

---

# Validation of Some Suprageneric Names in Magnoliophyta

*James L. Reveal*

Norton-Brown Herbarium, University of Maryland, College Park, Maryland 20742-5815, U.S.A.

*Alexander B. Doweld*

National Institute of Carpology (Gaertnerian Institution), P.O. Box 72, RUS-11915,  
Moscow, Russian Federation

---

**ABSTRACT.** Eight superordinal and twelve ordinal names not validly published by A. L. Takhtajan in 1997 are formally validated. One name proposed by Cronquist in 1980 is validated. In addition, three names not properly validated by J. L. Reveal are included. A new family name, Exbucklandiaceae, is proposed for the illegitimate family name Bucklandiaceae. Engelhardtaceae is validated to accommodate *Engelhardtia*, *Alfaroa*, *Alfaropsis*, and *Oreomunnea*, all distinct from the Juglandaceae s. str.

In 1997, A. L. Takhtajan proposed numerous new suprageneric names in his review of the classification of the flowering plants (Magnoliophyta). Unfortunately, a few proved not to be validly published as required by the *International Code of Botanical Nomenclature* (Greuter et al., 1994). These names are now validated with the blessing of Professor Takhtajan. Hydatellales, proposed by Cronquist in a Takhtajan (1980) paper was not validly published (Art. 32.4, 33.2); it is here validated. Two names proposed previously by Reveal (1992, 1993), Rhizophorales and Torricelliales, are also validated. Engelhardtaceae is established as a distinct family for four genera: *Engelhardtia* Leschenault ex Blume (5 spp., northern India to China and the Philippines), *Alfaroa* Standley (7 spp., Mexico to Colombia), *Alfaropsis* Iljinskaja (1 sp., Southeast Asia), and *Oreomunnea* Oersted (2 spp., Mexico to Panama), which are distinct in pollen morphology, seed and fruit anatomy, and morphology from Juglandaceae (s. str.; Iljinskaja, 1990). Exbucklandiaceae, recently introduced by Doweld (1998), is proposed as a valid, substituted family name for the illegitimate Bucklandiaceae J. Agardh. The family is restricted to a single genus, *Exbucklandia* R. W. Brown (2 spp., eastern Asia and Malesia).

**Barbeyanae** Takhtajan ex Reveal & Doweld, superord. nov. TYPE: *Barbeya* Schweinfurth; Barbeyaceae Rendle, in Dyer, Fl. Trop. Afr. 6(2): 14. 1916, nom. cons.

Arbusculae; folia opposita, exstipulata; flores dioici, regulares, ebracteati v. ebracteolati; petala nulla; sepala 3–4, basi connata; stamina 6–9(–12); antherae oblongae, longitudinaliter dehiscentes; ovarium 1–3-partitum, carpella basi connata, uniovulata; ovulum anatropum, pachychalazale; fructus (capsetum) indehiscens, calycis limbo persistente; semina exalbuminosa, embryo rectus, cotyledonibus duobus planis instructus.

Trees; leaves opposite, simple, entire, pinnately veined, stipulate; inflorescences reduced cymes of short, 3-flowered dichasia, ebracteate; flowers small, wind-pollinated, dioecious, the calyx of 3–4 valvate sepals, accrescent basally, the petals none; stamens 6–9(–12), the anthers basifixed, tetrasporangiate, dehiscing longitudinally; ovary superior, 1–3-merous, the carpels typically connate basally, each with a linear style terminated by a decurrent, plumose stigma; ovules solitary, anatropous, pachychalazal; fruits an indehiscent capsetum; seeds exalbuminous; embryo straight with two flattened cotyledons.

**Buxanae** (Müller Argoviensis) Takhtajan ex Reveal & Doweld, superord. et stat. nov. Basionym: subtrib. Buxinae Müller Argoviensis, in DC., Prodr. 16(1): 9, 11. 1869 [Latin diagnosis in key and description in Latin]. TYPE: *Buxus* L.; Buxaceae Dumortier, Anal. Fam. Pl.: 45. 1829, nom. cons.

**Casuarinanae** (Lindley) Takhtajan ex Reveal & Doweld, superord. et stat. nov. Basionym: ord. Casuarinales Lindley, Nix. Pl.: 167. 1833 [Latin diagnosis in key]. TYPE: *Casuarina* Adanson; Casuarinaceae R. Brown, in Flinders, Voy. Terra Austr. 2: 571. 1814, nom. cons.

**Ceratophyllanae** Takhtajan ex Reveal & Doweld, superord. nov. TYPE: *Ceratophyllum* L.; Ceratophyllaceae Gray, Nat. Arr. Brit. Pl. 2: 395, 554. 1821, nom. cons.

Herbae submersae, caule ramisque teretibus, nodoso-articulatis; folia verticillata, sessilia, exstipulata, dichotome dissecta; flores monoici, apetalii; in floribus masculis sepala libera, 9–10(–12); stamina (5–)8–18(–27), antherae biloculares, longitudinaliter dehiscentes; in floribus femineis calyx ut in masculis, ovarium unicum (folliculare), sessile; stylus terminalis, apice hinc stigmatosus; ovulum unicum, pendulum, orthotropum, unitegminatum; nuculae monospermae, coriaceae, involucre persistente stipatae, stylo persistente apiculatae; semen exalbuminosum, cotyledonibus duobus, plumula polyphylla.

Submerged aquatic herbs, rootless, monoecious; leaves simple, verticillate, essentially sessile, dichotomously divided into linear serrulate segments, estipulate, the stomata lacking; flowers minute, solitary, axillary, apetalous, actinomorphic, the calyx of 9–10(–12) bractlike sepals, hypogynous; stamens (5–)8–18(–27), spirally arranged, developing centripetally, the anthers oblong, tetrasporangiate, dehiscent longitudinally; pollen inaperturate; ovary superior, solitary (follicular), the style fairly long, the stigma decurrent ventrally; ovule solitary, pendulous, orthotropous, unitegmic; fruits a nutlet with a persistent stylodium and basal to lateral horns; seeds minute, essentially exalbuminous; embryo large, with two oblong, fleshy cotyledons, the radicle shorter than the cotyledons, the plumule well developed.

**Dioscoreanae** (R. Brown) Takhtajan ex Reveal & Doweld, superord. et stat. nov. Basionym: fam. Dioscoreaceae R. Brown, Prodr.: 294. 1810 [Latin description]. TYPE: *Dioscorea* L.; Dioscoreaceae R. Brown, Prodr.: 294. 1810, nom. cons.

**Lactoridanae** Takhtajan ex Reveal & Doweld, superord. nov. TYPE: *Lactoris* R. Philippi; Lactoridaceae Engler, in Engler & Prantl, Nat. Pflanzenfam. 3(2): 19. 1888, nom. cons.

Frutices; folia alterna, petiolata, simplicia, stipulae interpetiolares; flores in monochasia axillaria conferti, polygami-monoici, cyclici, apetalii, 3-partiti; sepala 3, libera; stamina 6, dicyclica; gynoecium apocarpum, 3-carpellare; ovula 4–8, anatropa, bitegminata; fructus (capsetum) ventrihiscens; semina albuminosa; embryo minutissimus.

Small shrubs with swollen nodes; leaves alternate, simple, distichous, with large ochrelike interpetiolar stipules united to the petioles; inflorescences an axillary monochasia; flowers polygamo-monoecious, cyclic, apetalous, trimerous, the sepals free; stamens 6 in two whorls, the anthers extrorse, dehiscent longitudinally; ovary of 3 free carpels nar-

rowing to a stylodium bearing a short, decurrent stigma; fruits a trimerous ventrihiscens capsetum; ovules 4–8 per carpel, anatropous, bitegmic; seeds small, albuminous; embryo minute and essentially undifferentiated.

**Poanae** Takhtajan ex Reveal & Doweld, superord. et nom. nov. Basionym: fam. Gramineae Jusieu, Gen. Pl.: 28. 1789, nom. cons. et nom. alt. [Latin description]. TYPE: *Poa* L.; Poaceae (R. Brown) Barnhart, Bull. Torrey Bot. Club 22: 7. 1895, nom. cons.

**Rhizophoranae** (Persoon) Takhtajan ex Reveal & Doweld, superord. et stat. nov. Basionym: fam. Rhizophoraceae Persoon, Syn. Pl. 2: 3. 1807 [Latin description]. TYPE: *Rhizophora* L.; Rhizophoraceae R. Brown, in Flinders, Voy. Terra Austr. 2: 549. 1814, nom. cons.

**Anisophylleales** (Bentham & Hooker f.) Takhtajan ex Reveal & Doweld, ord. et stat. nov. Basionym: trib. Anisophylleae Bentham & Hooker f., Gen. Pl. 1: 678, 683. 1865 [Latin diagnosis]. TYPE: *Anisophyllea* R. Brown ex Sabine; Anisophyllaceae Ridley, Fl. Malay. Penins. 1: 700. 1922.

**Chrysobalanales** (DC.) Takhtajan ex Reveal & Doweld, ord. et stat. nov., Basionym: trib. Chrysobalaneae DC., Prodr. 2: 525. 1825 [Latin description]. TYPE: *Chrysobalanus* L.; Chrysobalanaceae R. Brown, in Tuckey, Narr. Exped. Congo: 433. 1818, nom. cons.

**Flagellariales** (Meisner) Takhtajan ex Reveal & Doweld, ord. et stat. nov. Basionym: subfam. Flagellarioideae Meisner, Pl. Vasc. Gen.: Tab. Diagn. 406. 1842 [Latin diagnosis in key]. TYPE: *Flagellaria* L.; Flagellariaceae Dumortier, Anal. Fam. Pl.: 59–60. 1829, nom. cons.

**Griseliniales** (J. R. Forster & G. Forster ex Cunningham) Takhtajan ex Reveal & Doweld, ord. et stat. nov. Basionym: fam. Griselinaceae J. R. Forster & G. Forster ex Cunningham, Ann. Nat. Hist. 3: 261. 1839 [Latin diagnosis]. TYPE: *Griselinia* Forst.; Griselinaceae J. R. Forster & G. Forster ex Cunningham, Ann. Nat. Hist. 3: 261. 1839.

**Hydatellales** Cronquist ex Reveal & Doweld, ord. et stat. nov., based on fam. Hydatellaceae U. Hamann, *New Zealand J. Bot.* 14: 195. 1976 [Latin description]. TYPE: *Hydatella* Diels; Hydatellaceae U. Hamann, *New Zealand J. Bot.* 14: 195. 1976.

**Hypoxidales** (Bernhardi) Takhtajan ex Reveal & Doweld, ord. et stat. nov. Basionym: trib. Hypoxideae Bernhardi, *Flora* 23: 426. 1840 [Latin diagnosis]. TYPE: *Hypoxis* L.; Hypoxidaceae R. Brown, in Flinders, *Voy. Terra Austr.* 2: 576. 1814, nom. cons.

**Lowiales** Takhtajan ex Reveal & Doweld, ord. nov. TYPE: *Lowia* Scortechini; Lowiaceae Ridley, *Fl. Malay. Penins.* 4: 291. 1924, nom. cons.

Herbae perennes, acaules; folia basalia, disticha, petiolata; inflorescentiae e rhizomate erumpentes, cymosae, bracteosae; flos zygomorphicus; sepala 3, in tubum longum coalita; petala 3, inaequalia, petalum medianum, aliis dissimile, ex floribus exterius; stamina 5, epigyna, unilateralia; antherae basifixae, biloculares; ovarium inferum, 3-loculare, in quoque loculo ovula numerosa, 2-seriata; stylus apice trifurcatus; ovula anatropa, bitegminata; fructus capsularis, dorsihiscens; semina albuminosa, arillo trilobato cincta.

Small to mid-sized perennial, rhizomatous herbs; leaves basal, distichous, sheathing at the base with a long well-developed petiole and lanceolate to elliptic blade, the lateral veins arching and converging apically; inflorescences a short, terminal few-flowered monochasial cyme, originated directly from the rhizome, bracteose; flowers zygomorphic and somewhat orchid-like, bisexual, the sepals 3, connate basally into a slender tube, the petals 3 with the middle one large and the others small; stamens 5, epigynous, the anthers bilocular, basifixed; pollen inaperturate; ovary inferior, 3-locular, the stigmas 3, laciniate; ovules numerous, biseriata, anatropous, bitegmic; fruits a dorsihiscent capsine (inferior capsule); seeds globose, arillate, albuminous.

**Medusagynales** Takhtajan ex Reveal & Doweld, ord. nov. TYPE: *Medusagyne* Baker; Medusagynaceae Engler & Gilg, *Syllabus*, ed. 9–10: 280. 1924, nom. cons.

Frutex ramosus; folia opposita, exstipulata, brevipetiolata; paniculae terminales, trichotomae; pedicelli graciles; bractee bracteolaeque nullae; sepala 5; petala 5; stamina numerosa, hypogyna, antherae basifixae, biloculares, lon-

gitudinaliter dehiscentes; ovarium multiloculare (20–25), loculis angustis, styli validi, tarde decidui, stigmata capitata; ovula in quoque loculo duo, medio affixa, superposita, pendula vel adscendentia; fructus sciridialis; carpella a basi lateri-lobihiscentia, sursum divergentia, apice persistentia; semina oblonga, alata; endospermium minimum; embryo rectus.

Shrubs or small trees; leaves opposite, simple, leathery, estipulate; inflorescences a terminal panicle; flowers andromonoecious (bisexual and male only in the same inflorescence), actinomorphic, hypogynous, foetid, the sepals 5, imbricate, reflexed, basally connate, persistent; petals 5, free, imbricate and contorted in bud; stamens numerous, free, spirally arranged in 4–5 levels, the anthers basifixed, dehiscing longitudinally; ovary multilocular (20–25) with narrow locules, the robust styles free, the stigmas capitate; ovules 2 per locule, superposed, one pendulous and one erect; fruits a specialized lateri-lobihiscent (columellate) sciridium with carpels remaining united at the apex; seeds small, winged, exotegmic, the endosperm limited to a narrow band of thin-walled cells; embryo straight.

**Rapateales** (Meisner) Colella ex Reveal & Doweld, ord. et stat. nov. Basionym: subfam. Rapateoideae Meisner, *Pl. Vasc. Gen.: Tab. Diagn.* 405. 1842 [Latin diagnosis in key]. TYPE: *Rapatea* Aublet; Rapateaceae Dumortier, *Anal. Fam. Pl.*: 60, 62. 1829, nom. cons.

**Rhizophorales** (Persoon) Tieghem ex Reveal & Doweld, ord. et stat. nov. Basionym: fam. Rhizophoraceae Persoon, *Syn. Pl.* 2: 3. 1807 [Latin diagnosis]. TYPE: *Rhizophora* L.; Rhizophoraceae R. Brown, in Flinders, *Voy. Terra Austr.* 2: 549. 1814, nom. cons.

**Toricelliales** Takhtajan ex Reveal & Doweld, ord. et stat. nov. TYPE: *Toricellia* DC.; Toricelliaceae (Wang) H. H. Hu, *Bull. Fan Mem. Inst. Biol., Bot.*, ser. 5, 5: 311. 1934.

Suffrutices, ramis teretibus; folia exstipulata, simplicia, petiolo basi subdilatato; panicula terminalia multiflora; flores dioici, actinomorphici; calycis tubus cum ovario connatus, limbus superus; petala 5, marginem disci epigyni inserta; stamina 5, cum petalis inserta, iisdem alterna; ovarium inferum, 3–4-carpellare, syncarpum; ovulum anatropum, unitegminatum; bacca infera (uvina) 3–4-locularis, loculis uniovulatis; semen lineare; embryo in apice endospermii copiosi brevis.

Shrubs to small trees; leaves alternate, simple, palmately veined, estipulate; inflorescences a ter-

minal panicle, dioecious; flowers small, actinomorphic, bracteolate, the male flowers with a 5-lobed calyx forming a tube connate with the ovary and 5 valvate petals, the female flowers with a minute 3-5-lobed calyx and no corolla; stamens 5, the anthers basifixed, tetrasporangiate, dehiscing longitudinally; ovary inferior, the carpels 3-4, syncarpous; ovules 1 per locule, anatropous, unitegmic; fruits an inferior berry (uvina), 3-4-locular; seeds linear; embryo small, endosperm copious.

**Xanthorrhoeales** Takhtajan ex Reveal & Doweld, ord. nov. TYPE: *Xanthorrhoea* Smith; Xanthorrhoeaceae Dumortier, Anal. Fam. Pl.: 60, 62. 1829, nom. cons.

Herbae perennes vel suffrutices; folia graminea, angusta, linearia, alternata, basi dilatata, semivaginantia; spica terminalis, typhoides; perianthium 6-partitum, dicyclicum; stamina 6, dicyclica, imo perigonio inserta; antherae basifixae v. dorsifixae, biloculares; ovarium triloculare; ovula plurima; stylus trisulcus, stigma simplex; capsula trilocularis, dorsihiscente-trivalvis; semina in loculis 1-2, compressa; embryo linearis.

Xeromorphic, rhizomatous shrubs or perennial herbs; leaves usually linear, liguliform, usually tufted, alternate, not sheathing or with a short open sheath; inflorescences a panicle, dense *Typha*-like spike, globular head, or the flowers solitary and axillary or terminal; flowers small, mostly dry and glumaceous, the perianth of 6 segments in two whorls, free or shortly connate; stamens 6, bicyclic, the inner whorl attached to the base of the inner perianth segments, the outer free or hypogynous, the anthers basifixed or dorsifixed, bilocular, dehiscing longitudinally; ovary superior, trilocular; ovules 1-2, anatropous or rarely campylotropous, bitegmic; fruits a dorsi-laterihiscent capsule; seeds globose to flattened; embryo straight, sometimes slightly curved, the endosperm copious.

**Zygophyllales** (Bartling) Takhtajan ex Reveal & Doweld, ord. et stat. nov. Basionym: trib. Zygophylleae Bartling, Ord. Nat. Pl.: 391. 1830 [Latin diagnosis]. TYPE: *Zygophyllum* L.; Zygophyllaceae R. Brown, in Flinders, Voy. Terra Austr. 2: 545. 1814, nom. cons.

**Engelhardtaceae** Reveal & Doweld, fam. nov. TYPE: *Engelhardtia* Leschenault ex Blume. The family also includes *Alfaroa*, *Alfaropsis*, and *Oreomunnea*.

Arbores; folia alterna, abrupte pinnata, foliolis inaequalateralibus; spicae monoicae, paniculato-ramosae; in floribus masculis calycis bracteae trifidae, bracteolae bi-vel tetrafidae, stamina 5-13, antherae biloculares, loculis connectivo supra eosdem producto adnatis, longitudinaliter dehiscentibus, ovarii rudimentum nullum; in floribus femineis calyx ut floribus masculis, staminum rudimenta nulla, ovarium inferum, basi bi-vel incomplete 4-loculare, dissepimentis duplicatis; ovulum unicum, sessile, erectum, orthotropum, pachychalazale; stylus terminalis; stigmata 2-4, rarius plura, commissuralia; fructus ascadinaris cum involucreo cupuliformi basi connatus, apice trialatus, indehiscens, monospermus; semen erectum, exalbuminosum; embryo bi-vel quadrilobatus.

Trees, monoecious; leaves alternate, pinnately compound, estipitate; inflorescence a spike; flowers small, the bracts 3-lobed, the bracteolae (2-)4-lobed; stamens 5-13, the anthers bilocular, dehiscing longitudinally; ovary inferior, 2- (at the base) or incompletely 4-locular; ovule solitary, sessile, erect, orthotropous, pachychalazal, the style terminal with 2-4, rarely more, stigmas, commissural; fruits an ascadina with an adherent cupuliform involucreum, trialate, indehiscent; seed solitary, exalbuminous; embryo massive, (2-)4-lobed.

**Exbucklandiaceae** Reveal & Doweld, nom. et fam. nov. TYPE: *Exbucklandia* R. W. Brown (= *Bucklandia* Griffith, nom. illeg., *Symingtonia* van Steenis, nom. illeg.); digeneric family (incl. *Chunia* H. T. Chang, sine *Mytilaria* Lecomte). A replacement name for Bucklandiaceae J. Agardh, Theor. Syst. Pl.: 155. 1858, nom. illeg. (Art. 18.3) [Latin description].

Arbores, ramulis abrupte terminales; folia alterna, exstipulata, petiolata; flores capitati, calyx inferne cum ovarii basi connatus; petala perigyna, numero varia; stamina 10-14, perigyna; antherae basi affixae, biloculares, longitudinaliter dehiscentes; ovarium semiinferum, biloculare; ovula in quoque loculo numerosa (5-9); styli duo; fructus capsularis, dorsihiscentis, incomplete bivalvis; semina numerosa, alata, albuminosa; embryo linearis.

Trees; leaves alternate, ovate, often tricuspidate, palmately veined, estipulate, petiolate, the stipules generally large; inflorescences an aggregate of flowers in dense spikes; flowers bisexual, the calyx adherent at the base of the ovary, the petals perigynous; stamens 10-14, perigynous, the anthers basifixed, bilocular, dehiscing by valves; ovary semi-inferior, bilocular; ovules 5-9 per locule, anatropous, the styles 2; fruits a dorsihiscent capsule, incomplete bivalvate; seeds numerous, alate; embryo straight in copious endosperm.

*Acknowledgments.* We thank Margo Semenova for assistance with the Latin descriptions and a helpful reviewer for useful comments. We also thank Armen L. Takhtajan for his comments. This study is part of the Indices Nominum Supragenerorum Plantarum Project from the Norton-Brown Herbarium (MARY) and presented with the cooperation of the International Association for Plant Taxonomy and the National Agricultural Library. The research is a contribution to the Systema Spermatophytorum Project of the National Institute of Carpology (Gaertnerian Institution), Moscow.

Literature Cited

- Doweld, A. B. 1998. Carpology, seed anatomy, and taxonomic relationships of *Tetracentron* (Tetracentraceae) and *Trochodendron* (Trochodendraceae). *Ann. Bot. (London)* 82: 413–443.
- Greuter, W., F. R. Barrie, H. M. Burdet, W. G. Chaloner, V. Demoulin, D. L. Hawksworth, P. M. Jørgensen, D. H. Nicolson, P. C. Silva, P. Trehane & J. McNeill. 1994. International Code of Botanical Nomenclature (Tokyo Code). *Regnum Veg.* 131.
- Iljinskaja, I. A. 1990. On the taxonomy and phylogeny of the family Juglandaceae. *Bot. Zhurn. (Leningrad & Moscow)* 75: 792–803. [In Russian.]
- Reveal, J. L. 1992. Validation of ordinal names of extant vascular plants. *Novon* 2: 238–240.
- . 1993. New ordinal names for extant vascular plants. *Phytologia* 74: 173–177.
- Takhtajan, A. L. 1980. Outline of the classification of flowering plants (Magnoliophyta). *Bot. Rev.* 46: 225–359.
- . 1997. *Diversity and Classification of Flowering Plants*. Columbia Univ. Press, New York.