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EUPHRASIA EXARISTATA (SCROPHULARIACEAE), A WESTERN CARPATHIAN ENDEMIC SPECIES NEW TO THE FLORA OF POLAND

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Abstract. *Euphrasia exaristata* Smejkal, identified and described by Smejkal in 1963, was known only from the Slovakian part of the Tatra Mountains. This paper reports and describes a locality from the Polish Tatra Mountains, new for the Polish Carpathians and for Poland as a whole.

Key words: *Euphrasia exaristata*, morphology, distribution, habitats, variability

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INTRODUCTION

The genus *Euphrasia* L. comprises semiparasites, an ecological group not uncommon in the Scrophulariaceae family. Its taxonomy is difficult, and its infrageneric systematics is very unstable. Various proposals on the taxonomy of the group and its species concept have been put forward, but none are widely accepted. For reasons including its semiparasitic biological features, some authors place it in the Orobanchaceae family (e.g., Olmstead *et al*. 2001; Soltis *et al*. 2005). Even after many extensive studies by different authors, new species are still being recognized and described from well-known European areas. *Euphrasia exaristata* Smejkal, a Western Carpathian endemic confined to the Tatra Mts (Králik 1997) described by Smejkal (1963), is one of them. Previously the species was reported only from the Slovakian part of the Tatras (Smejkal 1963, 1964; Smejkal & Dvořáková 2000). In *Flora Europaea* (Yeo 1972) the species was included as a local microspecies into *Euphrasia picta* Wimmer s.l. and treated as a closely related to nominative subspecies *picta*.

Recently *Euphrasia exaristata* was found at one locality in the Polish Tatras (Fig. 1). A population of it was recorded during my extensive studies in the last ten years. The species was identified after biometrical study and confirmed by comparison with original material determined by Smejkal (material deposited in KRAM). The species description below is based on Smejkal's original diagnosis, modified and supplemented here.

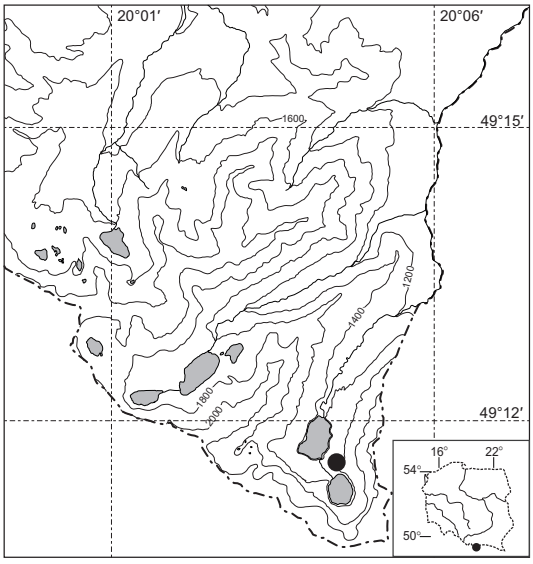

Fig. 1. Locality of *Euphrasia exaristata* Smejkal in the Polish Tatra Mts.

Characteristics of species

Euphrasia exaristata is an annual species 5–25 cm in height. Main stem simple or branched in upper part, usually with one pair of lateral branches and long internodes. With long internodes in lower and middle part of stem. Leaves alternate: in lower part of stem ovate to orbicular, with 1 or 2 pairs of obtuse teeth; in upper part of stem leaves with distinct petioles and blade at base rounded or shallow cordate with 1(2–4) pairs of rounded teeth, gradually changing into oblong-ovate bracts – these with cordate or cuneate base, abruptly descending into wide petiole (Fig. 2), sinusoidal in cross-section, glabrous or on margins and venation minutely scabrid, which makes surface coarse, with 3–4 pairs (exceptionally 5) wide, obtuse teeth. Apical tooth rounded or slightly pointed. Venation reaching incisions. Teeth beneath covered with one-cell glandular hairs gathered in circular structures. Bracts in this species are significantly longer than in any other species occurring in Poland. Flowers with whitish or yellowish corolla, lower lip longer than the pale lilac upper lip. According to Smejkal (1963) corolla length is 6.5–9.0 mm; in the sampled population flowers were up to 7.1 mm long (in average); the longest ones reached 10.1 mm (Fig. 3). Calyx teeth triangular, elongated, acute though not pointed. Capsule slightly longer than calyx, obovate. Chromosome number unknown. Flowers in July and August.

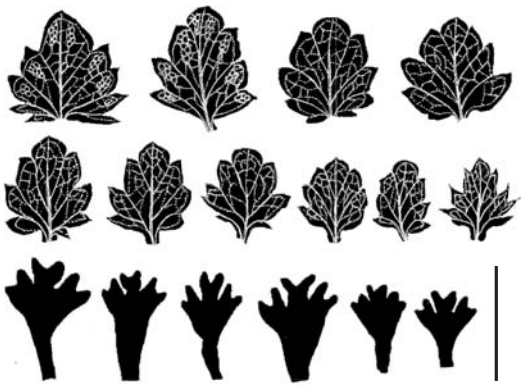

Fig. 2. Variation of bracts and lower lips with tube in the sample of *Euphrasia exaristata* Smejkal from Morskie Oko valley in the Polish Tatra Mts. Two bracts in upper row from the left – abaxial side. Scale bar = 10 mm.

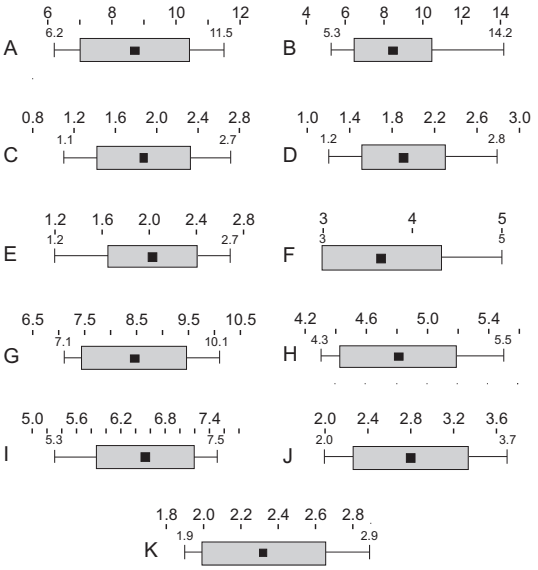

Fig. 3. Variation of 11 characters of bract (A–F) and lower lip with tube (G–K) of *Euphrasia exaristata* Smejkal from Morskie Oko valley in the Polish Tatra Mts. A – bract length, B – bract width, C – apical tooth length, D – second tooth length, E – second tooth width, F – number of lateral teeth, G – lower lip with tube length, H – lower lip length, I – lower lip width, J – midlobe length, K – midlobe width (A–E & G–H in mm).

Distribution

Euphrasia exaristata Smejkal has been reported from Suchy Żleb in the Dolina Tomanowa valley at 1460 m a.s.l., which is the *locus classicus* of the species. Another locality was found in the Dolina Cicha valley. These localities are in the Slovakian part of the West Tatras and are not far from each other (Smejkal 1963, 1964; Smejkal & Dvořáková 2000). In the Polish Tatras the species was collected by J. J. Wójcicki at one locality in the Dolina Rybiego Potoku valley below Czarny Staw lake, above Morskie Oko lake at 1550 m a.s.l.; I identified and determined it.

The population of the species at this locality consists of at least dozens of individuals (Staszkiewicz 2008), but a more precise assessment of population size remains to be made.

Habitats

In the Slovakian part of the Tatra Mts the species occurred on clay and clayey-sandy soils in vegetation of *Cratoneurion commutati* (Králik 1997) and natural/seminatural communities (mainly meadows and grasslands) of *Polygono-Trisetion*, *Poion alpinae* and *Rumicion alpini* developed on clayey-sandy soils. At the locality in the Polish High Tatras it occurs in high grassland communities representing *Juncion trifidi* (*Caricion curvulae*) developed on gravelly sites in an area built of siliceous rock.

Remarks

The species is likely to be found at further localities in both the Polish and Slovakian Tatras. There is a need for more precise characterization of the habitats, including phytocoenoses, as well as population size. Molecular studies should help resolve the relationships between *Euphrasia exaristata* and closely related taxa.

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