

## **EMPETRUM NIGRUM SUBSP. HERMAPHRODITUM (EMPETRACEAE) IN BULGARIA**

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**Abstract.** The occurrence and geographical distribution of *Empetrum nigrum* L. subsp. *hermaphroditum* (Hagerup) Böcher in Bulgaria is presented. This taxon had not usually been treated as a separate entity in Bulgaria but included in *Empetrum nigrum* subsp. *nigrum* which, however, does not occur in this country.

**Key words:** *Empetrum nigrum* subsp. *hermaphroditum*, taxonomy, geographical distribution, Bulgaria

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The genus *Empetrum* L. (crowberry) is represented by low, usually procumbent, evergreen shrubs or subshrubs with small needle-like leaves, inconspicuous 3-merous flowers and black or red berry-like drupes with several stones. The number of species belonging to the genus is controversial, ranging from an extreme of eighteen species (Vasilev 1961) to the currently accepted three. These are the widespread, circumpolar *E. nigrum* L., the N American *E. eamesii* Fer. & Wieg. and the S American (Patagonian) *E. rubrum* Vahl ex Willd.

*Empetrum nigrum* is a polymorphic taxon, within which two subspecies are usually recognized: *E. nigrum* subsp. *nigrum* (unisexual flowers) and *E. nigrum* subsp. *hermaphroditum* (Hagerup) Böcher (bisexual flowers).

The geographical distribution of both crowberries, which are sometimes treated as independent species, was first mapped by Hultén (1958, 1968, 1971) and amended several years later by Meusel and co-workers (Meusel *et al.* 1978); these maps, however, present only an approximate picture.

*Empetrum nigrum* subsp. *hermaphroditum* has a circumpolar, arctic-montane distribution disjunct in Europe. According to Meusel *et al.* (1978)

only hermaphrodite crowberry is present in southern Europe. The existence of subsp. *nigrum* is considered uncertain and marked with a question mark (?); this is also indicated for Bulgaria, but in the *Atlas of North European vascular plants* (Hultén & Fries 1986) both subsp. *nigrum* and subsp. *hermaphroditum* are indicated for this country.

The presence of *E. nigrum* in Bulgaria has been substantiated for a long time both by herbarium material and literature records (Ančev 1982, 1992, Stojanov & Stefanov 1924, 1933, 1948, Stojanov *et al.* 1966, Assyov *et al.* 2001). Its distribution in Bulgaria has been presented by Stefanov (1943). The species is known only from Rila and Pirin, the two highest mountains in Bulgaria. There it grows locally abundant, however, herbarium material is always scanty. The plants are collected usually in summer or autumn, so specimens are either fruiting or sterile. A recent examination of all fruiting material in Bulgarian herbaria (SO, SOM, SOA) proved that they represent only *E. nigrum* subsp. *hermaphroditum*, for without exception, stamens or the remnants of filaments were present at the base of fruits. The plants (including non-fruiting ones) also have the typical habit of hermaphrodite crowberry, i.e., with stems less procumbent and

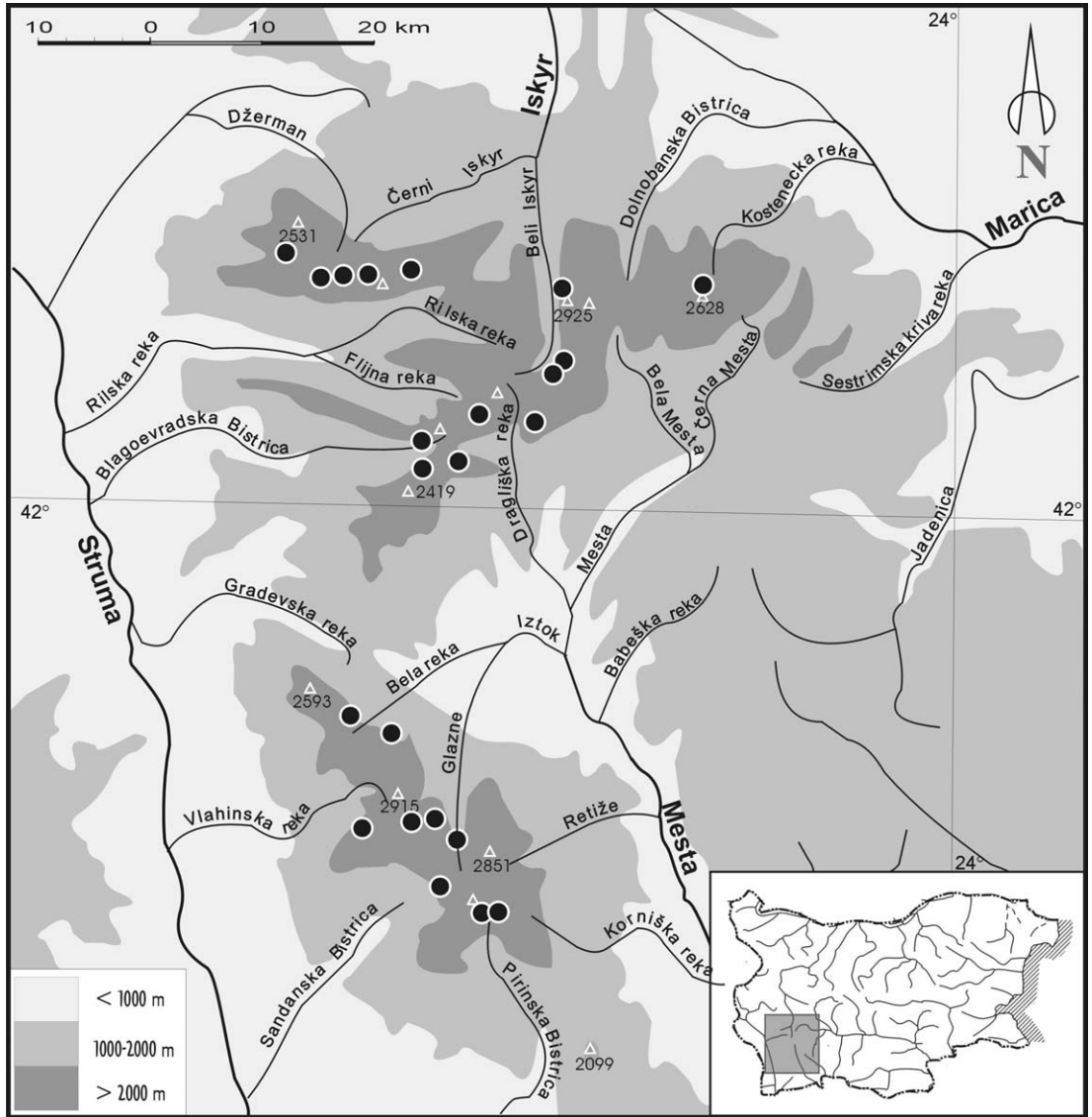


Fig. 1. Distribution of *Empetrum nigrum* L. subsp. *hermaphroditum* (Hagerup) Böcher in Bulgaria.

not rooting along their length. Specimens referable to subsp. *nigrum* could not be found. However, in the most recent account by Ančev (1982) in the 'Flora of Bulgaria' only subsp. *nigrum* with unisexual flowers was described and illustrated. We presume both description and drawing were based on specimens non-Bulgarian in origin.

The habitats of *E. nigrum* subsp. *hermaphroditum* on Rila and Pirin are at altitudes above 2000 m (Fig. 1). The species grows in rocky places, soil pockets, crevices, short turf near lakes and karstic springs, in open places or under scrub shelter. At the Urdinski cirque on Rila at 2400–2500 m, it grows on very shallow siliceous or granitic soil,

together with *Agrostis rupestris* All., *Sesleria comosa* Vel., *Poa alpina* L., *Ranunculus crenatus* Waldst. & Kit., *Omalotheca supina* (L.) DC., *Geum montanum* L., *Festuca nigrescens* Lam., *Alopecurus riloensis* (Hack.) Pawł., *Festuca riloensis* (Hackel. ex Hayek) Markgr.-Dann., *Dianthus microlepis* Boiss., *Luzula italica* Parl., *Carex curvula* All., *Arenaria biflora* L., *Veronica bellidioides* L., *Salix herbacea* L., *Primula minima* L., *Achillea clusiana* Tausch, *Gentiana frigida* Haenke, *Pedicularis orthantha* Griseb., *Vaccinium uliginosum* L. s.l., *Jasione laevis* Lam., *Campanula alpina* Jacq., *Pedicularis oederi* Vahl, *Gentianella germanica* (Willd.) Börner, *Gentiana pyrenaica* L., *Sedum atratum* L., *Senecio carpaticus* Herb., *Juncus trifidus* L., *Avenula versicolor* (Vill.) M. Lainz, *Huperzia selago* (L.) Bernh. ex Schrank & Mart., *Cetraria islandica* (L.) Ach., *Homogyne alpina* (L.) Cass., *Arabis alpina* L. and *Cerastium cerastoides* (L.) Britton.

SPECIMENS SEEN: BULGARIA. PIRIN: N Pirin, in wet grassy places above Dolno Prevalsko Lake, above the river Valjavica, 2300 m, 16 July 1985, *Stojanov s.n.* (SO 92975); Valjaviško Lake, 30 August 1956, *Železova s.n.* (SOM 93327); in graminosis saxosis mt. Pirini ad Demir-Kapia, solo granitico, 2480 m, 15 August 1940, *Achtarov s.n.* (SOM 51137); N Pirin, northern slopes of Okaden, in stony places, 2380 m, 24 June 1951, *Jordanov & Kitanov s.n.* (SO 98333); Todorin, in dry, grassy places, 1 July 1926, *Jordanov s.n.* (SO 49168); Ovnati, 2450 m, 9 August 1950, *Jordanov s.n.* (SO 49175); Sinanica, 2500 m, 8 November 1950, *Jordanov & Kitanov s.n.* (SO 49170, 49176); in pratis alpinis m. Pirin, 16 Juni 1929, *Stojanov s.n.* (SOA 7235); Kremenski cirque, rocky places, 10 August 1996, *Assenov s.n.* (SO 101800). – RILA: Grančar Lake, 6 August 1889, *Georgiev s.n.* (SO 49167); in declivibus herbosis cacum. Sucha Vada ad ripas lacus Grančar ad c. 2190 m, solo silicioso, 17 July 1969, *Vihodcevsky s.n.* (SOM 121240, KRAM 88914); ibidem, 2185 m, *Vihodcevsky s.n.* (SO 49173–49174); Ibar, 7 September 1919, *Stojanov & Stefanov s.n.* (SO 49166, SOA 7236); ibidem, 2500 m, 6 September 1919, *Achtarov s.n.* (SOM 51133); between Ismalica and Jezernik, June 1964, *Vučkov s.n.* (SO 49171); between Ribno and Martvo Lakes, 13 August 1997, *Assyov s.n.* (SO 98997); in saxosis excelsis mt. Rila: Černi Vrch, 2700 m, 22 Juni 1909, *Davidov s.n.* (SOM 51135); Parangalica reserve, N slopes above the Bistrica river, 19 August 1975, *Andreev s.n.*

(SOM 132645–132646); Mramorecki cirque, 2500 m, 8 June 1990, *Rusakova s.n.* (SOM 150519–150520); slopes in the Urdinski cirque, 28 June 1961, *Simeonovski s.n.* (SO 49172); ibidem, 2500 m, 2 September 2000, *Dimitrov s.n.* (SO, KOR); Kara Gjol, 2400 m, 2 September 2000, *Dimitrov s.n.* (SO); in declivibus alpinis montium supra cacum. Edi Gjol, 10 Juni 1897, *Georgiev s.n.* (SO 49160); ibidem, 2300 m, 22 Juli 1919, *Achtarov s.n.* (SOM 51134); ibidem, 22 Juni 1919, *Stefanov s.n.* (SOM 51131); ibidem, 23 Juni 1924, *Stojanov & Stefanov s.n.* (SOA 7237); Aleko, above the hospice Musala, 25 October 1954, *Vihodcevsky s.n.* (SO 49179); in saxosis mt. Topla Rila, supra fontes rivi Otovitz, 2500 m, 28 Juni 1912, *Davidov s.n.* (SOM 51136); Bliznaka Lake, 15 September 1956, *coll. ign.* (SOM 106654); Kovač (Nauban čau), 6 August 1889, *Georgiev s.n.* (SO 49164–49165).

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