

D. CICCARELLI (*), F. GARBARI (*), N.K.B. ROBSON (**)

HYPERICUM PERFORATUM L. (CLUSIACEAE) IN ITALY: SOME TAXONOMIC REMARKS

Riassunto - *Hypericum perforatum* L. (Clusiaceae) in Italia: alcune precisazioni tassonomiche. L'analisi morfologica delle popolazioni italiane di *Hypericum perforatum* s. l. effettuata sia su campioni vivi sia su *exsiccata* ha portato a ridefinire la nomenclatura e la tassonomia delle due seguenti unità: *H. perforatum* subsp. *perforatum* e *H. perforatum* subsp. *veronense*. È stata effettuata la tipificazione di *H. veronense* Schrank (neotipo) e di *H. perforatum* var. *alpinum* Parlatores (lectotipo).

Parole chiave - *Hypericum perforatum*, *H. veronense*, *H. perforatum* var. *alpinum*, nomenclatura, tassonomia.

Abstract - Morphological analyses of Italian populations of *Hypericum perforatum* s. l. were carried out on living plants and *exsiccata* specimens. The results allowed the authors to define the nomenclature and the taxonomy of the following two units: *H. perforatum* subsp. *perforatum* and *H. perforatum* subsp. *veronense*. The nomenclatural types of *H. veronense* Schrank (neotype) and *H. perforatum* var. *alpinum* Parlatores (lectotype) are also designated.

Key words - *Hypericum perforatum*, *H. veronense*, *H. perforatum* var. *alpinum*, nomenclatural types, taxonomy.

In 1811, Schrank described *H. veronense* as a «spielart» (p. 96), that is a variant or a sport (something as an amusement; «lusus» in Latin) of *H. perforatum*, from which it differs for its more marked frailness, smaller size, short-stalked leaves, poorly distinguishable glandular points at the edges of the leaves and finally for its extremely thin sepals. Since the *locus classicus* of this taxon are the steps of the amphitheatre of Verona, Schrank himself doubted the actual value of *H. veronense*. The author collected some seeds and sowed them in fertile gardening earth, obtaining in the same year a plant that was bigger than the one observed in Verona, even if it still looked extremely frail. It could not probably be expected that the plant looked just as it must originally have, but its typical frailness had to do with the special environment in which it had come to grow.

Béguinot (1904) stated, in its *Flora Italica Exsiccata*, that *H. veronense* had erroneously been deemed to be a species. The author stated this is a xerophilous variation, so much so that «one ... identical ... form... picked in Paliano (FR) and grown in Padua produced the type in the course of one generation» (of *H. perforatum*).

De Candolle (1815) recognised two varieties: β *microphyllum* and γ *angustifolium*; var. β has oval, flat, rather small and very dense leaves; var. γ has distant, long, narrow, almost linear leaves, cut off at the top and rounded under the edges.

Gaudin (1829) indicated the following varieties: β *latifolium*, γ *nanum* (= β *microphyllum* DC.), δ *angustifolium* (= γ *angustifolium* DC.).

Bertoloni (1852) did not set up any hierarchies among different units but synonymised *H. veronense* Schrank with *H. perforatum* L.

Parlatores (1875) described *H. alpinum* as a variety of *H. perforatum*, from which it differs in the following features: a \pm branched stalk at the base; height 2, rarely 3-4 dm; larger leaves with sparser translucent areas; larger flowers; more acuminate calyx elements almost ending up in a crest; petals with many dark red dots, lines and spots. Its collection sites are Bagni di Valdieri al Vallasco (Piedmont) in the upper beech forest and subalpine region, 1,300 m a.s.l., as well as the upper fir region on Mount Cramont (Aosta Valley). The author did not rule out the possibility that this species might not be different from *H. perforatum*.

In his *Flora Italiana*, Arcangeli (1894) only kept the var. β *alpinum* that had been proposed by Parlatores.

Fiori & Paoletti (1898) distinguished the varieties α *typicum* and β *alpinum* Parl. Var. α *typicum* includes b. *lineolatum* (Jord.), with paler yellow petals with black lines underneath; c. *microphyllum* DC. (Jord.) = *H. veronense* Schrank, with smaller and linear leaves; d. *latifolium* Koch, with larger, oval cauline leaves; e. *aetneum* (Torn.), a suffruticous plant with apiculate, lanceolate-linear leaves.

Lindberg (1906) used «*H. perforatum* L. **Veronense* (Schrank)» as a new combination at subspecies rank for the first time. In his paper, he indicated new combinations at subspecific rank, by an asterisk.

Fröhlich (1911a, b) highlighted differences between subsp. γ *veronense* (Schrank) Beck and subsp. δ *angustifolium* DC. The former typically has relatively small leaves, small flowers, short sepals, petals with all pale dots-hatches, relatively small fruits, few pericarpal glands, largely consisting of neatly protruding horny points, with only one or two linear ones on both sides of the carpel *medianus*. The latter typically has relatively narrow leaves, small flowers, narrow petals markedly notched at one edge and marked by marginal black dots, small and narrow fruits, largely punctiform pericarpal glands. The author believed subsp. *veronense* had to be considered as a form adapted to the milder and drier climate, just like subsp. *angustifolium* was to be typically found in drier areas, with sandy, stony or calcareous soils.

Fiori (1924) indicated, in his *Nuova Flora Analitica d'Italia*, the following varieties: α *typicum*; β *veronense*

(*) Department of Botanical Sciences, via L. Ghini 5, 56126 Pisa.

(**) Department of Botany, British Museum (Natural History), Cromwell Road, London SW7 5 BD.

(Schrank) (= *H. perfor. v. microphyllum* DC., = *H. microphyll.* Jord.), with linear leaves \pm convoluted at the edges; γ *alpinum* Parl., with acuminate-cuspidate sepals, petals with purple or dark purple dots and lines, small sized and oval-oblong leaves. The author considered the latter variety as endemic to the Veronese region, Mounts Lessini, Piedmontese Alps in Aosta Valley and around Valdieri (Cuneo).

Pignatti (1982) circumscribed, in his *Flora d'Italia*, the subspecies *perforatum*, *veronense* (Schrank) Fröhlich and *angustifolium* (DC.) Gaudin. The petals of subsp. *perforatum* have all dark glands at the edge. Subsp. *veronense* has typical minor, ovate-elliptic leaves, petals with dark glands and bands and seems to be spread all over the territory, in the driest areas. Finally, the rare or rarely observed subsp. *angustifolium* has smaller, lanceolate-linear leaves and petals with punctiform glands at the edge only.

In *Med-Checklist*, Robson (1986) distinguished, even if with some doubts, the following subspecies for the Italian territory: subsp. *angustifolium* (DC.) Fröhlich (= *H. perforatum* var. *angustifolium* DC.) and subsp. *veronense* (Schrank) Fröhlich (= *H. veronense* Schrank). Later on, Robson (*ined.*) redefined the intraspecific taxa of *H. perforatum*, distinguishing subsp. *perforatum* and subsp. *veronense* (Schrank) Lindb. (incl. subsp. *angustifolium* (DC.) Fröhlich). The former typically has extremely variable, generally stalked leaves, a loose inflorescence, with relatively short and straight branches; petals with all pale to mostly dark laminar glands; capsules with linear lateral *vittae*, which are narrow or rarely distally swollen, but never interrupted and with vesicles in a regular row, but not unevenly scattered. Subsp. *veronense* generally has sessile, smaller, often linear leaves; occasionally compact inflorescences, with relatively short, straight or ascending branches; petals with all pale or rarely mostly dark laminar glands; capsules with lateral *vittae* from swollen at the base (but that do not make up an even distal row) or \pm interrupted to punctiform and completely swollen (vesicular). The presence of black laminar glands on the petals is not useful as a diagnostic feature to make a distinction between these subspecies. Attention must be paid to the leaf morphology and to the features of the secretory glands of the capsules.

***Hypericum perforatum* L., Sp. pl.: 785 (1753)**

«*Hypericum floribus trigynis, caule ancipiti, foliis obtusis pellucido-punctatis*».

Typus: Europe, verosimiliter Suecia, LINN 943/94 (Robson, 1968).

Hypericum perforatum* L. subsp. *perforatum

Leaves usually petiolate; lamina (5-)12-25(-30) x (2-)5-10 mm, broadly to narrowly oblong or ovate to rarely elliptic or orbicular or obovate (length: breadth = l:b = (1-)2-3(-5)), base rounded to broadly cuneate, not glaucous beneath. Inflorescence not usually congested, with branches relatively short, straight. Petals with laminar glands all pale to mostly black. Capsules valves with lateral *vittae* linear, narrow or rarely swollen distally but not interrupted, the vesicles forming a regular row, not scattered irregularly.

***Hypericum perforatum* L. subsp. *veronense* (Schrank) H. Lindb., Öfvers. Förh. Finska Vetensk. – Soc. 48: 73 (1906)** (incl. subsp. *angustifolium* (DC.) Fröhlich, *Sitzungsber. Kaiserl. Akad. Wiss., Math.-Naturwiss. Kl., Abt. I*, 120: 534-538 (1911b)) (Robson, *ined.*).

Basion.: *H. veronense* Schrank, *Bot. Taschenb.*: 95 (1811) Leaves usually sessile (at least on main stems); lamina 9-20 x 1-4 mm, usually linear (l:b = 5-9) but sometimes narrowly triangular-lanceolate or linear-oblong (l:b = 2.5-4), or occasionally broadly ovate to elliptic or obovate, but then small (5-10 x 4-5 mm), base cuneate, paler but not glaucous beneath. Inflorescence occasionally congested, with branches relatively short, straight or curved ascending. Petals with laminar glands all pale or rarely mostly black. Capsules valves with lateral *vittae* swollen at base (but not forming a regular distal row) or \pm interrupted to punctiform and wholly swollen (vesicular).

Typus: Italy, Verona, «an den ehemaligen sitzen des Amphitheatres zu Verona» (steps of the amphitheatre) (Schrank, 1811).

Neotypus propositus: «Anfiteatro di Verona, 8/1874, Herb. Cesati, *H. perforatum* L. var. *angustifolium* Koch = *H. veronense* Schrk.» (RO!) (Fig. 1).

Observations on nomenclature

The following Herbaria have been contacted when looking for the type of *H. veronense*: BR, G, GDOR, H, M, P, where the samples collected by Schrank are preserved (initials as per Holmgren et al., 1990). The standard material has not however been found. In addition, the plant was looked for in its *locus classicus*, but the search was fruitless since the Arena of Verona has been weeded. Samples have been collected around Verona, where local botanists (F. Di Carlo, Museo di Storia Naturale, Verona; 7/7/1999) believe *H. veronense* or plants which may be labelled as such may be found. Some samples have been collected and brought to the Botanical Gardens of Pisa for further bio-systematic observations. The tests performed suggest that the plants from the surroundings of Verona could pertain to a morphotype that is common all over the Italian peninsula, even if brachycorm populations have been found, that are on average frailer than the standard species and adapted to impoverished substrates, generally with vegetation impoverished by pasturing or anthropic pressure. The features of the capsules seem to be in between those typical of subsp. *perforatum* and those of subsp. *veronense* (as defined by one of us, N. K. B. R.). This is likely due to the fact that these two subspecies both occur in some regions of Northern Italy, which results in the development of populations having intermediate morphological features. According to Robson (1981 and *ined.*), for instance, *H. perforatum* probably originated in Siberia from the hybridisation of *H. maculatum* subsp. *immaculatum* and *H. attenuatum*. It developed along two morphological patterns: in the north by giving origin to subsp. *perforatum* and in the south to subsp. *songaricum*. These two taxa hybridise in the Ukraine. In Southern Russia and Caucasus, subsp. *songaricum* gave rise to subsp. *veronense*, which has spread east into Central Asia and North-Western India, and west into the Mediterranean region. The areas where subsp. *perforatum* and subsp. *veronense* (Southern France/Northern Spain, Switzer-

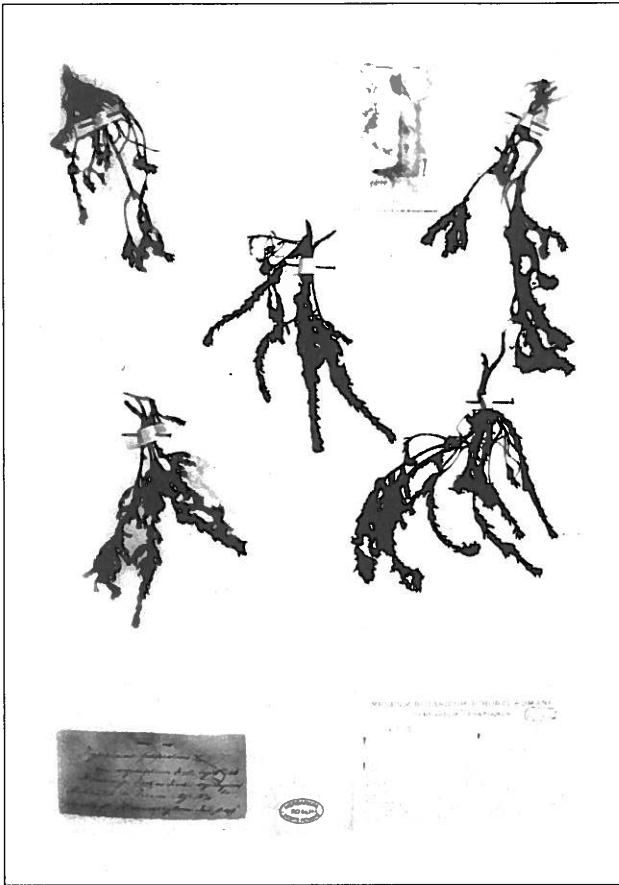


Fig. 1 - Neotype of *Hypericum perforatum* L. subsp. *veronense* (Schrank) H. Lindb. in the Cesati Herbarium (RO).

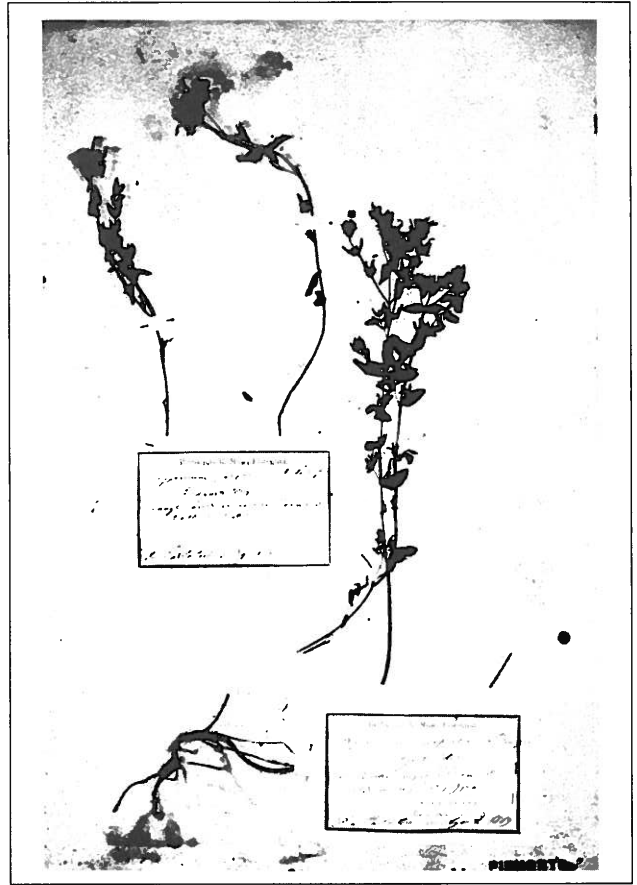


Fig. 2 - Lectotype of *Hypericum perforatum* L. var. *alpinum* Parlatoe (FI).

land/Northern Italy, Slovakia/Southern Poland) are to be found have some populations with intermediate morphological features.

H. perforatum L. var. β *alpinum* Parlatoe, *Flora Italiana*, 5: 512-514 (1875)

«*Caule humiliore, foliis ovato-ovalibus vel oblongis, floribus majoribus, laciniis calycinis acuminato-cuspidatis, petalis punctis lineisque fusco-purpureis notatis vel fere omnino purpurascensibus*».

Lectotypus propositus: «... sopra i Bagni di Valdieri, reg. del faggio, 7/8/1869, Parlatoe» (FI! Sample on the right of the sheet that includes also the 6/8/1869 collection in the same place) (Fig. 2).

Observations on nomenclature

Parlatoe described *H. alpinum* on samples taken from Mount Cramont in 1849 and Bagni di Valdieri in 1869. The *exsiccata* are preserved at Florence's Central Herbarium (FI). We selected the *lectotypus* because of the completeness of such specimen, the autograph inscription on the tag and the date that predates the publication of the protologue.

H. perforatum alpinum is a typical example of subsp. *perforatum*, and this is why we propose to synonymise this taxon with subsp. *perforatum*.

According to our morphological investigations on the capsules of many samples of *H. perforatum* collected by us in Northern and Central Italy and observations of samples of *H. perforatum* preserved in the Herbaria of FI, NAP, PAD, PI, RO, TO, VER (Holmgren et al., 1990), it is possible to identify two «morphotypes» with:

1. glands of the capsule all linear i.e. vittate (type a), corresponding to subsp. *perforatum* (Fig. 3a);
2. glands of the capsule enlarged i.e. vesicular (type b) in two or more rows along the junction of the carpels, corresponding to subsp. *veronense* (Fig. 3b).

Among the latter morphotype an extreme variation can be detected as regards the vesicles: scarcely enlarged in only one row (type c) or very well inflated on numerous rows (Fig. 3c).

The morphotype (a) corresponding to subsp. *perforatum* is usually distributed on Alps and appears rare; morphotypes (b) and (c) seem spread rather uniformly in Italy, Alps included.

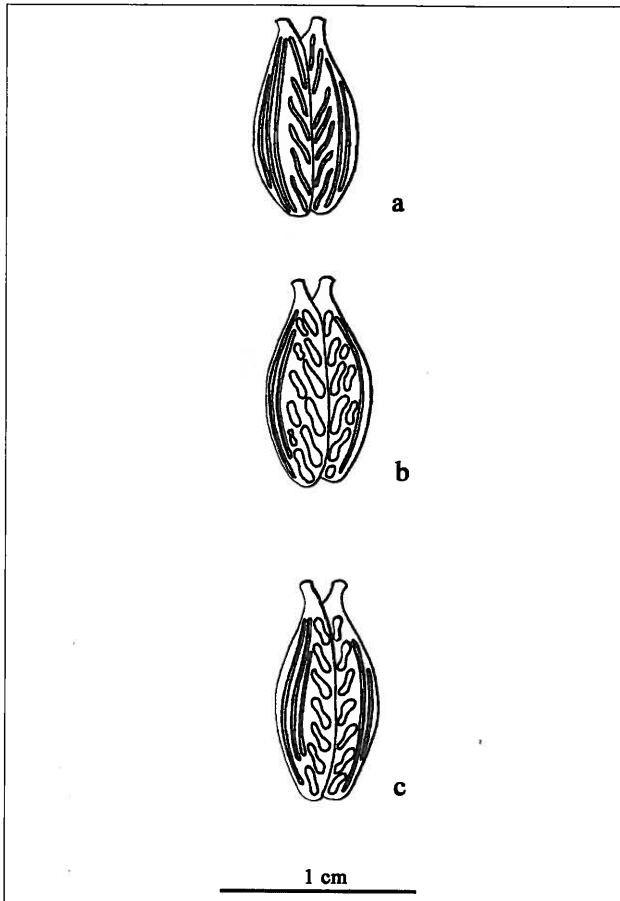


Fig. 3 - Vesicles arrangements on capsules of *Hypericum perforatum*. (a) Morphotype a showing glands of the capsule all linear i.e. vittate. (b) Morphotype b with glands of the capsule enlarged i.e. vesicular. (c) Morphotype c showing vesicles in only one row.

(ms. pres. il 4 aprile 2002; ult. bozze il 2 giugno 2002)

ACKNOWLEDGEMENTS

Thanks are due to Dr. Anna Millozza (Roma), Mr. Francesco Di Carlo (Verona), Mr. Antonio Masini (Pisa) and to Curators of many Herbaria for their helpful advice and kind cooperation. Research funded by M. U. R. S. T.

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