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## The distribution of the species of *Pseudolysimachion* (*Scrophulariaceae*) in Italy

### Abstract

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The province-wise distribution of *Pseudolysimachion* species in Italy is reviewed, based on the study of herbarium material. Diagnostic features are mentioned. *P. incanum* and *P. orchideum* are new records for the Italian flora.

### Introduction

On the basis of Fischer's (1974) revision of the genus *Pseudolysimachion* Opiz, the material of several Italian (FI, RO, NA, PESA, MSNM, CAME, Herb. Scoppola, Herb. Lattanzi) and foreign herbaria (LJU, WU, SO) was thoroughly studied with the aim of updating the distributional record, for Italy, of the various species. The herbarium-based data were compared with the province-wise distribution reported by Fischer (in Pignatti 1982: 556-557).

*Pseudolysimachion* is related to *Veronica* L., differing mainly in its corolla tube being longer than wide and flowers forming long, dense racemes. Some modern authors still consider *Pseudolysimachion* as a section of *Veronica* (Walters & Webb 1972a) or do not even mention it (Zangheri 1976, Guinochet & Vilmorin 1975, Aeschmann & Burdet 1994; for further information see Fischer 1974).

In agreement with Fischer (1974) and Fischer & Bedalov (1989), we consider the indumentum of stems and inflorescences as the main diagnostic criterion for species delimitation within *Pseudolysimachion*. A careful inspection of the cilia and hairs on the sepals, by optical microscopy, is necessary for critical identification (see the figures in Fischer 1974: 33, and Fig. 1).

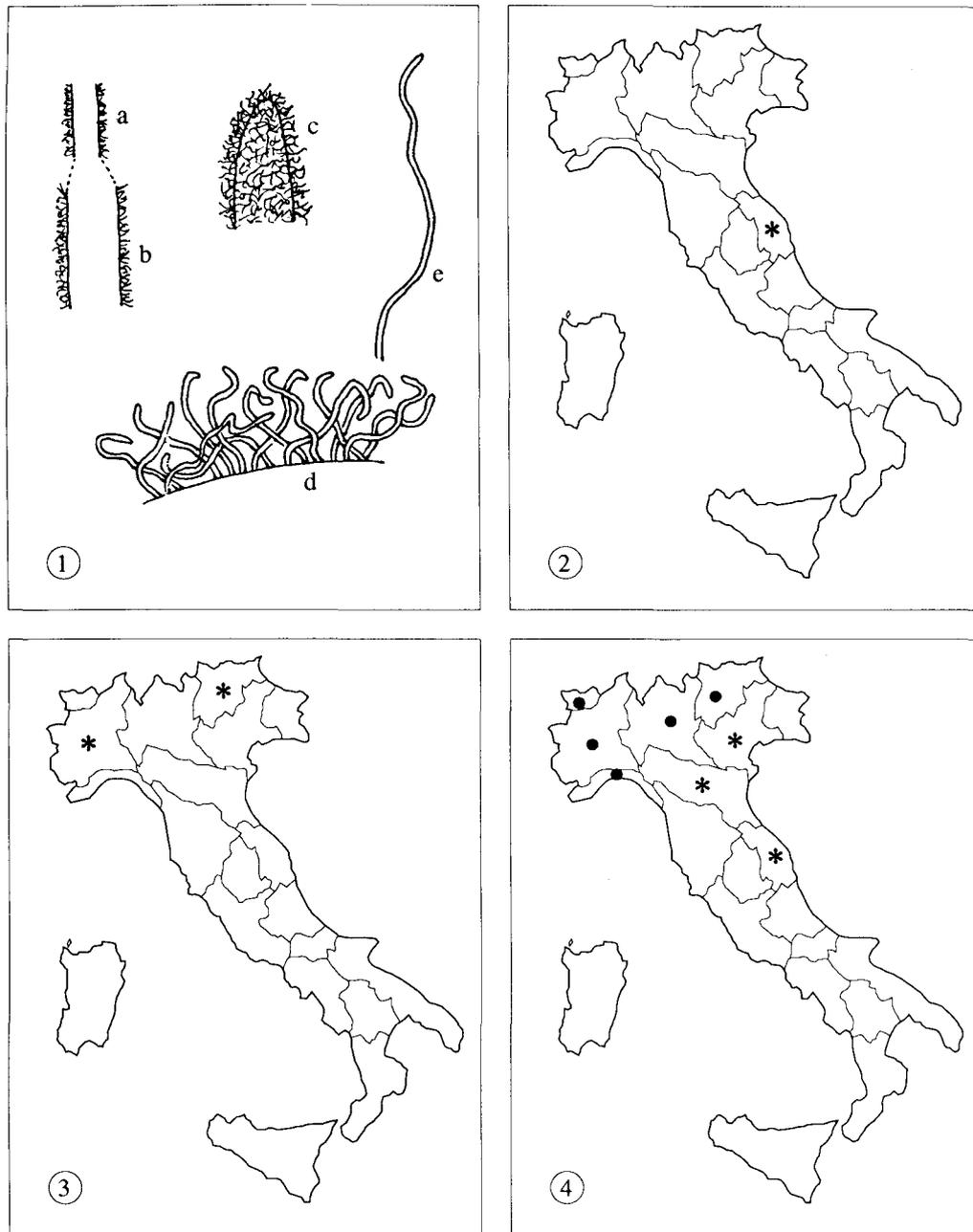


Fig. 1. Characteristics of indumentum in *Pseudolysimachion incanum*. – a, upper and b, lower portion of stem; c, sepal; d, indumentum and e, individual hair of sepal margin.

Fig. 2-4. Distribution area of *Pseudolysimachion* species in Italy: 2, *P. incanum*; 3, *P. orchideum*; 4, *P. spicatum*. – \* = new record; ● = from Pignatti (1982), confirmed by herbarium material.

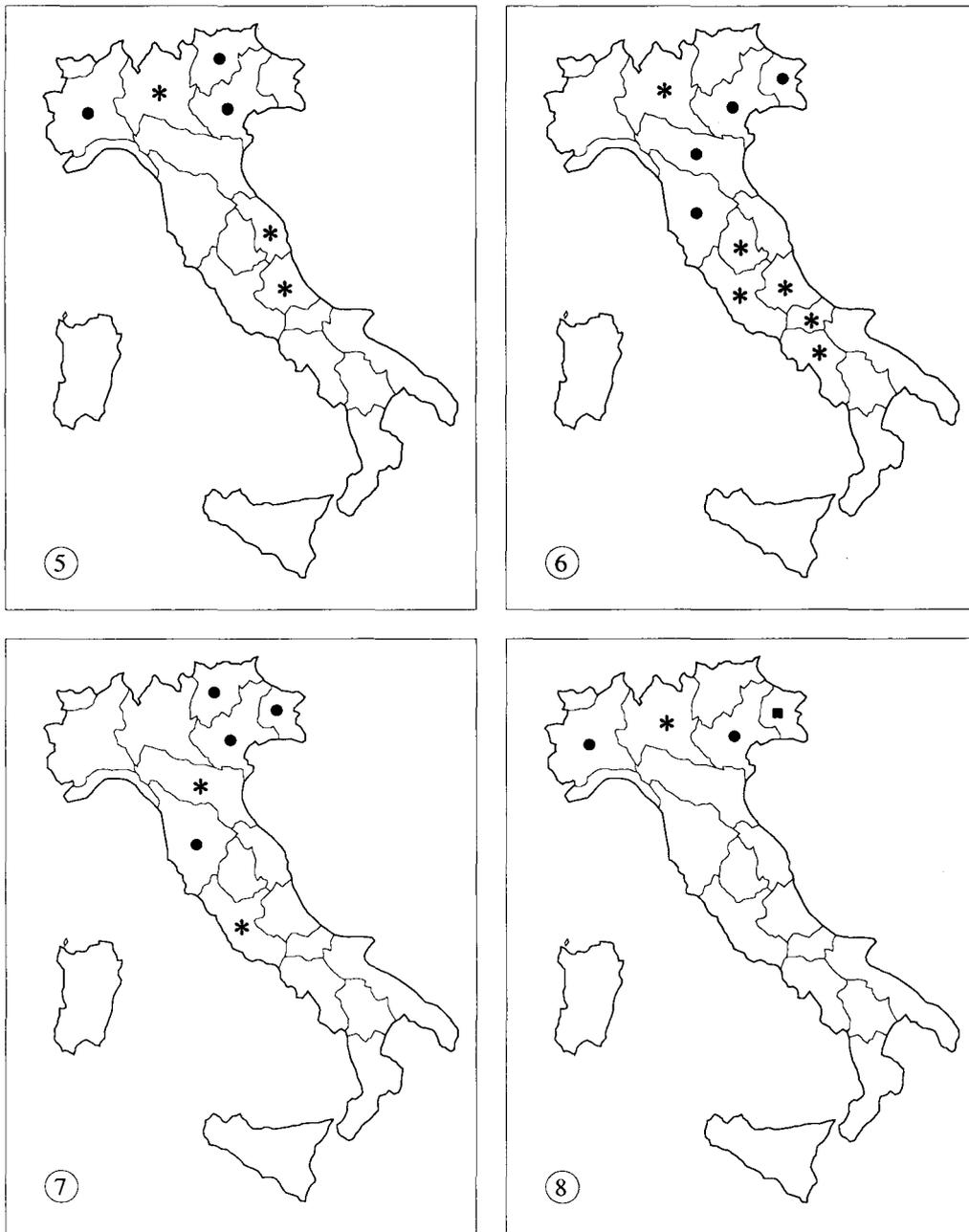


Fig. 5-8. Distribution area of *Pseudolysimachion* species in Italy: 5, *P. pallens*; 6, *P. barrelieri* subsp. *barrelieri*; 7, *P. barrelieri* subsp. *nitens*; 8, *P. longifolium*. - \* = new record; ● = from Pignatti (1982), confirmed by herbarium material; ■ = from Pignatti (1982), not confirmed by herbarium material.

## Results

***Pseudolysimachion incanum*** (L.) Holub (*Veronica incana* L. [non "*V. spicata* subsp. *incana*" sensu Walters & Webb 1972a]).

Calyx densely white-tomentose, sepal margins and surface covered with thin, intertwined, unbranched eglandular hairs. By optical microscope: sepal hairs thin, long, devoid of lumen except at the base (Fig. 1).

Previous records of *Pseudolysimachion incanum* for N. Italy are referable to the similar *P. pallens*, from which *P. incanum* clearly differs by its thinner, unbranched sepal hairs devoid of lumen. The limits between this species and *P. spicatum* are not as fluent as asserted by Walters (in Walters & Webb 1972b), but inspection by microscope is essential. In Marche (Fig. 2) it was collected in 1838 at Ponte d'Arli and Acquasanta by Orsini (RO).

***Pseudolysimachion orchideum*** (Crantz) Wraber (*Veronica orchidea* Crantz, *V. spicata* var. *orchidea* (Crantz) Fiori, *V. spicata* subsp. *orchidea* (Crantz) Hayek).

Upper part of the stem with upward-curved eglandular hairs. Sepals with long, glandular hairs of equal length along margins and on surface.

Records of *Pseudolysimachion orchideum* from N. Italy are considered erroneous in Pignatti (1982) because of confusion with other species which, like *P. orchideum*, may show twisted, linear corolla lobes but have a very different indumentum on sepals and stem. Genuine *P. orchideum* was collected in Piemonte near lake Devero (Val d'Ossola) in 1897 (FI); and in Alto Adige near San Pietro di Funés, at 1200-1250 m, in 1972, by Brilli-Cattarini & Virgilio (PESA) (Fig. 3).

***Pseudolysimachion spicatum*** (L.) Opiz (*Veronica spicata* L.).

Glands in the inflorescence  $\pm$  abundant. Sepal margins with long, thin eglandular cilia, surface covered with  $\pm$  abundant, short glandular hairs mixed with eglandular ones. By optical microscope: cilia without tubercles and provided with lumen.

Specimens from southern regions show a general decrease of glands and glandular hairs. The known distributional range is here extended to include the Veneto and, southward, Emilia and Marche (Fig. 4).

***Pseudolysimachion pallens*** (Host) M. A. Fisch. (*Veronica pallens* Host, "*V. spicata* subsp. *incana*" sensu Walters & Webb 1972a, *V. incana* auct. ital.).

Sepal margins with a dense, whitish-tomentose indumentum of partly branched, long, thin, eglandular, intertwined hairs; surface eglandular-pubescent.

The occurrence of *Pseudolysimachion pallens* in Lombardia, Marche, and Abruzzo represents an interesting extension of its known Italian distribution (Fig. 5).

***Pseudolysimachion barrelieri*** (Schott ex Roem. & Schult.) Holub subsp. *barrelieri* (*Veronica spicata* var. *setulosa* W. D. J. Koch, "*V. hybrida*" sensu Host 1827).

Stem and leaves  $\pm$  densely hirsute. Sepal margins with stiff, eglandular cilia, surface glabrous. By optical microscope: cilia always with a lumen and with minute tubercles.

The distribution is extended to include Lombardia and, to the south, Umbria, Abruzzo, Molise, Campania, and Lazio (the latter occurrence already recorded by Moraldo 1983) (Fig. 6).

*Pseudolysimachion barrelieri* subsp. *nitens* (Host) M. A. Fisch. (*Veronica nitens* Host, *V. spicata* var. *sternbergiana* (Bernh.) Fiori).

Stem and leaves glabrous or subglabrous. Sepal indumentum as in subsp. *barrelieri*.

On the basis of herbarium material, *Pseudolysimachion barrelieri* subsp. *nitens* is newly recorded for Emilia and Lazio (Fig. 7).

*Pseudolysimachion longifolium* (L.) Opiz (*Veronica longifolia* L.; incl. *V. ticinensis* Pollini, *V. hostii* Moretti).

Differs from the foregoing species (the *V. spicata* group) by its large size, acute and acutely serrate leaves, and other obvious features.

A new record for Lombardia contributes to filling the gap between the eastern and western distribution areas in N. Italy (Fig. 8).

### Discussion and conclusions

Our revision of herbarium material, even though not as yet complete, has clarified most of the previous literature records of *Veronica spicata* s.l. for the peninsular regions of Emilia, Marche, Umbria, Abruzzo, and Campania.

We agree with Fischer that old literature data on the occurrence of *Pseudolysimachion incanum* and *P. orchideum* in Italy (Fiori 1925-1929, Walters & Webb 1972a, Zangheri 1976) are erroneous. Therefore our records of these two species, omitted by Fischer (in Pignatti 1982), are new additions to the Italian flora.

The Italian ranges of *Pseudolysimachion spicatum*, *P. pallens*, *P. barrelieri* subsp. *barrelieri* and subsp. *nitens*, and *P. longifolium* have been extended, especially toward the south.

Further herbarium studies and new investigations in the field will permit to define more accurately the distribution of some taxa whose range, at present, still appears rather fragmentary.

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