



# *Berberis jamesiana* Forrest & W.W. Sm. *Berberis vulgaris* L.

BERBERIDACEAE

Rainer W. Bussmann, Ketevan Batsatsashvili, and Zaal Kikvidze

---

## Synonyms

*Berberis jamesiana* Forrest & W.W. Sm.: *Berberis integerrima* Bunge; *Berberis jamesiana* var. *leucarpa* (W.W. Sm.) Ahrendt; *Berberis jamesiana* var. *leuocarpa* (W.W. Sm.) Ahrendt; *Berberis jamesiana* var. *sepium* Ahrendt; *Berberis leuocarpa* W.W. Sm.; *Berberis nummularia* var. *sinica* C.K. Schneid.; *Berberis oblonga* Bunge.

*Berberis vulgaris* L.: *Berberis baluchistanica* Ahrendt.

---

## Local Names

**Russian:** Барбарис цельнокрайний (Barbaris tsel'nokrayniy); **Uzbek:** Kizil zirk; **Kyrgyz:** Бёрукарагат (Byoru karagat); **English:** Barbery (Fedorov 1984)

---

R. W. Bussmann (✉)

Department of Ethnobotany, Institute of Botany and Bakuriani Alpine Botanical Garden, Iliia State University, Tbilisi, Georgia

Saving Knowledge, La Paz, Bolivia

e-mail: [rainer.bussmann@iliauni.edu.ge](mailto:rainer.bussmann@iliauni.edu.ge); [rbussmann@gmail.com](mailto:rbussmann@gmail.com)

K. Batsatsashvili

Department of Ethnobotany, Institute of Botany and Bakuriani Alpine Botanical Garden, Iliia State University, Tbilisi, Georgia

e-mail: [ketevan\\_batt@yahoo.com](mailto:ketevan_batt@yahoo.com); [ketevan\\_batsatsashvili@iliauni.edu.ge](mailto:ketevan_batsatsashvili@iliauni.edu.ge)

Z. Kikvidze

4-D Research Institute, Iliia State University, Tbilisi, Georgia

e-mail: [zaal.kikvidze@iliauni.edu.ge](mailto:zaal.kikvidze@iliauni.edu.ge)

© Springer Nature Switzerland AG 2020

K. Batsatsashvili et al. (eds.), *Ethnobotany of the Mountain Regions of Central Asia and Altai*, Ethnobotany of Mountain Regions,

[https://doi.org/10.1007/978-3-030-28947-8\\_26](https://doi.org/10.1007/978-3-030-28947-8_26)

## Botany and Ecology

***Berberis jamesiana***: Shrub, 4 m tall; strongly branching, spiny, with brownish or purple angular branches; on lower sterile branches, spines tripartite or with at least one lateral tooth on each side; on other branches spines simple, large; leaves coriaceous, obovate or oblong, not more than 4–5 cm long, 13–18 mm broad subapically, entire or subentire often with large, acute teeth on young shoots; leaves cuneately tapering into a petiole; inflorescence a long axillary raceme, 5 cm long or more, with 12–20 flowers; sepals and petals obovate; style very short, stigma large, retained at maturity when fruits usually pendulous; berries obovate or oblong, purple-red, with bloom, 7–8 mm long. Flowering May–June, fruiting June–August. Middle Asia, on the banks of rivers and stony slopes of mountains, among *Juniperus* thickets, up to 1000–3300 m (Shishkin and Bobrov 1937).

***Berberis vulgaris***: Deciduous shrubs up to 3 m tall. Stems long, with short branches bearing spines. Bark of second year stems smooth and gray in color. Bud scales fall off early. Leaves simple, usually obovate with one midvein and with short petioles, margins flat with shallow teeth tipped with small spines. Flowers in a raceme disposed from short shoots with 10–20 flowers each; anther filaments lack curved teeth. Berries are red to purple, round, juicy, and solid. Mainly under cultivation. Found throughout the Caucasus, Central Europe, Mediterranean, the Balkans, Russia, and Central Asia. Introduced to North America. Flowers and fruits from May to June. *Berberis vulgaris* is an important food for many small birds, which disperse the seeds in their droppings. The species is the alternate host species of the wheat rust fungus (*Puccinia graminis*), a grass-infecting rust fungus that is a serious fungal disease of wheat and related grains. Ural, Caucasus, on forest edges, in bush thickets, in mixed and deciduous forests, on stony slopes of mountains, from the lowland to the mid-mountain belt (Shishkin and Bobrov 1937).

## Phytochemistry

Alkaloids (berberine, jatrorricin, palmatine, hydroxyacetine, magnoflorine, columbamine, isotetradrine, oblongine, methylberbamine, berberrubIn, oblongamine, berbaminine, hydroxyacanthine, talikmidine, isocoridine, glaucine, oxyacanthine, talimidine, isocoridine, isoboldine, reticuline), vitamins (C, carotene) (Fedorov 1984).

## Local Medicinal Uses

In Tajikistan a root infusion is used to treat cardiovascular diseases, gastric diseases, neurasthenia, rheumatism, fevers, and a poultice is used for inflammatory processes of fractures and bruises. In northern Tajikistan, the roots are used to treat wounds, bone fractures, rheumatism, radiculitis, heart pain, and stomach aches. In Kazakhstan, the extract of young branches is used for headache. The fruit infusion acts as

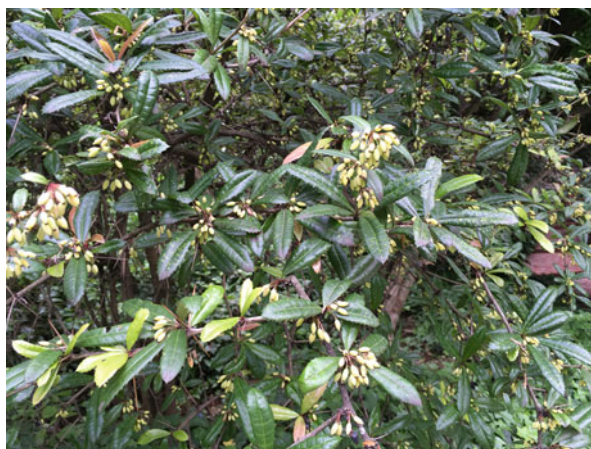
anticoagulant. In Uzbekistan, the leaves are used as cardiotonic and antipyretic. All over the region the fruits are used as antipyretic, to relieve thirst. A decoction of the leaves is used to treat kidney stones, tuberculosis, chest pains, and headaches. An infusion of the fruits is used to treat constipation and wounds (Fedorov 1984). Also used to treat high blood pressure and skin problems (Sher et al. 2016; Figs. 1, 2, 3, 4 and 5).

*Berberis lyceum* is used to heal wounds (Ur-Rahman et al. 2018), conjunctivitis and diabetes (Singh et al. 2017), eye infections (Joshi et al. 2010), jaundice, fever, and urinary infections (Sher et al. 2016). *Berberis asiatica* serves for gastric problems, as anthelmintic, for diabetes and eye infections (Bhat et al. 2015; Joshi et al. 2010; Kumar et al. 2011; Kunwar and Bussmann 2009; Kunwar et al. 2009, 2013), and also as mild laxative, especially for children (Joshi et al. 2010; Figs. 6 and 7).

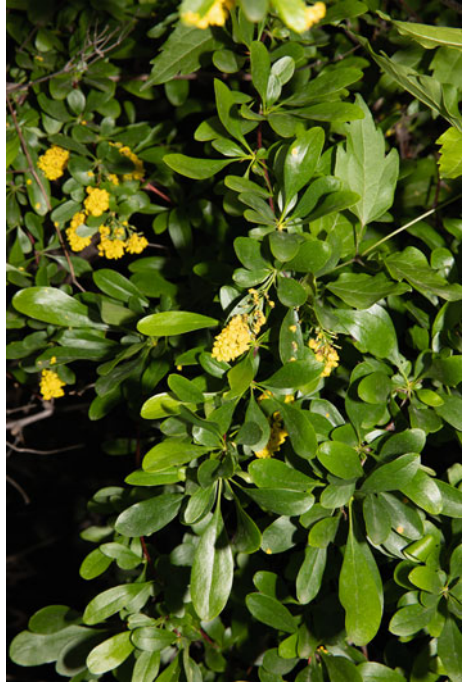
**Fig. 1** *Berberis vulgaris* (Berberidaceae), Tbilisi, Georgia. (Photo R.W. Bussmann & N.Y. Paniagua-Zambrana)



**Fig. 2** *Berberis vulgaris* (Berberidaceae), Tbilisi, Georgia. (Photo R.W. Bussmann & N.Y. Paniagua-Zambrana)



**Fig. 3** *Berberis vulgaris* (Berberidaceae), Tbilisi, Georgia. (Photo R.W. Bussmann & N.Y. Paniagua-Zambrana)



**Fig. 4** *Berberis vulgaris* (Berberidaceae), Tbilisi, Georgia. (Photo R.W. Bussmann & N.Y. Paniagua-Zambrana)



---

### Local Food Uses

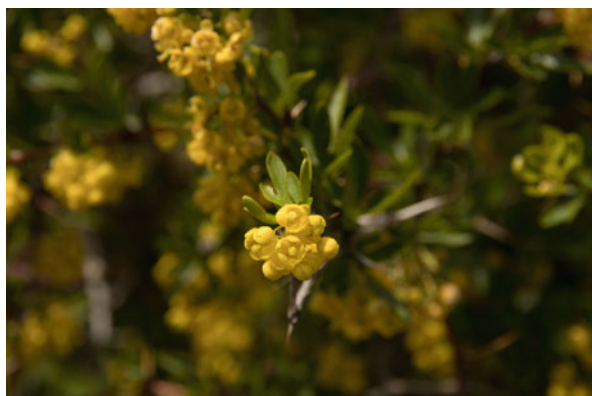
The fruits are eaten fresh and dried for use in sauces, for making jams and sweets, as well as spice (Batsatsashvili et al. 2017; Bussmann et al. 2014, 2016a, b, c, 2017, 2018; Bussmann 2017; Fedorov 1984; Fig. 8).



**Fig. 5** *Berberis vulgaris*  
(Berberidaceae), Tbilisi,  
Georgia. (Photo  
R.W. Bussmann &  
N.Y. Paniagua-Zambrana)



**Fig. 6** *Berberis vulgaris*  
(Berberidaceae), Cappadokia,  
Turkey. (Photo  
R.W. Bussmann &  
N.Y. Paniagua-Zambrana)



**Fig. 7** *Berberis vulgaris*  
(Berberidaceae), Cappadokia,  
Turkey. (Photo  
R.W. Bussmann &  
N.Y. Paniagua-Zambrana)



**Fig. 8** *Berberis vulgaris* (Berberidaceae), dried fruits for sale in market, Cappadokia, Turkey. (Photo R.W. Bussmann & N.Y. Paniagua-Zambrana)



## Local Handicraft and Other Uses

The bark yields yellow, golden, dark violet, dark blue, and olive dyes for wool and silk. (Batsatsashvili et al. 2017; Bussmann et al. 2014, 2016a, b, c, 2017, 2018; Bussmann 2017; Fedorov 1984).

## References

- Batsatsashvili K, Mehdiyeva N, Fayvush G, Kikvidze Z, Khutsishvili M, Maisaia I, Sikharulidze S, Tchelidze D, Aleksanyan A, Alizade V, Paniagua Zambrana NY, Bussmann RW. *Berberis vulgaris* L. In: Bussmann RW, editor. Ethnobotany of the Caucasus. Cham: Springer International Publishing; 2017.
- Bhat J, Malik ZA, Ballabha R, Bussmann RW, Bhatt AB. Ethnomedicinal plants traditionally used in health care practices by inhabitants of Western Himalaya. *J Ethnopharmacol.* 2015;172:133–44.
- Bussmann RW, editor. Ethnobotany of the Caucasus. Cham: Springer International Publishing; 2017. XXVII, 746p. (ISBN 978-3-319-49411-1).
- Bussmann RW, Paniagua-Zambrana NY, Sikharulidze S, Kikvidze Z, Kikodze D, Jinjikhadze T, Shanshiashvili T, Tchelidze D, Batsatsashvili K, Bakanidze N. Wine, Beer, Snuff, Medicine and loss of diversity – Ethnobotanical travels in the Georgian Caucasus. *Ethnobot Res Appl* 2014;12:237–313.
- Bussmann RW, Paniagua Zambrana NY, Sikharulidze S, Kikvidze Z, Kikodze D, Tchelidze D, Khutsishvili M, Batsatsashvili K, Hart RE. A comparative ethnobotany of Khevsureti, Samtskhe-Javakheti, Tusheti, Svaneti, and Racha-Lechkhumi, Republic of Georgia (Sakartvelo), Caucasus. *J Ethnobiol Ethnomed.* 2016a;12:43. <https://doi.org/10.1186/s13002-016-0110-2>.
- Bussmann RW, Paniagua Zambrana NY, Sikharulidze S, Kikvidze Z, Kikodze D, Tchelidze D, Batsatsashvili K, Hart RE. Medicinal and food plants of Svaneti and Lechkhumi, Sakartvelo (Republic of Georgia), Caucasus. *Med Aromat Plants.* 2016b;5:266. <https://doi.org/10.4172/2167-0412.1000266>.
- Bussmann RW, Paniagua Zambrana NY, Sikharulidze S, Kikvidze Z, Kikodze D, Tchelidze D, Khutsishvili M, Batsatsashvili K, Hart RE. Plant and fungal use in Tusheti, Khevsureti and

- Pshavi, Sakartvelo (Republic of Georgia), Caucasus. *Acta Soc Bot Pol.* 2016c;86(2):3517. <https://doi.org/10.5586/asbp.3517>.
- Bussmann RW, Paniagua Zambrana NY, Sikharulidze S, Kikvidze Z, Kikodze D, Tchelidze D, Batsatsashvili K, Hart RE. Ethnobotany of Samtskhe-Javakheti, Sakartvelo (Republic of Georgia), Caucasus. *Indian J Tradit Knowl.* 2017;16(1):7–24.
- Bussmann RW, Paniagua Zambrana NY, Sikharulidze S, Kikvidze Z, Kikodze D, Tchelidze D, Batsatsashvili K, Hart RE. Unequal brothers – plant and fungal use in Guria and Racha, Sakartvelo (Republic of Georgia), Caucasus. *Indian J Tradit Knowl.* 2018;17(1):7–33.
- Fedorov AA, editor. Plant resources of the USSR: flowering plants, their chemical composition, use. Volume 1. Families Magnoliaceae – Limoniaceae. Leningrad: Akademia Nauk; 1984. 460 p. (in Russian).
- Joshi M, Kumar M, Bussmann RW. Ethnomedicinal uses of plant resources of the Haigad watershed in Kumaun Himalaya. *Med Aromat Plant Sci Biotechnol.* 2010;4(special issue 1):43–6.
- Kumar M, Bussmann RW, Mukesh J, Kumar P. Ethnomedicinal uses of plants close to rural habitation in Garhwal Himalayan, India. *J Med Plant Res.* 2011;5(11):2252–60.
- Kunwar RM, Bussmann RW. Medicinal plants and quantitative Ethnomedicine: a case study from Batadi and Darchula districts, far-West Nepal. *J Nat Hist Mus.* 2009;24(1):72–81.
- Kunwar RM, Upreti Y, Burlakoti C, Chowdhary CL, Bussmann RW. Indigenous use and ethnopharmacology of medicinal plants in Far-west Nepal. *Ethnobot Res Appl* 2009;7, 5–28.
- Kunwar RM, Mahat L, Acharya RP, Bussmann RW. Medicinal plants, traditional medicine, markets and management in far-West Nepal. *J Ethnobiol Ethnomed.* 2013;9:24.
- Sher H, Bussmann RW, Hart R, de Boer HJ. Traditional use of medicinal plants among the Kalasha, Ismaeli and Sunni ethnic groups in Khyber Pakhtunkhwa province, Pakistan. *J Ethnopharmacol.* 2016;188:57–69. <https://doi.org/10.1016/j.jep.2016.04.059>.
- Shishkin BK, Bobrov EG. 1937 (English 1970). *Flora of the USSR*, volume 7: Ranales to Rhodales. Leningrad: Akademia Nauk. 615 p.
- Singh A, Nautiyal MC, Kunwar RM, Bussmann RW. Ethnomedicinal plants used by local inhabitants of Jakholi Block, Rudraprayag district, Western Himalaya, India. *J Ethnobiol Ethnomed.* 2017;13(49). <https://doi.org/10.1186/s13002-017-0178-3>
- Ur-Rahman I, Afsal A, Iqbal Z, Ijas F, Ali N, Asif M, Alam J, Majid A, Bussmann RW. Traditional and ethnomedicinal dermatology practices in Pakistan. *Clin Dermatol.* 2018;36(3):310–9. <https://doi.org/10.1016/j.clindermatol.2018.03.018>.