



Nomenclatural novelties in *Berberis* L. (Berberidaceae)

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Abstract

The circumscription of *Berberis* L. and *Mahonia* Nutt. has long been debated because of overlapping morphological characters and evidence from molecular phylogenetic studies. Recent taxonomic treatments support the inclusion of *Mahonia* and *Alloerberis* within a broadly defined *Berberis*. In accordance with this revised generic concept, four replacement names and six new combinations are proposed here in *Berberis*. The nomenclatural novelties include *Berberis gandhii* Kottaim., *B. × govaertsii* Kottaim., *B. harberi* Kottaim., *B. lezamae* Kottaim., and the combinations *B. bijuga* (Hand.-Mazz.) Kottaim., *B. dulongensis* (H.Li) Kottaim., *B. lancasteri* (O.Colin) Kottaim., *B. lushuiensis* (T.S.Ying & H.Li) Kottaim., *B. microphyllus* (T.S.Ying & G.R.Long) Kottaim., and *B. nanlingensis* (Y.Tong & Z.D.Wang) Kottaim.

Keywords: *Berberis*, *Mahonia*, berberidaceae, nomenclature, new combination, new name

Introduction

The genus *Berberis* L. (Berberidaceae), commonly known as barberry, is an important medicinal group of plants distributed throughout the temperate regions of the world (Azim *et al.* 2025) [3]. In addition to providing valuable forage for mountain fauna, species of *Berberis* contribute significantly to the livelihoods of traditional hill communities. The genus is also well known for its extensive use in ethnoveterinary practices and traditional systems of medicine (Khan 2014) [16]. Various species of *Berberis* have been reported to possess therapeutic value against a wide range of disorders, including diabetes, cancer, splenomegaly, jaundice, osteoporosis, hypertension, ocular trachoma, cholera, infectious diseases, dysentery, diarrhea, bone fractures, eye diseases, and leprosy (Peng *et al.* 2006; Khan *et al.* 2016; Sobhani *et al.* 2021; Hashmi *et al.* 2024; Goswami *et al.* 2026) [11, 14, 17, 33, 35].

The genus *Mahonia* was originally described by Thomas Nuttall in 1818, but its taxonomic position has long been disputed and widely discussed (Ahrendt 1961; Loconte 1993; Ying *et al.* 2011 [2, 25, 43]; Li *et al.* 2022). Traditionally, *Mahonia* has been distinguished from *Berberis* by a set of morphological traits. Species of *Mahonia* generally possess stems that are not distinctly dimorphic, unlike *Berberis*, which characteristically develops elongated primary shoots together with short axillary branches. In addition, *Mahonia* lacks stem spines, whereas in *Berberis* the leaves of the primary shoots are modified into spines. Another important distinction is that *Mahonia* bears pinnately compound leaves, while *Berberis* typically has simple leaves. The inflorescences of *Mahonia* are usually compact and consist of 25–70 flowers with rounded or obtuse bracteoles that are only occasionally acute, whereas *Berberis* commonly shows more open inflorescences with pointed bracteoles and only 1–20 flowers. Furthermore, *Mahonia* species are generally regarded as resistant to *Puccinia* infection, unlike most *Berberis* species, which are susceptible. Nevertheless, some taxa traditionally placed in *Mahonia* exhibit intermediate characteristics. These species resemble *Berberis* in possessing dimorphic stems, similar inflorescence patterns, and susceptibility to *Puccinia*, but share with *Mahonia* the

presence of spineless stems and compound leaves. Similar combinations of traits are also found in species from other parts of the world, implying that the continued recognition of the two genera as distinct entities may not accurately represent their evolutionary relationships (Whittemore, 1997) [40].

Studies on chromosome numbers, serological data, floral morphology, pollen features, and seedling structure demonstrated that *Mahonia* and *Berberis* show little significant difference (Dermen 1931; Jensen 1973; Terabayashi 1978, 1987; Nowicke & Skvarla 1981) [7, 18, 31, 36, 37]. In addition, a morphological cladistic study showed that simple-leaved *Berberis* constituted a monophyletic group nested within the compound-leaved *Mahonia* (Loconte & Estes 1989) [26]. Consequently, several researchers contended that separating the two genera based only on leaf morphology and the absence of branch spines was not justified (Hitchcock *et al.* 1964; McCain & Hennen 1982; Moran 1982; Marroquín 1993; Laferrière 1997; Marroquín & Laferrière 1997; Whetstone *et al.* 1997; Zamudio 2009) [15, 27, 28, 29, 46]. Subsequent molecular investigations further supported this view by demonstrating that *Mahonia* is paraphyletic (Kim & Janesen 1998; Kim *et al.* 2004; Adhikari 2010; Adhikari *et al.* 2015; Wang *et al.* 2007; Yu & Chung 2017; Xiao *et al.* 2020). Harber (2020) [1, 13, 20, 38, 42, 44] therefore proposed that *Mahonia* should be included within a broadly circumscribed *Berberis*. This treatment was subsequently adopted in later publications (Ganesan *et al.* 2022; Clavero 2023; Feng 2026) [5, 9, 10] as well as in online databases (<https://powo.science.kew.org>; www.worldfloraonline.org).

Following Julian Francis Harber's recent taxonomic revision that merges *Mahonia* and *Alloerberis* into a broadly defined *Berberis* L., four replacement names and six new combinations are proposed below.

Nomenclature

Berberis gandhii Kottaim., nom. nov.

Replaced synonym: *Berberis angustifolia* Hartw. ex Benth. in Pl. Hartw.: 34, 270. 1840, nom. illeg., non *Berberis angustifolia* Roxb., Fl. Ind., ed. 1832. 2: 183. 1832.

Etymology: Named in recognition of Kanchi N. Gandhi, Senior Nomenclatural Registrar at Harvard University, USA, for his outstanding contributions to the field of angiosperm taxonomy.

Distribution: Mexico. Endemic (Villaseñor 2016) [45].

Berberis bijuga (Hand.-Mazz.) Kottaim., comb. nov.

Basionym: *Mahonia bijuga* Hand.-Mazz., First published in Symb. Sin. 7: 331. 1931 [7].

Distribution: China. Endemic.

Note: In the Flora of China it is treated under insufficiently known species (Ying 2011) [43].

Berberis × govaertsii Kottaim., nom. nov.

Replaced synonym: *Berberis × brevifolia* Phil. ex Reiche, Fl. Chile 1: 42. 1895, *nom. illeg.*, non *Berberis brevifolia* K.Koch, Dendrologie 1: 398. 1869.

Etymology: Named in honour of Rafaël Herman Anna Govaerts, Royal Botanic Gardens, Kew, in recognition of his outstanding contributions to angiosperm taxonomy.

Distribution: Chile (Coquimbo). Endemic.

Berberis dulongensis (H.Li) Kottaim., comb. nov.

Basionym: *Mahonia dulongensis* H.Li in Chen *et al.*, Ann. Bot. Fenn. 46: 469. 2009 [41].

Distribution: China. Endemic (Chen *et al.* 2009) [41].

Berberis harberi Kottaim., nom. nov.

Replaced synonym: *Mahonia jingxiensis* J.Y.Wu, Ogisu, H.N.Qin & S.N.Lu, Bot. Stud. (Taipei) 50: 487. 2009 [41] non *Berberis jiangxiensis* C.M.Hu, Bull. Bot. Res., Harbin 6(2): 9. 1986.

Etymology: The species is named in honour of Julian Francis Harber in recognition of his remarkable contributions to the taxonomy of the genus *Berberis*.

Distribution: China. Endemic (Wu *et al.* 2009) [41].

Berberis lancasteri (O.Colin) Kottaim., comb. nov.

Basionym: *Mahonia lancasteri* O.Colin in Colin *et al.*, Phytotaxa 482: 46. 2021 [6].

Distribution: China. Endemic (Colin 2021) [6].

Berberis lushuiensis (T.S.Ying & H.Li) Kottaim., comb. nov.

Basionym: *Mahonia lushuiensis* T.S.Ying & H.Li in Chen *et al.*, Ann. Bot. Fenn. 46: 472. 2009 [41].

Distribution: China. Endemic (Chen *et al.* 2009) [41].

Berberis microphyllus (T.S.Ying & G.R.Long) Kottaim., comb. nov.

Basionym: *Mahonia microphylla* T.S.Ying & G.R.Long, Acta Phytotax. Sin. 37(3): 282. 1999.

Distribution: China. Endemic (Ying & Long 1999).

Berberis nanlingensis (Y.Tong & Z.D.Wang) Kottaim., comb. nov.

Basionym: *Mahonia nanlingensis* Y.Tong & Z.D.Wang in Wang *et al.*, Phytotaxa 674: 255. 2024 [39].

Distribution: China. Endemic (Wang *et al.* 2024) [39].

Berberis lezamae Kottaim., nom. nov.

Replaced synonym: *Berberis tinctoria* Larrañaga, Escritos D. A. Larrañaga 2: 130. 1923, *nom. illeg.*, non *Berberis tinctoria* Lesch., Mém. Mus. Hist. Nat. 9: 306. 1822.

Etymology: Named in honour of Carolina Lezama in recognition of her outstanding contributions to the Flora of Uruguay.

Distribution: Uruguay. Endemic.

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