

Interesting locality of medicinal plant *Arctostaphylos uva-ursi* (Ericaceae) in Silesia Province (Poland)

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Abstract: The paper presents description of a new, abundant locality of rare in Silesia Province medicinal plant *Arctostaphylos uva-ursi* (L.) Spreng. Its distribution and threats in this area are briefly discussed.

Key words: *Arctostaphylos uva-ursi*, Ericaceae, threatened plant, medicinal plant, Silesia Province, Poland

Introduction

The bearberry *Arctostaphylos uva-ursi* (L.) Spreng (Fig. 1) is the Holarctic species with circumboreal range. Main area of its occurrence is the belt of boreal coniferous forest in Europe, Asia and North America. In Poland *A. uva-ursi* occurs mainly in the northern part of the country, reaching its European range of extend in southern part, among others in Silesia Province. It grows mainly on acidic soils in open places at edges of pine forests, heathlands, dunes, sometimes on anthropogenic places – waysides and wayside slopes of forest roads. Exceptionally it is found on limestone outcrops.

Arctostaphylos uva-ursi is a valuable medicinal plant. The harvested herbal material are entire or fragmented leaves *Uvae ursi folia*. It is described in the Pharmacopoeia of Poland and is also included in the European Pharmacopoeias (Anonymus 2012a, 2013). Bearberry leaf contains up to 12% of phenolic glycosides, including at least 7% of arbutin, esters of arbutin and gallic acid, 19% of tannins and 1,5% of flavonoids (isoquercetin, quercetin, hyperoside). Leaves also contain triterpenes (ursolic acid). Leaf extracts in human body have antibacterial effect on the urinary system. The most valued compound of *Uvae ursi folium* is the arbutin which is decomposed to hydroquinone, a substance of high antibacterial activity. This hydrolytic process takes place not sooner than in the urinary system, and this is the main therapeutic benefit. The leaf decoctions or extracts are used against inflammations of the urinary tracts, of the renal glomeruli, and in chronic inflammation of the bladder. Larger doses of the leaf extract, when administered during a longer period of time, can however cause hydroquinone poisoning and are hepatotoxic (Frohne 2010, Lamer-Zarawska et al. 2012, Podlewski & Chwalibogowska-Podlowska 2005). Toxicity tests with hydroquinone have demonstrated some evidence of genotoxicity and carcinogenicity. Risks posed by the exposure of hydroquinone during the short-term treatment with bearberry leaf preparations are, however, considered minimal (Anonymus 2012b).

In order to monitor and control the trade of threatened species of plants and animals, the European Community has developed and released the list of plants known as Annex D. In case of species included into this list it is mandatory to report the import to the EU. *Arctostaphylos uva-ursi* is additionally classified among special plants (all they are valuable medicinal species). In this case it is also required to record exports of fragments of the plants as well as any of their derivatives. This regulation facilitates strict control of the trade (Marinelli 2006). This approach is proper, because *A. uva-ursi* is regarded one of the primary urinary tract antiseptics in Western (especially European) medicine (Upton 2008).

In Poland *Arctostaphylos uva-ursi* is strictly protected by law (Anonymus 2012c). Threat category for this species in Silesia Province is VU (Parusel & Urbisz 2012).

New locality

The new locality of *Arctostaphylos uva-ursi* was discovered on the 9 August 2010 by the first author (Fig. 2). It is localized in eastern part of the Bógdał village near Szczekociny (GPS: N= 50°39'31.4" E= 19°49'21.5"). It grows in open places by a margin of pine forest on sandy soil, along protective belt of railway line. On this belt trees are regularly cut thus proper conditions for occurrence of *A. uva-ursi* exist. This locality was subsequently visited by B. Bacler-Żbikowska and J. Drobnik in 15 July 2012 and by B. Bacler-Żbikowska in 19 August and 18 October 2013. Population of *A. uva-ursi* seems to spread and it covers an area of about 6 square metres. In 2013 we observed appearance of small subpopulation on protective belt growing towards railway line.

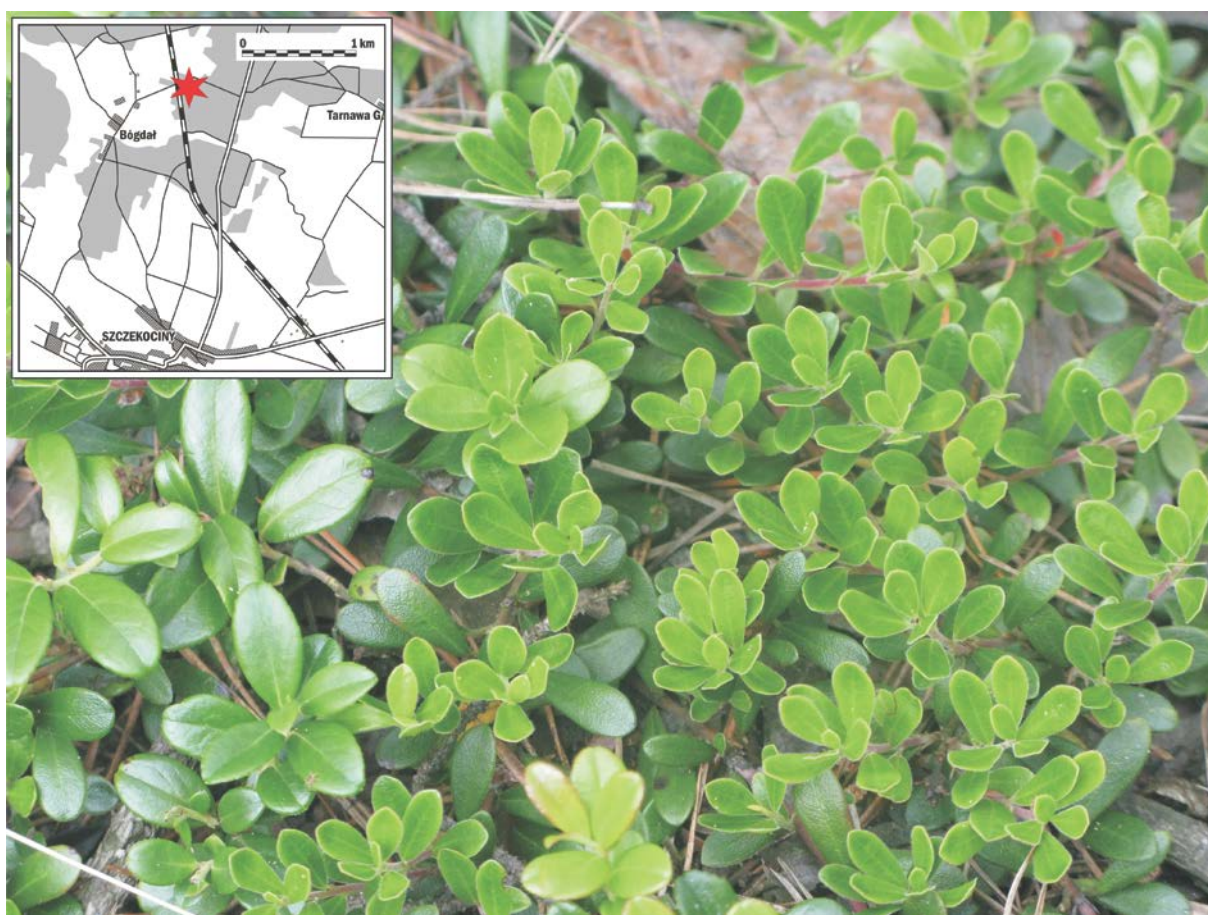


Fig 1: Habit of bearberry *Arctostaphylos uva-ursi* (photo by B. Bacler-Żbikowska) & map with new locality of the species

Discussion

At present, *Arctostaphylos uva-ursi* is a very rare species in southern Poland and many of the historical findings of this plant have remained unconfirmed for several years. For example, in the Włoszczowa district (Świętokrzyskie Province, South-Central Poland), one new locality was discovered in 2008, but at the same time 6 older localities were not confirmed despite thorough field exploration (Bacler 2009). The same situation is in Silesia Province. Overwhelming majority of earlier published localities have not survived, for example from Rybnik-Młyny, reported by Schube (1915), not confirmed by Urbisz (1996) and Las Łabędzki in Gliwice, reported by Kabath (1846), but not found by Kowalczyk (2003). Currently, only a few localities of this species are known from the Częstochowska Upland and

its vicinity in north-eastern part of the Silesia Province (Szeląg 2000), but situation of this species in many cases is bad (Kurek 2011). Newly discovered locality is interesting due to occurrence of *A. uva-ursi* on man-made habitat, which are frequent in Silesia Province. It shows that this vulnerable species could colonize new habitats, which may become its refuge in Silesia Province.

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