and tropical zones and many members grow especially in Africa, Australia, Eurasia and the New World.

**Trib. *Daphneae*** C. A. Meyer in Ann. Sci. Nat. ser. 2(20):46 (1843).

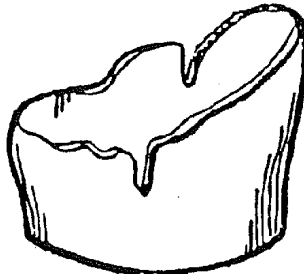
*Euthymelaeae* Benth. et Hook. fil., Gen. Pl. 3(1):187 (1880).

*Euthymeleae* Supprian in Engl. Bot. Jahrb. 18:340 (1891), p.p.

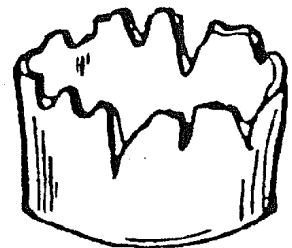
To this tribe belong genera *Daphne* and *Wikstroemia* (except several others), which create a very complicated complex, especially in SW China. The main difference is a **hypogynous disc** (*Daphne*) or **scales** (*Wikstroemia*). The scape of hypogynous discs has been regarded as an important diagnostic feature by many taxonomists. In the anatomical features, the disc traces are irregularly divided from the sepal bundles in the receptacle. At first they are arranged in a continuous layer inside that of the sepal bundles, but are quite absent on the side lacking the disc scales.



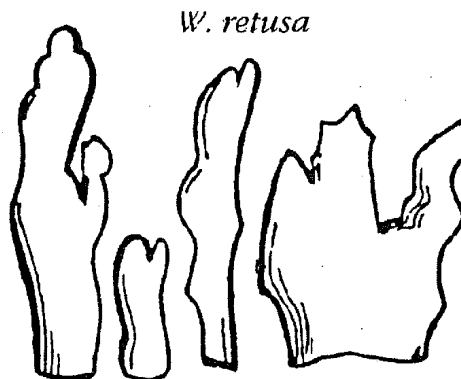
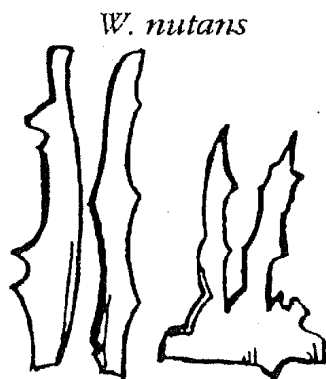
*D. pseudo-mezereum*



*D. genkwa*



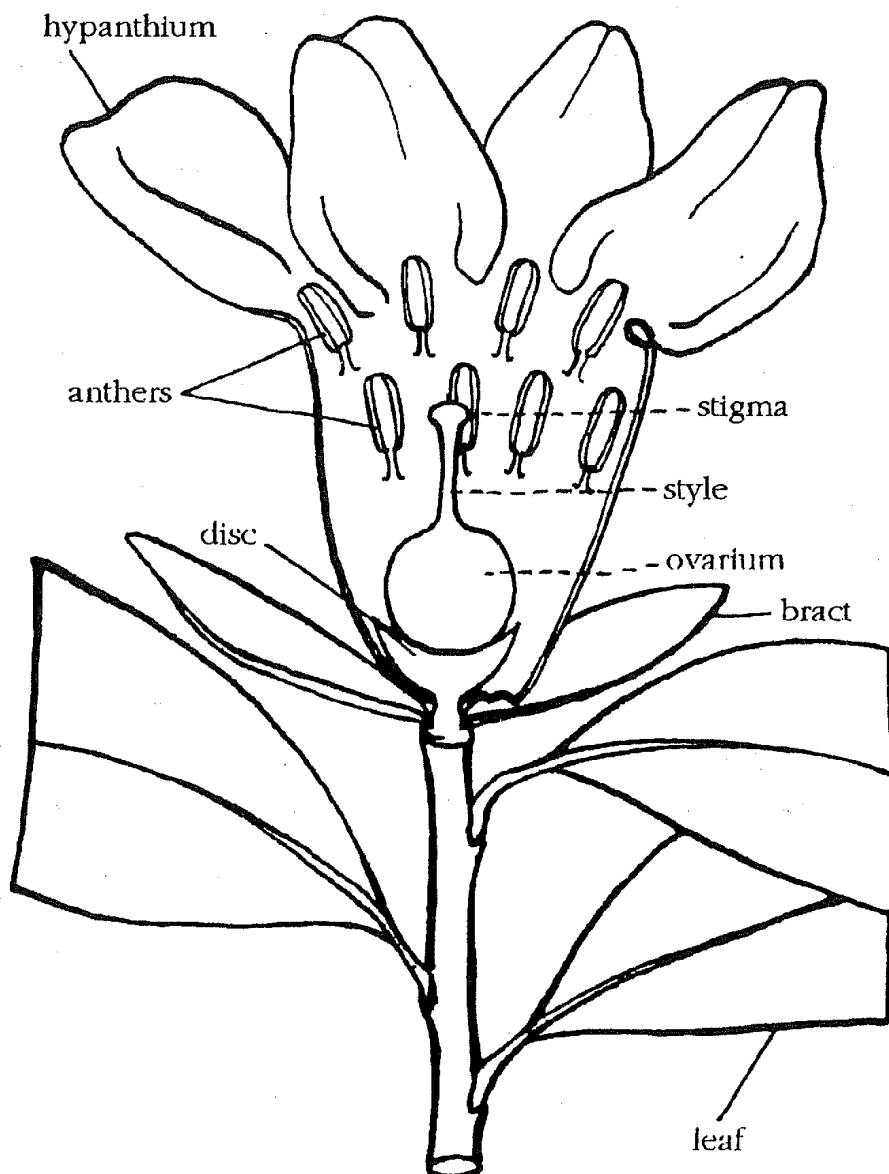
*D. kiusiana*



(Iimaya 1959)

## Diagnosis of the genus *Daphne* L.

- Daphne* L., Sp. Pl. ed. 1:356 (1753), p.p.; Gen. Pl. ed. 5:167 (1754).  
*Eriosolena* Blume, Bijdr. 651 (1825).  
*Gastrilia* Rafin. Fl. Tellur. 4:105 (1836).  
*Laureola* C. Bauh. ex Fourr. in Ann. Soc. Lyon, N. S. 17:147 (1869).  
*Mezereum* C. A. Mey. in Bull. Phys.-Math. Petersb. 1:358 (1843).  
*Mistralia* Fourr. in Ann. Soc. Linn. Lyon 17:147 (1869).  
*Nemoctis* Rafin. Fl. Tellur. 4:106 (1836).  
*Rozalia* V. Al. Richter, Egy Magyar Termes. Uti Napl. 2:422 (1905).  
*Sanamunda* Neck. Elem. 2:179 (1790).  
*Scopolia* Linn. f. Suppl. 60 (1781).  
*Thymelaea* Adans. Fam. 2:285 (1763).  
*Tumelaia* Rafin. Fl. Tellur. 4:105 (1836).



Small shrubs or rarely small trees with flexible branches. Leaves alternate (rarely opposite), persistent or deciduous, often clustered at the ends of the branches. Flowers hermaphrodite, usually very fragrant, brightly coloured to greenish, terminal or axillary, in short racemes or umbels, rarely in terminal panicles. Calyx-lobes more or less spreading, similar in colour to the receptacle-tube. Hypanthium caducous, rarely persistent and enclosing the fruit, funnel-shaped or tubular or narrowly campanulate. Sepals 4 (5). Petals 0. Stamens 8 (10), in 2 rows, 4 (5) of them inserted near the top and 4 (5) in the middle of the hypanthium; filaments very short. Style short, terminal, stigma large, sessile or nearly so, capitate. Fruit fleshy or rather dry, drupe- or nut-like, exposed at maturity. exocarp succulent, rarely coriaceous. Seeds with crustaceous coat; endosperm sparse; ovary unilocular, with a rather inconspicuous ring or ridge formed of the hypogynous scales about the base ("disc"); embryo fleshy.

## The division of the genus

**subgen. *Zuccarinia*** Halda in Skalky-Skalnicky (Brno) p.53 (1976).

[*Daphne* sect. *Genkwa* Benth. et Hook., Gen. Plant. 3:186 (1843)].

Flores 4-meri, coeruleo-lilacini, in longe pedunculatis capitulis lateralibus congesti. Folia decidua.

Flowers 4-merous, lilac-blue, in lateral long-pedunculate heads. Leaf deciduous.

**Typus:** *D. genkwa* Sieb. et Zucc.

*D. championi*, *D. genkwa*.

## subgen. *Daphne*

[*Daphne* sect. *Mezereum* Spach, Hist. veg. phan. 10:439 (1841)].

Flores rosei vel purpurei, 4-meri, prius quam folia evoluti; inflorescentiae in axillis foliorum delapsorum annotinorum dispositae; folia decidua.

Flowers rose or purple, 4-merous, before the leaves; inflorescence in a last-years leaf-axils; leaves deciduous.

**Typus:** *D. mezereum* L.

*D. mezereum* L.

**subgen. *Pseudomezereum*** Halda in Skalky-Skalnicky (Brno) p. 53 (1976).

[*Daphne* sect. *Daphnanthes* C. A. Mey. in Ann. Sc. Nat. 52(1843); series 2. *Pseudomezereum* Domke in Bibl. Bot. 3:78(1934)].

Flores 4-meri, ebracteati, lutei. Frutices erecti.  
Flowers 4-merous, ebracteate, yellow. Shrublets erect.

Typus: *D. pseudomezereum* A. Gray.

**sect. *Pseudomezereum*.**

Flores in inflorescentiis lateralibus et terminalibus. Folia autumno evoluta.  
Flowers in lateral and terminal inflorescence. Fall-leaves.

Typus: *D. pseudomezereum* A. Gray.  
*D. kamtschatica*, *D. pseudomezereum*.

**sect. *Giraldi*** Halda in Skalky-Skalnicky (Brno) p. 53 (1976).

Flores in inflorescentiis terminalibus et axillaribus. Folia vere evoluta.  
Flowers in terminal and axillar inflorescence. Spring-leaves.

Typus: *D. giraldi* Nitsche.  
*D. giraldi* Nitsche.

**subgen. *Sophia*** Halda in Skalky-Skalnicky (Brno) p. 53 (1976).

[*Daphne* sect. *Daphnanthes* C. A. Mey. in Ann. Sc. Nat. 52 (1843); series *Alpinae* Keissl. in Bot. Jahrb. 25:37 (1898)].

Flores 4-meri, ebracteati in inflorescentiis lateralibus vel terminalibus. Folia decidua.  
Flowers 4-merous, ebracteate; inflorescence lateral or terminal. Leaves deciduous.

Typus: *D. sophia* Kalenicz.  
*D. alpina*, *D. altaica*, *D. axilliflora*, *D. caucasica*, *D. longilobata*, *D. sophia*.

**subgen. *Dielsia*** Halda in Skalky-Skalnicky (Brno) p. 54 (1976).

Flores 4-meri, lutei vel aurantiaci, in capitulis terminalibus. Folia opposita vel subopposita, persistentia. Species unica.

Flowers 4-merous, yellow or orange, in terminal heads. Leaves opposite vel sub-opposite, persistens. One species.

**Typus:** *D. aurantiaca* Diels.

**subgen. *Chunia*** Halda in Skalky-Skalnicky (Brno) p. 54 (1976).

Flores 5-meri, lutei vel albidi, in capitulis axillaribus in dimidio superiore ramorum dispositi. Flowers 5-merous, yellow or whitish, in axillar heads at the top of branches.

**Typus:** *D. axillaris* (Merill et Chun) Chun et Wei.  
*D. axillaris*, *D. decandra*.

**subgen. *Sinolaureola*** Halda in Skalky-Skalnicky (Brno).

Flores 4-meri, ebracteati, in fasciculis 1-3 floribus sessilibus; frutices erecti; folia persistentia. Flowers 4-merous, ebracteate, in 1-3 flowered sessile fascicles; shrublets erect; leaves persistent.

**Typus:** *D. argyi* Leveille.  
*D. argyi*, *D. laciniata*.

**subgen. *Pseudowikstroemia*** Halda in Skalky-Skalnicky (Brno) p. 54 (1976).

Flores 5-meri (rarius 4-meri), lutei, in capitulis vel fasciculis lateralibus item terminalibus dispositi. Frutices erecti; folia decidua vel persistentia.

Flowers 5-merous (rarely 4-merous), yellow, in heads or lateral or terminal fascicles. Shrublets erect; leaves deciduous or persistent.

**Typus:** *D. ambigua* Matsuda.  
*D. ambigua*, *D. esquirolii*, *D. gemmata*, *D. gracilis*, *D. modesta*, *D. flaviflora*, *D. holosericea*, *D. myrtilloides*, *D. penicillata*, *D. rosmarinifolia*, *D. salicina*, *D. tenuiflora*.

**subgen. *Keisslera*** Halda in Skalky-Skalnicky (Brno) p. 54 (1976).

[*Daphne* sect. *Daphnanthes* C. A. Mey in Ann. Sc. Nat. 52 (1843), series *Oleooides* Keissl. in Engl. Bot. Jahrb. 25:33 (1895)].

Flores 4-meri in capitulis ebracteatis. Fruticuli erecti, pleio-usque monochasialiter ramificati; folia plerumque persistentia, subtus plerumque punctata.

Flowers 4-merous in ebracteate heads. Shrublets erect, more or less monochasially branched; leaves mostly persistent, often punctate beneath.

**Typus:** *D. oleoides* Schreber.

**sect. *Keisslera*.**

Flores in capitulis terminalibus dispositi vel in apicibus ramorum solitarii.

Flowers in terminal heads or single at the apex.

**Typus:** *D. oleoides* Schreber.

*D. jasminea*, *D. kosanini*, *D. malyana*, *D. oleoides*, *D. skipetarum*, *D. baksanica*, *D. euboica*, *D. linearifolia*, *D. mucronata*, *D. transcaucasica*, *D. stapfii*.

**sect. *Gnidioides*** Halda in Skalky-Skalnicky (Brno) p. 55 (1976).

Flores in capitulis terminalibus item axillaribus siti. Folia decidua.

Flowers in terminal heads, less in axils. Leaves deciduous.

**Typus:** *D. gnidioides* Jaub. et Spach.

Species unica.

**subgen. *Spachia*** Halda in Skalky-Skalnicky (Brno) p. 55 (1976).

Flores 4-meri, ebracteati, in racemis terminalibus, valde ramificatis. Folia persistentia. Species unica.

Flowers 4-merous, ebracteate, in terminal branched racemes. Leaves persistent. One species.

**Typus:** *D. gnidium* L.

**subgen. *Pseudolaurus*** Halda in Skalky-Skalnicky (Brno) p. 55 (1976).

[*Daphne* sect. *Laureola* Meissn. in DC. Prod. 24:538 (1856)].

Flores 4-meri, bracteati, lutei vel luteo-viridi, vel albidi in fasciculis.

Flowers 4-merous, bracteate, yellow or yellow-green or whitish in fascicles.

**Typus:** *D. laureola* L.

**sect. *Pseudolaurus*.**

Flores in fasciculis brevipedicellatis. Folia rigida.

Flowers in short-pedicellate fascicles. Leaves rigid.

*D. laureola* L., *D. libanotica*.

**sect. *Pontica*** Halda in Skalky-Skalnicky (Brno) p.55 (1976).

Flores in racemis longepedunculatis et longepedicellatis. Folia mollia.

Flowers in long-pedunculate et long-pedicellate racemes. Leaves soft.

**Typus:** *D. pontica* L.

*D. albowiana*, *D. pontica*.

**sect. *Pseudoglomerula*** Halda in Skalky-Skalnicky (Brno) p.55 (1976).

Flores ad apices ramorum in axillis foliorum congesti, capitulum falsum formantes. Fruticuli procumbentes. Flores albidi rarius purpurascenti. Species unica.

Flowers in apical leaf-axils, creating false heads. Procumbent shrublets. Flowers white, rarely purple. One species.

**Typus:** *D. glomerata* Lam.

**sect. *Bella* (Halda) Halda stat. nov.**

[bas: *Daphne* subgen. *Bella* Halda in Skalky-Skálnický (Brno) p. 56 (1976)].

Flores 4-meri, albi vel eburnei, in capitulo terminale siti. Bractee ad basim capituli etiam inter flores dispositae. Fruticuli procumbentes vel adscendentes; folia persistentia, ad apices ramorum congesta.

Flowers 4-merous, white or creamy, in terminal heads. Bracts at the base of heads. Procumbens or ascendent shrublets; leaves persistent at the apex of shoots.

**Typus:** *D. blagayana* Freyer.

*D. blagayana*, *D. macrantha*.

**subgen. *Celakovskya* Halda in Skalky-Skálnický (Brno) p.56 (1976).**

[*Daphne* sect. *Daphnanthes* C. A. Mey. in Ann. Sc. Nat. 52 (1843) series *Cneorum* Keissl. in Engl. Bot. Jahrb. 25:77 (1898)].

Flores 4-meri, in capitulo terminale, infra bracteis oblecto. Fruticuli humiles, procumbentes vel adscendentes; ramuli tenues, plerumque dichotome ramificati. Folia persistentia, parva, elongata. Rami juveniles post anthesin crescentes.

Flowers 4-merous in terminal bracteate heads. Small procumbent or ascendent shrublets; branches thin, mostly dichotomous. Leaves persistent, tiny, elongate. Young shoots grow after anthesis.

**Typus:** *D. cneorum* L.

*D. arbuscula*, *D. cneorum*, *D. julia*, *D. petraea*, *D. rodriguezii*, *D. striata*.

**subgen. *Rehdera* Halda in Skalky-Skálnický (Brno) p.57 (1976).**

[*Daphne* sect. *Daphnanthoides* Gilg in Naturl. Pflanzenfam. 3(6a):238 (1895), p.p.].

Flores 4-meri, in capitulo terminali, infra bracteis tecto. Frutices vel fruticuli erecti, ramis plerumque validis, foliis magnibus, plus minus coriaceis, persistentibus.

Flowers 4-merous in terminal bracteate heads. Shrubs or densely branched small erect shrublets with more or less large leathery persistent leaves.

**Typus:** *D. retusa* Hemsley.

**sect. *Rehdera*.**

Folia subcoriacea; in florescentia ad laterem vergens (sympodium).  
Leaves semi-leathery; inflorescence sympodial.

**Typus:** *D. retusa* Hemsley.

*D. limprichti*, *D. retusa*, *D. szechuanica*, *D. tangutica*, *D. vaillantii*, *D. wilsoni*.

**sect. *Bholua* Halda in Skalky-Skalnicky (Brno) p. 57(1976).**

Folia rigida coriacea; inflorescentia continuum axem formans (pleiusque monochasium).  
Leaves leathery, rigid; inflorescence monochasial.

**Typus:** *D. bholua* Buch. - Ham.

*D. acutiloba*, *D. arisanensis*, *D. bholua*, *D. bodinieri*, *D. cannabina*, *D. cavaleriei*, *D. feddei*,  
*D. gruenigiana*, *D. kiusiana*, *D. luzonica*, *D. myiabeana*, *D. odora*, *D. shillong*, *D. sureil*.

**subgen. *Vahlia* Halda in Skalky-Skalnicky (Brno) p.56 (1976).**

[*Daphne* sect. *Daphnanthes* C. A. Meyer in Ann. Sc. Nat. 52 (1843) series *Collinae* Keissl. in Engl. Bot. Jahrb. 25:97 (1898)].

Flores 4-meri, in capitulo terminali, infra bracteis obtecto; ramuli juveniles simul cum floribus apparent.

Flowers 4-merous, in terminal multibracteous heads; young shoots in anthesis.

**Typus:** *D. collina* Smith.

*D. circassica*, *D. collina*, *D. pseudosericea*, *D. sericea*. *D. vahlia*.

**subgen. *Eriosolena* (Blume) Halda stat. nov.**

[bas: *Eriosolena* Blume, Bijdr. 651 (1826), pro gen.; sect. *Eriosolena* (Blume) Gilg, Naturl. Pflanzenfam. 238 (1894)].

Flores 4-meri, bracteati, in capitulo axillari longe-pedunculati.

Flowers 4-merous, bracteate, in a long-pedunculate axillar heads.

**Typus:** *D. composita* (L.f.) Gilg.

**New description**

***Daphne jasminea*** Sibth. et Sm. **subsp. *jarmilae*** J. J. Halda **subsp. nov.**

Subsp. *jasminea* proxima, sed robusta (ad 80cm alta), multiflora; flores albi vel lactei, unicolori.

**Holotypus:** Herbarium Halda no. 97070315, leg. Josef & Jarmila Halda 3.7.1987.

**Patria et Distributio:** Africa septentrionalis, Libya: Wadi Derna; saxum calcareum praeruptum apricum.

This newly described taxon is known from April 1887, when Taubert collected several specimens on cliffs near Derna. We collected more specimen around Shahat (J.&J. Halda 97070201, 9707033) which all are similar. Our collections from Crete (Agia Irini J. & J. Halda 8304015, Agia Roumeli J. & J. Halda 830472) correspond to Libyan populations. They all are very robust, with erect branches and pure white or creamy flowers. [subsp. *jasminea* forms compact small cushions or carpets with more or less smaller flowers, which are outside flushed purplish].

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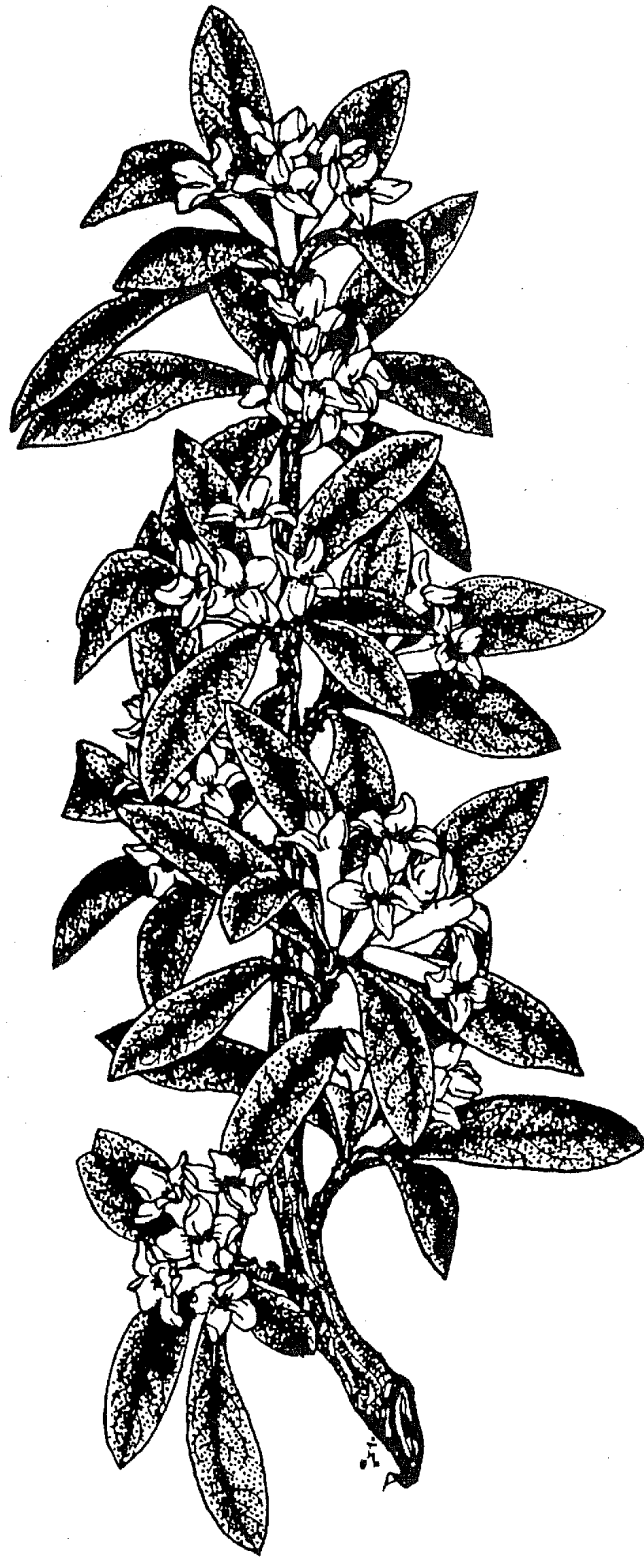
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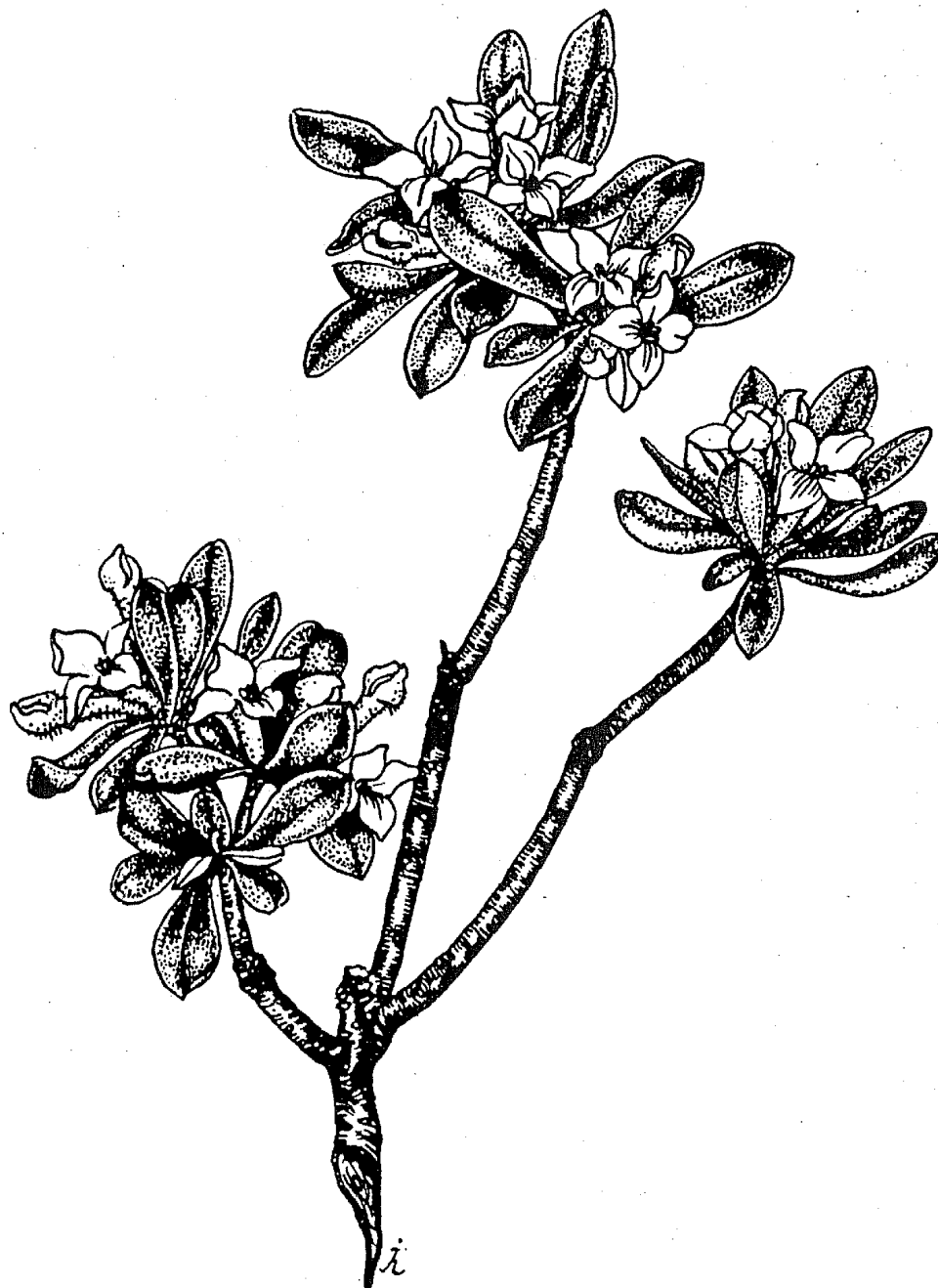
*D. genkwa* Siebold et Zuccarini (subgen. *Zuccarinia*).



*D. mezereum* L. (subg. *Daphne*).



*D. pseudo-mezereum* Asa Gray (subg. *Pseudomezereum*).



*D. alpina* L. (subg. *Sophia*).



*D. aurantiaca* Diels. (subg. *Dielsia*).

*D. argyi* Léveillé (subg. *Sinolaureola*).



*D. axillaris* (Merrill et Chun) Chun et Wei (subg. *Chunia*).



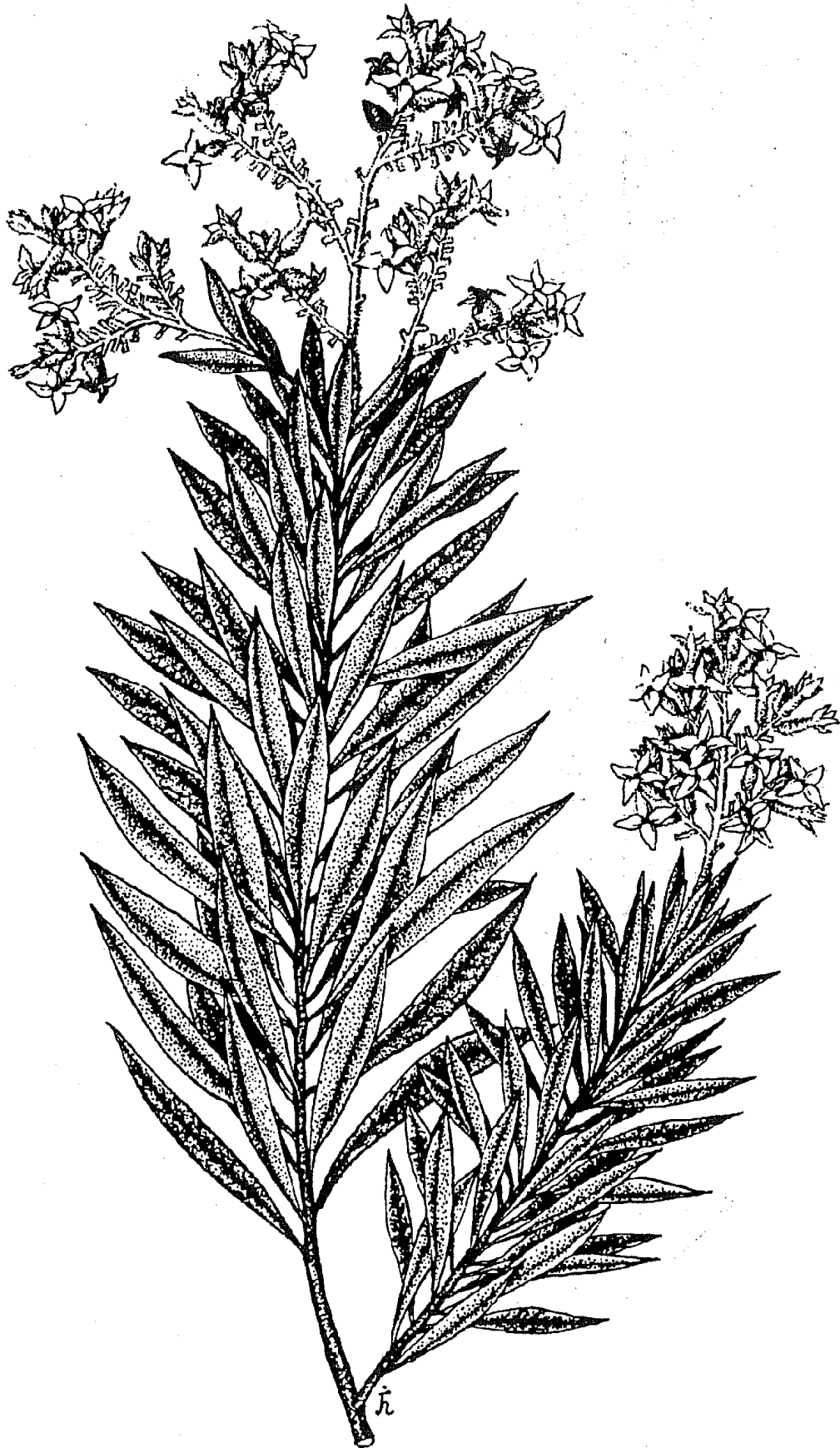
*D. holosericea* (Diels) Hamaya (subg. *Pseudowikstroemia*).



*D. oleoides* Schreb (subg. *Keisslera*, sect. *Keisslera*).



*D. gnidioides* Jaubert et Spach (subg. *Keislera*, sect. *Gnidioides*).

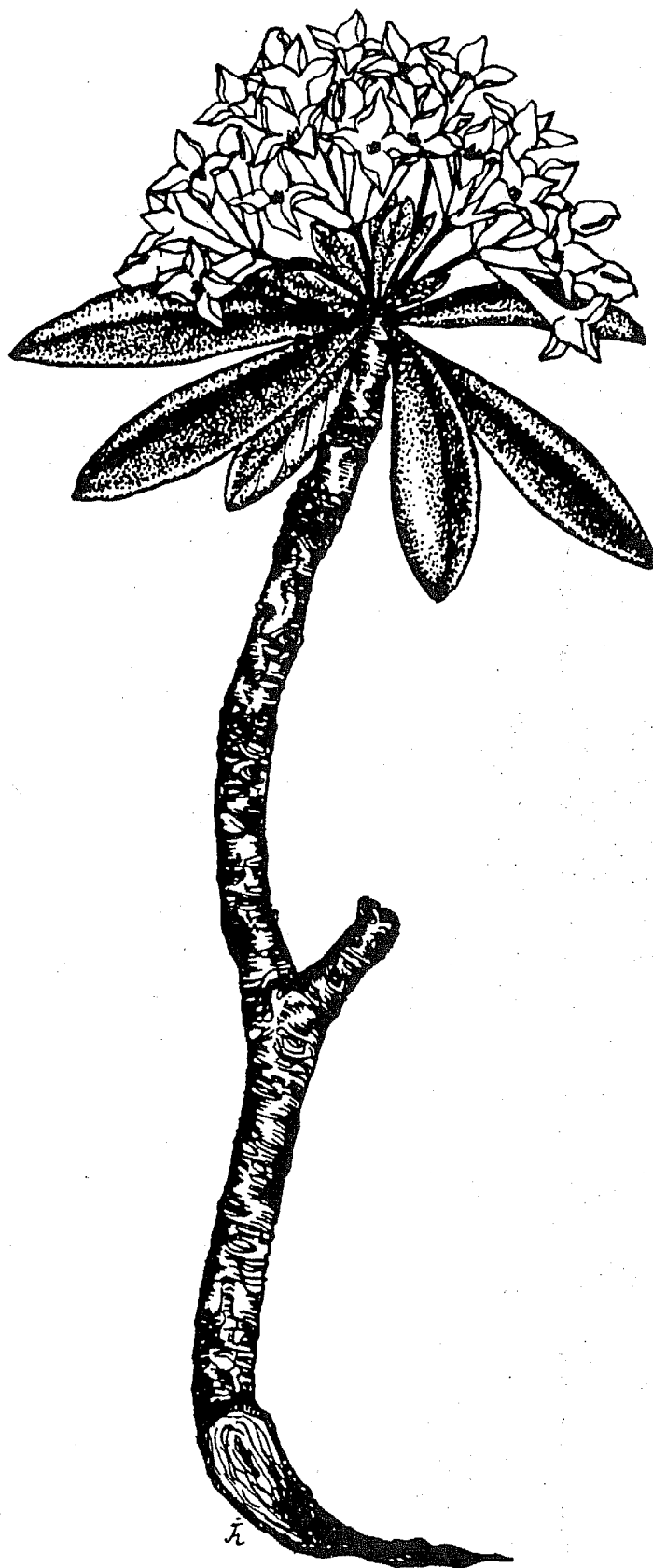


*D. gnidium* L. (subg. *Spachia*).

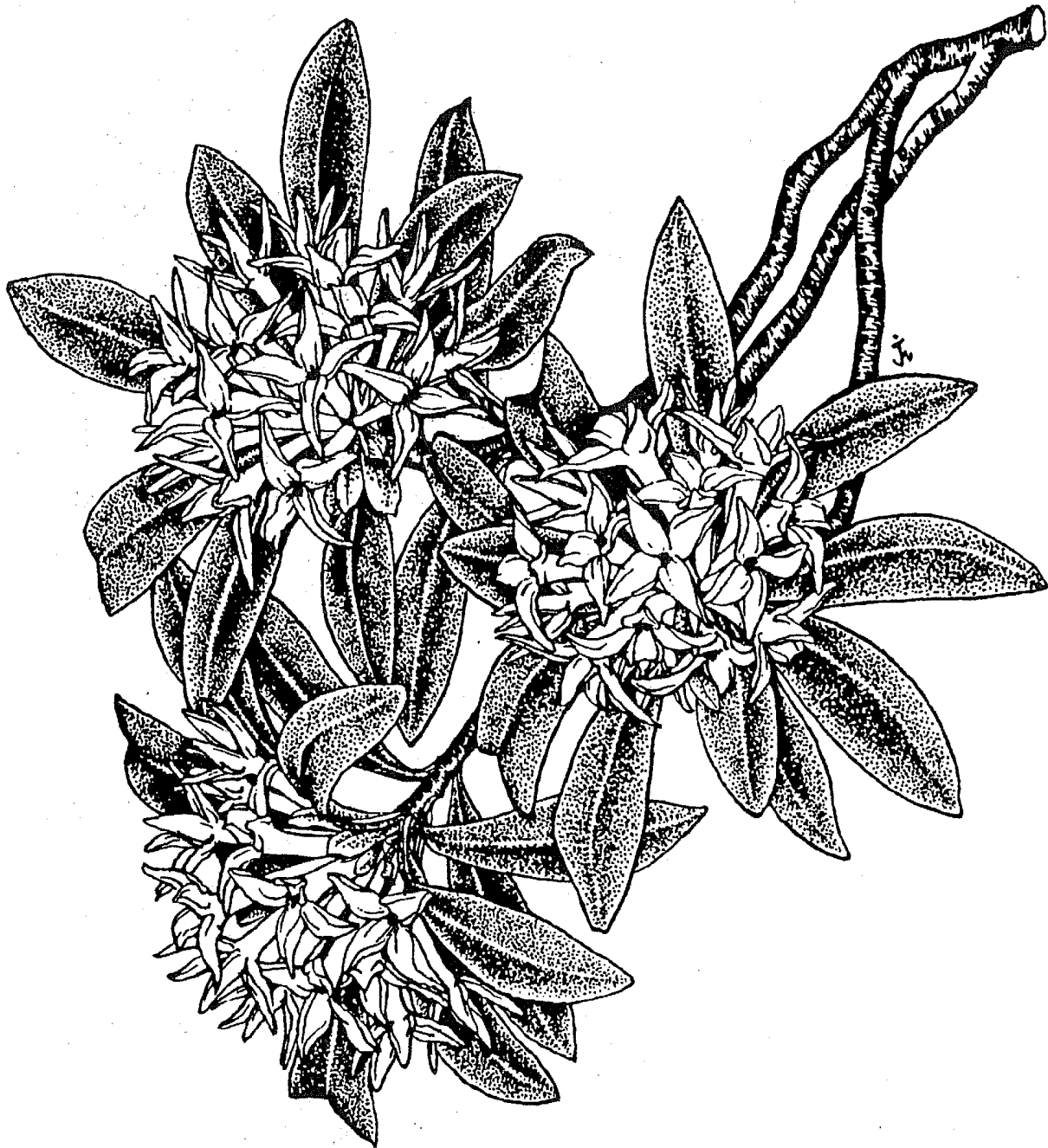
*D. laureola* L. (subg. *Pseudolaurus*,  
sect. *Pseudolaurus*).



*D. pontica* L. (subg. *Pseudolaurus*, sect. *Pontica*).



*D. glomerata* Lamarck (subg. *Pseudolaurus*, sect. *Pseudoglomerula*).



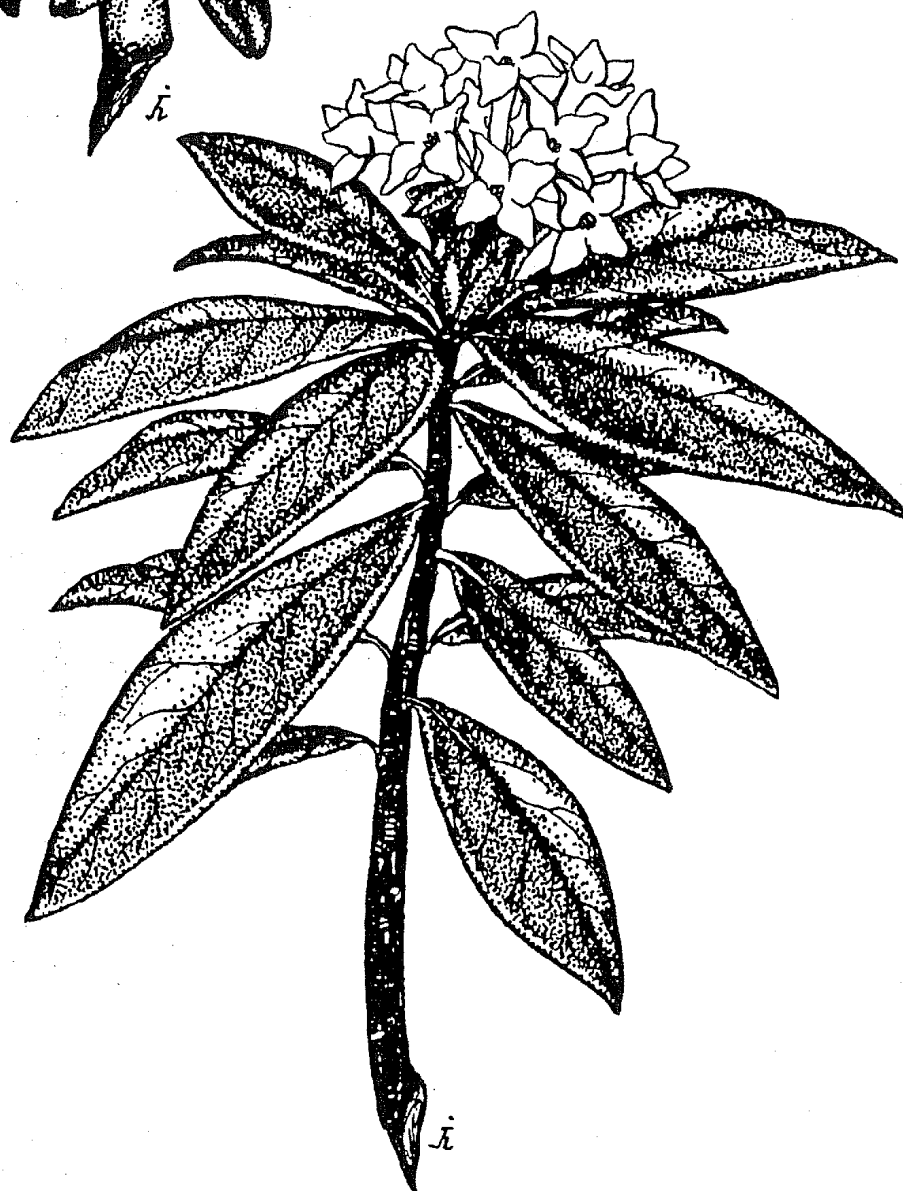
*D. blagayana* Freyer (subg. *Pseudolaurus*, sect. *Bella*).



*D. cneorum* L. (subg. *Celakovskya*).

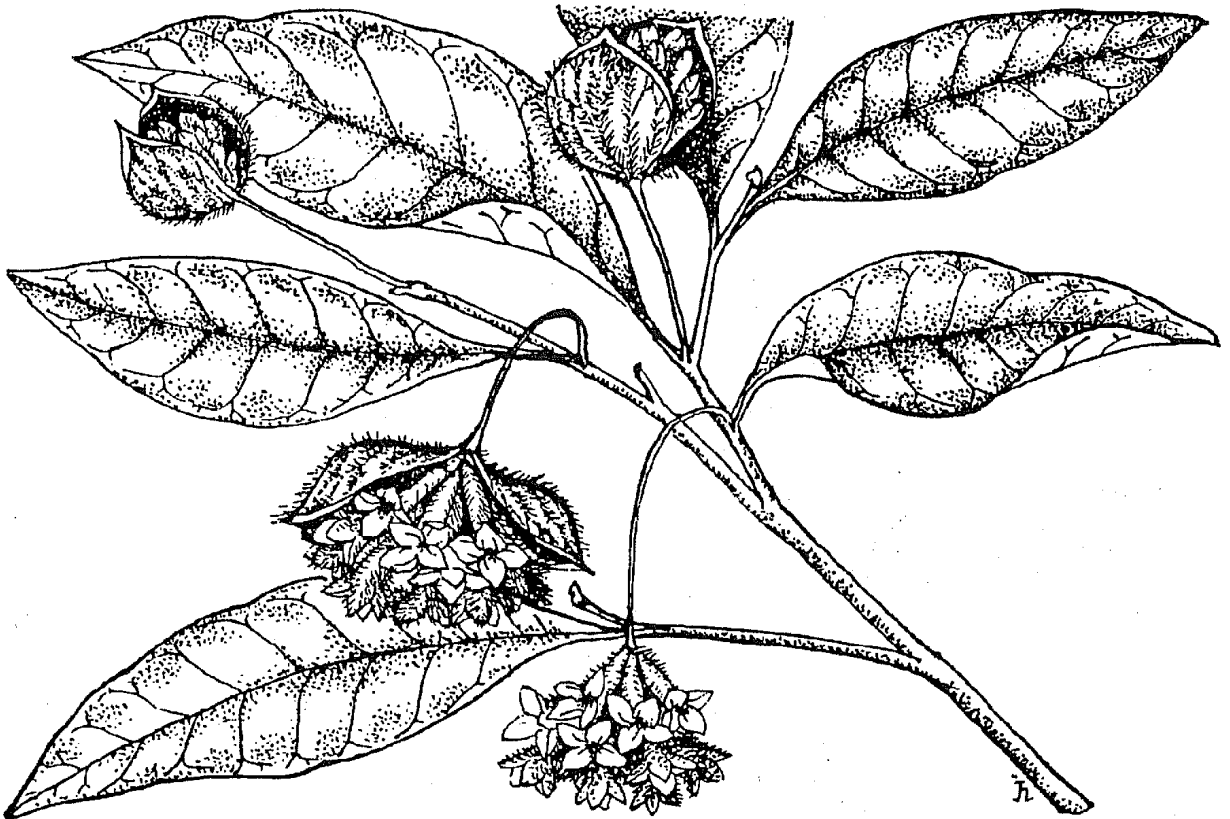
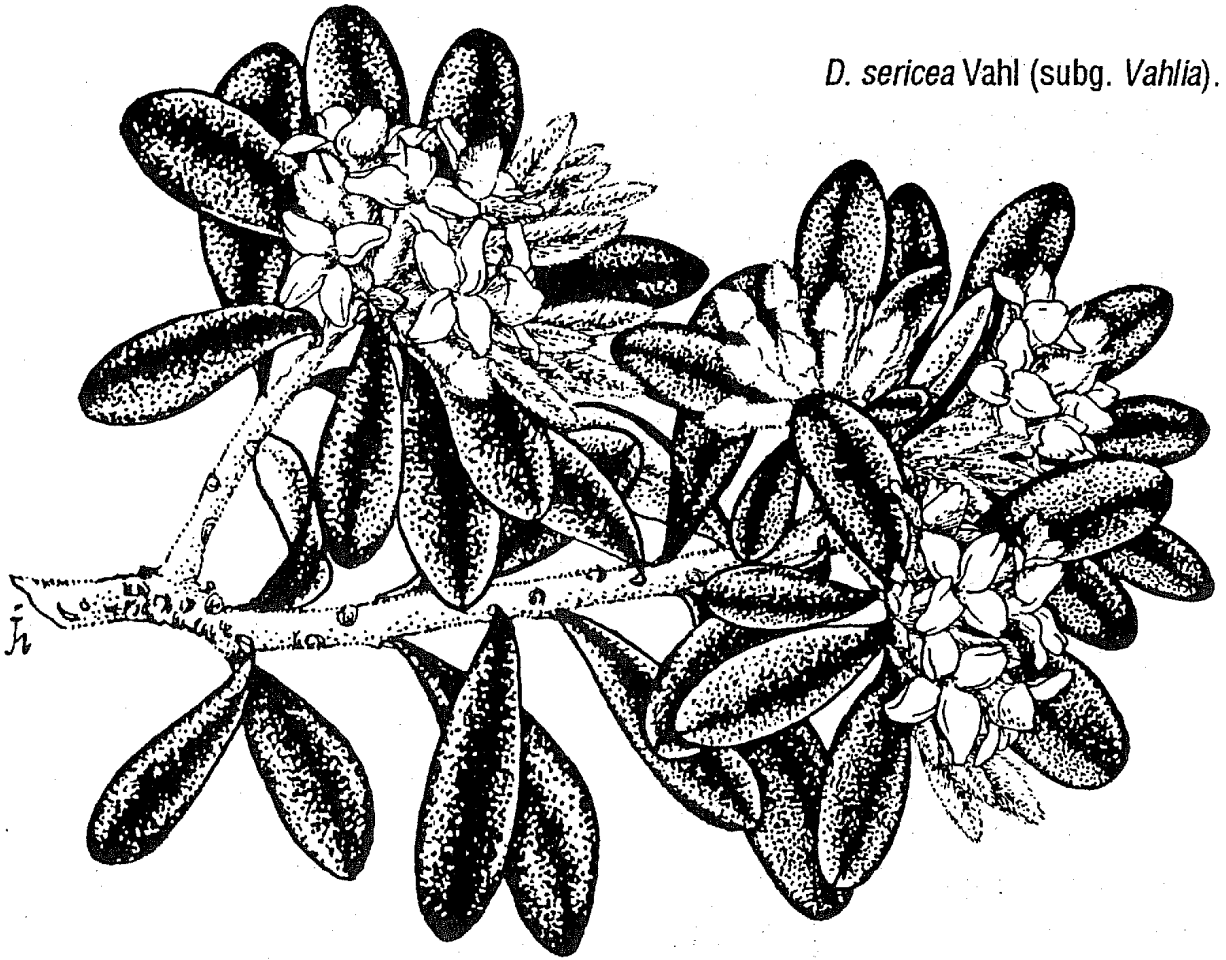


*D. retusa* Hemsley (subg. *Rehdera*,  
sect. *Rehdera*).



*D. odora* Thunberg (subg. *Rehdera*, sect. *Bholua*).

*D. sericea* Vahl (subg. *Vahlia*).



*D. composita* (L. f.) Gilg (subg. *Eriosolena*).