

Epilobium obscurum Schreb., new species in the flora of Slovenia

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Abstract. During the revision of herbarium material (Herbarium LJU) of the genus *Epilobium*, a new species for the flora of Slovenia was found. The specimen of *Epilobium obscurum* (short-fruited willowherb) had been collected in 1994 in the Koroška (N Slovenia) region. Eventually, some additional localities of this species in the Pohorje Mts. and in the Štajerska (NE Slovenia) region were recorded. The present article deals with known distribution of the species in Slovenia and its most reliable distinguishing characters.

Keywords: *Epilobium obscurum*, flora, Slovenia

Izveček. EPILOBIUM OBSCURUM SCHREB., NOVA VRSTA V FLORI SLOVENIJE - Med nedavno revizijo herbarijskega materiala herbarija LJU je bila odkrita tudi pola z vrsto *Epilobium obscurum*, najdena na Koroškem. To je bil prvi podatek o pojavljanju te vrste v Sloveniji. V zadnjih letih smo odkrili še več nahajališč na območju Pohorja in Štajerske. V članku predstavljamo trenutno znano razširjenost vrste v Sloveniji in razlikovalne znake, po katerih *E. obscurum* ločimo od podobnih vrst vrbovcev.

Ključne besede: *Epilobium obscurum*, flora, Slovenija

Introduction

Until recently, the genus *Epilobium* in Slovenia has been somehow neglected despite the fact that its taxonomic complexity could have hidden some new taxa. During the revision of herbarium material of this genus in Herbarium LJU, several misdetermined or undetermined sheets were thus found, including the sheet of *E. obscurum*, till then not recorded in the territory of Slovenia.

E. obscurum is a European species. Its distribution range covers the entire Europe except its extreme north (Meusel 1978, Raven 1980). The species has been naturalized in South America (Chile), Tasmania, and New Zealand (Smejkal 1997). Due to its scattered occurrence in all neighbouring countries, the species has been expected to occur also in Slovenia (Fischer & Adler 1994, Pignatti 1982, Regula-Bevilacqua 1997, Simon 2002).

E. obscurum thrives on nutrient-poor, moderately wet and acid soils as around springs, stream banks, wet forest clearings and gutters (Ellenberg 1991, Fischer & Adler 1994). Owing to its occurrence in such frequently threatened habitats, it has been listed in the Red Data List of the Austrian flora (Niklfeld 1999).

E. obscurum plants have erect, simple to very branched 20-90 cm tall stem, with two or four longitudinal ridges. Stolons are long, green and leafy (Fig. 1). Leaves are lanceolate, dark green, sessile or shortly petiolate, 1,5-8 cm long and 0,5-1,5 cm wide. Inflorescence branches are densely covered with simple trichomes, the same as inferior ovaries (later fruits) and calyces. Unicellular glandular trichomes, typical of the genus, resembling clavate hairs and quite different from »normal« glandular trichomes (Fig. 2) are also scattered on calyces and fruits. Flowers are small, with 4-7 mm long pink petals. Ripe fruits are 4-6 cm long, seeds are uniformly papillose (Raven 1980, Smejkal 1997).

Superficially, *E. obscurum* is very similar to square-stalked willowherb (*E. tetragonum*), which results in common misdeterminations of both. In Herbarium LJU, three specimens of *E. obscurum* were determined as *E. tetragonum*. Surprisingly, two specimens of *E. obscurum* were determined as *E. palustre*, despite a substantial difference in morphology of those two species. In Table 1, a reliable discrimination characters between species *E. obscurum*, *E. tetragonum* and *E. palustre* are presented. As the above-mentioned three species are very similar in ecological sense as well, they can be often found together at the same localities, which can frequently cause hybridisation. Hybrids can be recognised by intermediate character states between parent species and incompletely developed seeds.

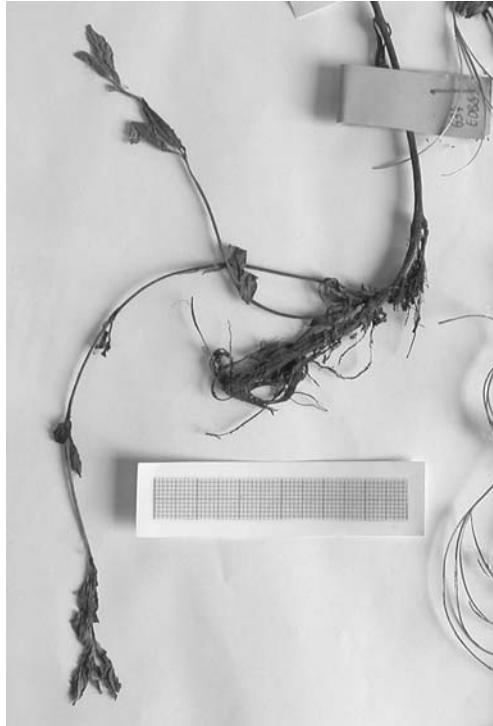


Figure 1: Stem base with two long, leafy stolons of *Epilobium obscurum*.

Slika 1: Dno stebila z dvema dolgima, zelenima, olistanima pritlikama pri vrsti *Epilobium obscurum*.

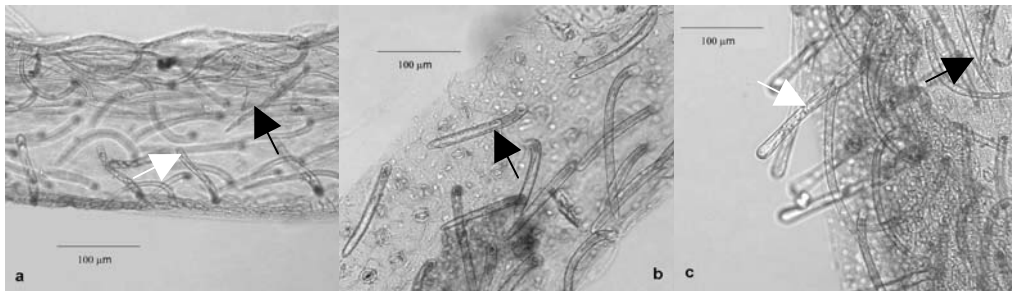


Figure 2: Presence of simple (white arrow) and glandular (black arrow) trichomes on fruits of three *Epilobium* species: a) *E. obscurum*: dense simple trichomes, and some appressed glandular trichomes, b) *E. tetragonum*: dense and very short simple trichomes, plant without glandular trichomes, c) *E. palustre*: dense appressed simple trichomes and long erect glandular trichomes.

Slika 2: Žlezni (bela puščica) in nežlezni (črna puščica) laski na plodu pri treh vrstah vrbovcev:

- a) *E. obscurum*: gosti nežlezni laski, posamični prilegli žlezni laski, b) *E. tetragonum*: gosti kratki nežlezni laski, žlezni laskov ni, c) *E. palustre*: gosti prilegli nežlezni laski in dolgi štrleči žlezni laski.

Table 1. Most important distinguishing characters between *E. obscurum*, *E. tetragonum* and *E. palustre*.
 Tabela 1. Razlikovalni znaki med vrstami *E. obscurum*, *E. tetragonum* in *E. palustre*.

	<i>E. obscurum</i>	<i>E. tetragonum</i>	<i>E. palustre</i>
stolons	long, leafy stolons	stolons not present	long, very slender stolons ending in tight bud
leaf margin	serrate	serrate	entire and commonly revolute
occurrence of glandular trichomes	scattered appressed glandular trichomes on calyx and fruit (Fig. 2a)	without glandular trichomes (Fig. 2b)	dense erect glandular trichomes in inflorescence, calyx and fruit (Fig. 2c)
style and stigma length	style 2-3 x longer than stigma	style and stigma of approximately the same length	style 2-3 x longer than stigma

Occurrence of *E. obscurum* in Slovenia

As shown on the map (Fig. 3), *E. obscurum* is scattered in north-eastern Slovenia in the Pre-Alpine and Sub-Pannonian phytogeographical regions. According to its ecological demands, it is most frequent in the mountainous areas on siliceous substrate, e.g. in the Pohorje Mts.

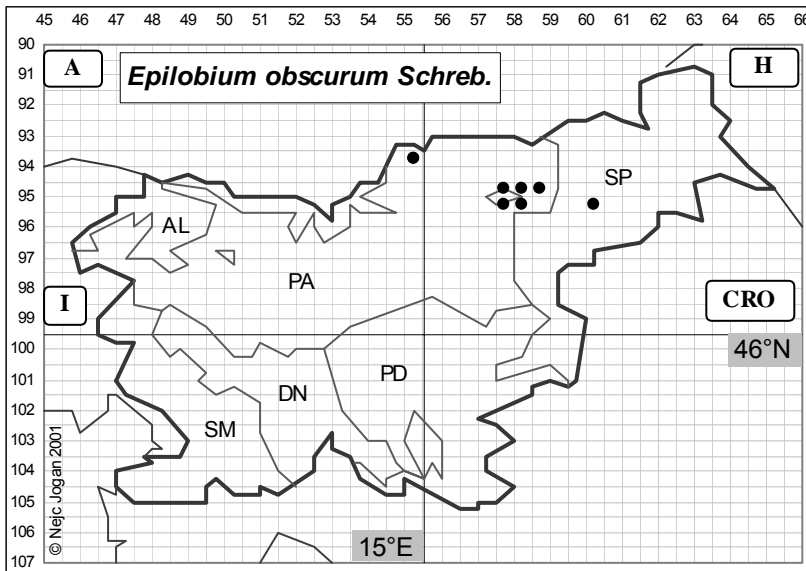


Figure 3: Known distribution of *Epilobium obscurum* in Slovenia.
 Slika 3: Zemljevid znane razširjenosti vrste *Epilobium obscurum* v Sloveniji.

Known localities of *Epilobium obscurum* in Slovenia:

- 9558/1, Pohorje, Radoljna near Mašinžaga, wet meadow along the stream, 1,340 m a.s.l., leg.: M. Wraber, 13.8.1963, Herbarium LJU, No.: 10020578.
- 9559/1, Pohorje, Poštarski dom, 1,000 m a.s.l., leg.: A. Martinčič, 4.7.1972, Herbarium LJU, No.:10020557.
- 9559/1 Pohorje, Bojtina above Šmartno na Pohorju, beside small lake, 800 m a.s.l., leg.: D. Naglič, 12.7.1985, Herbarium LJU, No.: 10020433.
- 9455/2, Strojna, above Tolsti vrh, wet meadow, 1,054 m a.s.l., leg.: N. Jogan, 3.8.1994, Herbarium LJU, No.: 10020579.
- 9558/3, Pohorje, Zreče, Skomarje, 900 m.a.s.l., leg: B. Frajman, 6.7.2000, Herbarium Božo Frajman.
- 9560/4, Makole, Medvedce, Sestrže, water reservoir, 250 m a.s.l., leg.: J. Plazar, 3.7.2001, Herbarium LJU, No.: 10020580.
- 9455/2, Koroška, Ravne, Zelenbreg, gutter beside wet meadow, 500 m a.s.l., leg: S. Strgulc Krajšek & N. Jogan, 24.7.2001, Herbarium LJU, No.: 10020581.
- 9558/4, Pohorje, Šmartno, Močnik, beside Bistrica stream, swamp, silicate, 750 m a.s.l., leg: S. Strgulc Krajšek, 19.8.2001, Herbarium LJU, No.: 10020583.
- 9558/2, Pohorje, Šumik, confluence of Piklerica and Črnava streams, stream bank, 1,100 m a.s.l., leg.: S. Strgulc Krajšek, 25.8.2001, Herbarium LJU, No.: 10020582.

In the future, we can expect several new records of *E. obscurum*, particularly from the NE part of Slovenia, and possibly from some other regions with siliceous substrate and well preserved wetlands, e.g. around Ljubljana, foothills of the Julian Alps, W Karavanke, etc.

In Slovenia we can also expect, in addition to *E. obscurum*, some other taxa of the genus, e.g. *E. lanceolatum*, which is superficially and ecologically quite similar to the most widespread species *E. montanum*.

Povzetek

Med revizijo rodu *Epilobium* v Herbariju LJU je bila odkrita tudi pola s primerkom vrste *E. obscurum*, ki v Sloveniji doslej še ni bila znana. Kmalu zatem, ko smo postali pozorni na njeno pojavljanje v Sloveniji, je bilo odkritih več novih rastišč te vrste predvsem na območju Koroške, Pohorja in Štajerske. Vrsta je vezana na vlažna in nekoliko zakisana rastišča. Pogosto se pojavlja skupaj z vrstami *E. palustre*, *E. parviflorum*, *E. tetragonum*, *E. roseum* in *E. ciliatum*, s katerimi se lahko tudi križa. Morfološko je zelo podobna vrsti *E. tetragonum*. Najzanesljivejši razlikovalni znak so žlezni laski na plodnici, plodu in čaši pri vrsti *E. obscurum*, medtem ko *E. tetragonum* žleznih laskov nima.

Vrsta *E. obscurum* še nima slovenskega imena. S prof. dr. Tonetom Wraberjem predlagamo ime nejasni vrbovec, kar tudi ustreza enemu izmed možnih prevodov latinskega imena.

References

- Ellenberg H. et al. (1992): Zeigerwerte von Pflanzen in Mitteleuropa. *Scripta geobotanica* 18: 1-258.
- Fischer M.A. & Adler W. (1994): Weidenröschen, *Epilobium*. In: Fischer, M. (ed.), Exkursionsflora von Österreich. Ulmer Verlag, Wien, pp. 489-493.
- Meusel H. et al. (1978): Vergleichende Chorologie der zentraleuropäischen Flora, 2. Gustav Fischer Verlag, Jena. 583 pp.
- Niklfeld H. (Ed.) (1999): Rote Listen gefährdeter Pflanzen Österreichs. 2. Auflage. Grüne Reihe des Bundesministeriums für Umwelt, Jugend und Familie, Band 10. Wien. 292 pp.
- Pignatti S. (1982): Flora d'Italia 3. Edagricole, Bologna. 780 pp.
- Raven, P. H. (1980): *Epilobium* L. In: Tutin T.G. et al. (Eds.), Flora Europaea 5. CUP, Cambridge, pp. 308-311.
- Regula-Bevilacqua L. (1997): Onagraceae. In: Nikolić T. (Ed.), Flora Croatica, Index Flore Croaticae, Pars 2. Nat. Croat., 6:1, 90-91.
- Simon T. (2002): A Magyarországi edényes flora határozója. Harasztok - Virágos Növények. Nemzeti Tankönyvkiadó, Budapest, pp. 244-246.
- Smejkal M. (1997): *Epilobium* L. - vrbovka. In: Slavík B. (Ed.), Květena České Republiky. Academia, Praha, pp. 99-132.