

**SYSTEMATIC REVISION OF STACHYS SECT.  
ERIOSTOMUM (HOFFMANS. & LINK) DUMORT. IN  
ITALY.**

LUCIA FALCIANI

**Abstract**

The sect. *Eriostomum* (Hoffmanns. et Link) Dumort. is a homogeneous section, well separated from the other sections of the genus *Stachys* L. (*Labiatae*). It is made up of species very similar one to the other, which show a great morphological variability both on an individual and on a populational level. Therefore, it is difficult to find a morphological discontinuity that enables us to circumscribe specific or subspecific taxa. In every epoch this particular morphology and the lack of recognition of types have brought about a great confusion in the identification of the taxa. The purpose of the present work is to contribute to a better knowledge of the sect. *Eriostomum* in Italy. After a systematic revision based on both dried and living material, it has been recognized to grow in Italy: *S. alpina* L., *S. germanica* L. ssp. *germanica*, *S. germanica* ssp. *salviifolia* (Ten.) Gams, *S. germanica* ssp. *dasyanthes* (Rafin.) Arcangeli, *S. thirkei* C. Koch, *S. tymphaea* Hausskn., *S. byzantina* C. Koch, *S. heraclea* All. Each taxon is accompanied by a description, drawings, distribution maps, nomenclatural and systematics comments.

**Introduction**

The sect. *Eriostomum* (Hoffmanns. & Link) Dumort. is a homogeneous section, widely distributed in Europe, Asia and part of western Africa, well separated from the other sections of the genus *Stachys* L. (*Labiatae*). It is made up of species very similar to one another, which show a great morphological variability both on an individual and on a populational level. Therefore it is difficult to find a morphological discontinuity that enables us to circumscribe specific or subspecific taxa. In every epoch this particular morphology and the lack of recognition of nomenclatural types have caused great confusion also concerning their distribution.

The species belonging to this section were brought together for the first time by HOFFMANNSEGG & LINK (1809) in the flora of Portugal, at generic level, under the new name *Eriostomum*. Later, DUMORTIER (1827), in his *Florula Belgica*, established, within the genus *Stachys* a section *Eriostomum* which included only *S. alpina*, collected in the Ardennes, and *S. germanica* found in dry ruderal places. For about 50 years the name *Eriostomum* was hardly taken into consideration by botanists. REICHENBACH (1830) united in a single group called *Eustachys* both the species afferent to *S. germanica* and those close to *S. sylvatica*. He was followed by BENTHAM (1834, 1848) who established the sect. *Eriostachys*, with the same circumscription as the previously established sect. *Eriostomum* Hoffmanns. & Link. This taxonomic treatment was followed by other botanists of the time (ENDLICHER, 1836-1840; BOISSIER, 1879). Briquet, instead, at first (BRIQUET, 1893) divided the whole genus *Stachys* into two large sections, i. e. *Betonica* L. and *Eustachys* (instead of *Eriostachys*), the latter

composed of many species, subspecies and varieties; but later, (BRIQUET, 1897) he recognized the section *Eriostomum*, considered as synonym of *Eriostachys* Rchb. Successively the most of authors (WETTSTEIN, 1935; RENDLE, 1952; BALL, 1972) have adopted this name while only a few (GAMS, 1927) have used the old denomination of Reichenbach. Finally, BHATTACHARJEE (1980), followed by GREUTER & al. (1986), proposed a new infrageneric classification of *Stachys*, maintaining the sect. *Eriostomum*, divided into three subsections.

In the *Index Nominum Genericorum Plantarum* (FARR & AL., 1979), the type species of the genus is *S. germanica* L. (BRITTON & BROWN, 1913). For this reason, according to the rules of I.C.B.N. (GREUTER & al., 1994), the correct name of the section also should be *Stachys*, not *Eriostomum*, because it contains *S. germanica*, whose type is the type of the genus, but adoption of this choice would disrupt the sectional nomenclature in this large genus including 300 species (MCNEIL & al., 1987; PRESS, 1992). JARVIS & al. (1993) proposed therefore to conserve as type species of the genus the name *S. sylvatica* which is a later choice (GREEN, 1929), but it has been generally included in a different section. According to this proposal all the recent authors treat *S. sylvatica* as belonging to *Stachys* sect. *Stachys* and *S. germanica* belonging to sect. *Eriostomum*, maintaining BHATTACHARJEE's (1980) treatment.

In Italy the authors of the earliest floras (BERTOLONI, 1844; CESATI & al. 1874; ARCANGELI, 1882, 1894; CARUEL, 1884) did not divide the genus *Stachys* into sections; BÉGUINOT (1903) began to follow the subdivision used by BENTHAM (1834) and this was taken up also by FIORI (1926). BALL (1972) recognized the section *Eriostomum* which included the *germanica* group, while ZANGHERI (1976) and PIGNATTI (1982) did not divide the genus into sections, but the latter recognised the *germanica* group without, however, assigning *S. alpina* to it. From the comparison of these systematic arrangements, several considerations emerge: over the course of the years certain entities have always been considered under the same taxonomic rank but for others the distinction and circumscription of specific and infraspecific taxa has been more problematic and even the most recent floras (BALL, 1972; PIGNATTI, 1982) have not resolved the taxonomical or corological problems involving several taxa, in particular *S. acutifolia* Bory et Chaub., *S. germanica* L. ssp. *dasyanthes* (Rafin.) Arcangeli or *S. byzantina* C. Koch. The purpose of the present work is to contribute to a better knowledge of the sect. *Eriostomum* in Italy.

## Materials and methods

The present investigations are based on the study of living populations and dried collections of several Herbaria, including type material.

Field observations and collections were made on living populations from 1990 to 1994; plant material was collected in the following sites: Ciano d'Enza, Scandiano, Canossa, Gallipoli Cognato, Monti Li Foi, Rifreddo, M. Pollino, Piano Battaglia, Piano Zucchi, Montelupo fiorentino, Monte Morello, Alpe della Luna, Campo Imperatore, Coppitto, Poggio Pienze, Monte Spada. Voucher specimens are kept in (FI). Material is in cultivation in Orto botanico dell'Università di Firenze.

The Herbaria consulted are: B, BM, DWC, E, FI, ICEL, G, G-DL, G-DEL, GOET, ICEL, JE, LD, LE, LIV, MEL, MO, NAP, OXF, P, PAD, PAL, PARMA, PESA, PH, PI, RO, SS, TO, W, WIS. The study of the herbarium specimens has allowed the compilation of measurements for many characters and was useful in delimiting taxa. Descriptions of each taxon were produced.

Caryological investigations were carried out on mitotic metaphases of meristematic cells from root tips obtained by germination of seeds, or on root tips of live plants collected in nature and growing in pots. Several mitotic cells from the same root tip and several root tips from each plant were investigated. After a pretreatment of two hours in a saturated solution of 8-oxyquinoline, they were fixed in Carnoy 3:1, hydrolysis in HCL 1N at 60° per 6 min, colouration with lacto-propionic orcein for 18 h and preparation by squashing (DYER, 1979). Observations were made with Zeiss Axiophot photomicroscope.

For SEM investigations the epidermal surfaces were preliminarily observed directly by light microscopy, using hand cut sections. TEM observations were made according to MORI & TANI (1988). For SEM observations small pieces of material (leaves, flower axes, bracts, bracteoles, calices and corollas) were fixed in 2.5% glutaraldehyde in 0.1 M phosphate buffer at pH 7.4 and postfixed in 2% OsO<sub>4</sub>. Then the material was dehydrated with acetone, followed by critical point drying, and carbon gold coated. An electron microscope Philips 515 was utilized. In some cases for a better knowledge of the trichome structure, semi-thin sections of material embedded in Spurr resin (SPURR, 1969) were utilized after staining with toluidine blue O.

For morphological characters STEARN (1973) has been generally followed.

### Morphological characters

The structure of glandular hairs of the Labiatae has interested botanists since the beginning of this century (GAMS, 1927) and the taxonomic significance of glandular trichome structure has been noticed by many authors (EL GAZZAR & WATSON, 1970; WERKER & al. 1985; ABU ASAB & CANTINO, 1987; DUDAI & al., 1988; CANTINO 1990; BINI MALECI & SERVETTAZ 1991; KAROUSOU & al. 1992). In *Stachys*, in particular, the indumentum is very important for the systematics of the sections (BRIQUET, 1893; BHATTACHARJEE, 1980). The type of indumentum is important for its quality and for its density which is expressed by authors with innumerable adjectives: woolly, woolly-villous, tomentose, lax-tomentose, non appressed tomentose, thick appressed tomentose, pilose, sparsely pilose, densely pilose, woolly-tomentose, villous, hirsute, white woolly, white tomentose hispid, velutinous, velutinous woolly, pubescent, pubescent glandular. The presence or absence of certain types of glandular hairs on the flower stem or on the calyx is also important. For example BHATTACHARJEE (1974) separated *S. germanica* from *S. tymphaea* for the glandulosity of indumentum while BALL (1972) and PIGNATTI (1982) use glandular trichomes present on the stem and calyces as distinctive characters generally, at specific level.

To learn the distribution and morphology of trichomes, micromorphological studies were made (FALCIANI & al., 1995). The following types of trichomes in different organs of the plant have been observed:

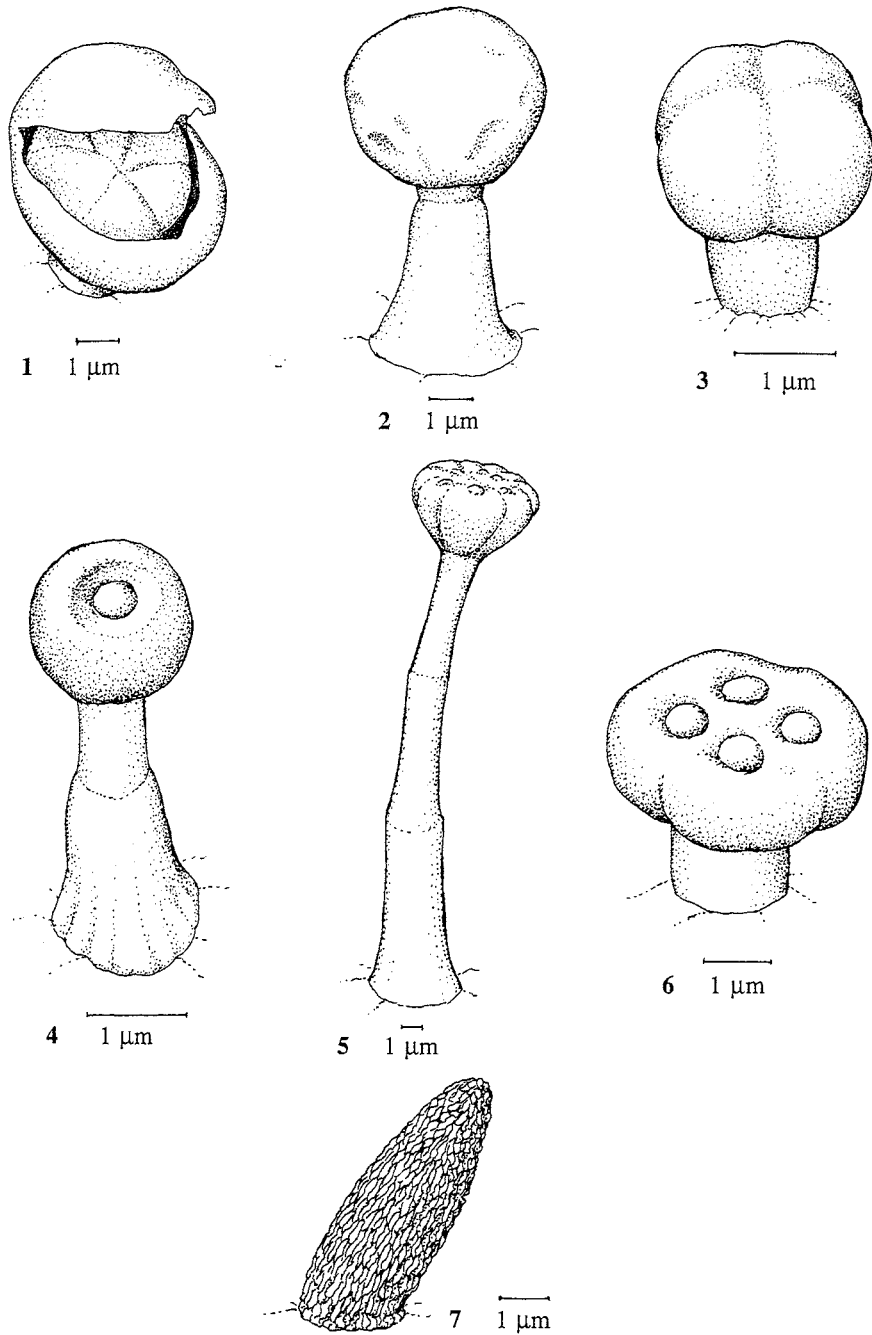


Fig. 1. Type of trichomes. 1, Peltate hair, A type. 2, Peltate hair with a well developed stalk, A type. 3, Short capitate hair, B type. 4, Long capitate hair with one rounded secretory cell with a small subcuticular space, C1 type. 5 - 6, Long capitate hairs with multicellular head, Cx type. 7, Non secretory unicellular hair with micropapillae, D type.

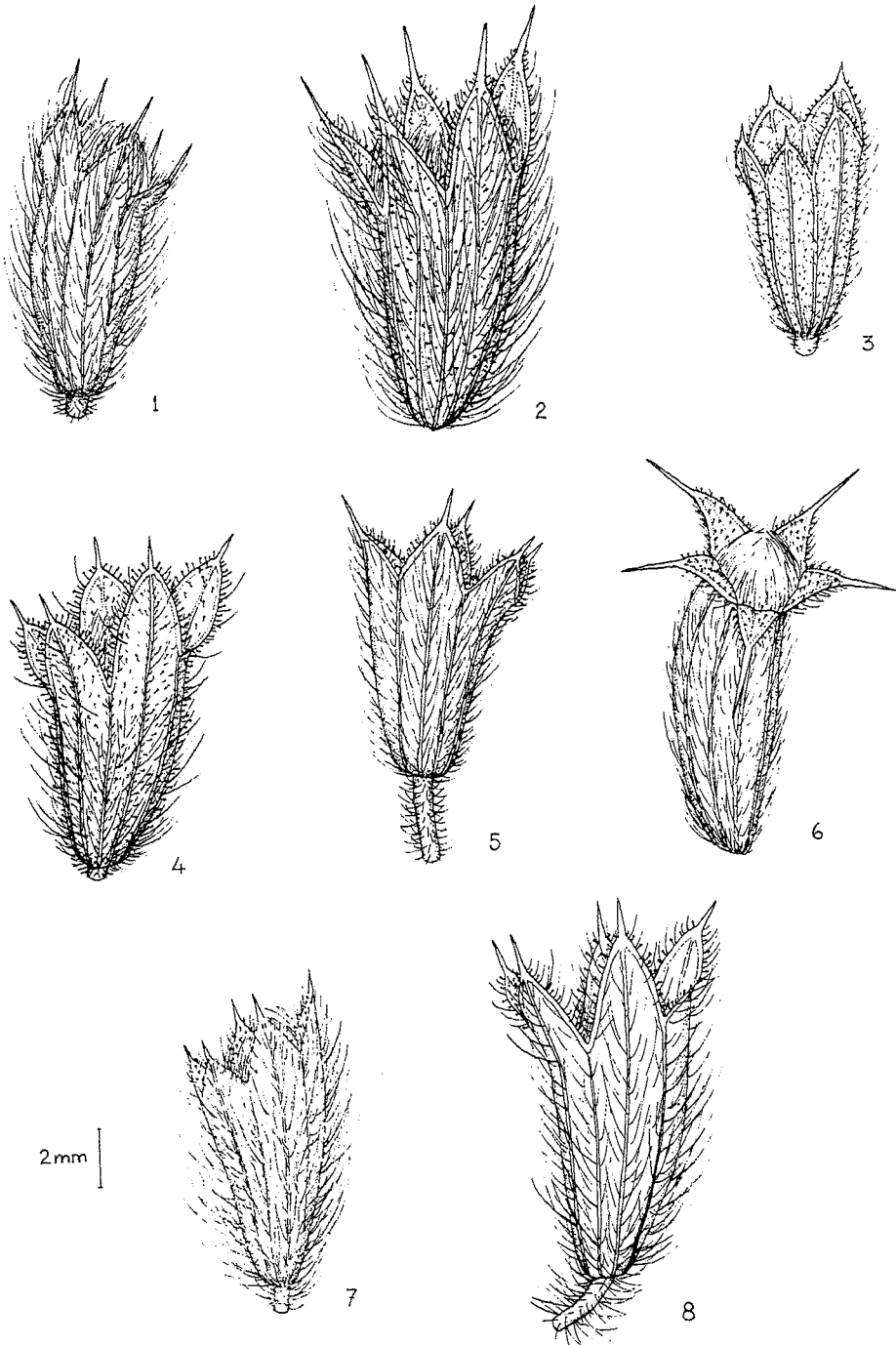
Type A: peltate hairs composed of one basal epidermal cell, one neck cell and 4 (rarely 8) large secretory cells with one large subcuticular space. Frequently the epidermal cell is elongated to form a well developed stalk (Fig. 1. 1-2). Type B: short capitate hairs, smaller than type A, composed of one basal epidermal cell (that sometimes contributes to form the stalk), one neck cell and four secretory cells with a small subcuticular space (Fig. 1. 3). Type C: long capitate trichomes with one or more basal epidermal cells, a multicellular stalk, one neck cell and a secretory head that consist, in C1, of one rounded secretory cell with a small subcuticular space which sometimes appears collapsed (Fig. 1. 4). In Cx, the head is multicellular (2-16 cells or even more), each secretory cell bearing its own small subcuticular space (Fig. 1. 5-6). Type D: non-secretory hairs, usually multicellular, unbranched, uniseriate, erect or bent at different levels. A particular unicellular type of hair with cuticular micropapillae, described by BARTHLOTT (1980), is present on the internal lip surface of corolla, particularly at the throat. (Fig. 1. 7).

The section *Eriostomum* is also characterized by the following morphological features: lower leaves petiolate (petiole 0-9 cm), upper leaves sessile. Blade of basal leaves principally in two forms: oblong-elliptical and ovate, ovate-lanceolate; base cordate-ovate, rounded, attenuate-cuneate, asymmetrical; apex obtuse-rounded or acute; margin crenate serrate-dentate or crenate-crenulate, minutely crenate almost entire. The indumentum is very variable: the leaves may be tomentose, pubescent, sericeous, villous with type D hairs variously distributed (short and thick or long and scattered) and glandular hairs A and B of the same type present on the stem.

Floral structure: flowers united in verticillasters made up many flowers (6-35), arising from the axil of leaves more or less differentiated into bracts not prickly. In certain species there is a gradual passage from the basal leaves to the bracts so that some botanists (BÉGUINOT, 1903; BALL, 1972) report of floral leaves instead of bracts. The lower verticillasters are more distant from each other, the upper are generally closer together forming a terminal spike. Flowers hermaphrodite, zygomorphic, with a short pedicel which carries, at his base 2 bracteoles, which are lanceolate to linear, acute or aristate. The upper and lower surfaces of the bracts and bracteoles do not present particular differences in indumentum.

The calyx is bilabiate, from campanulate to tubular (see Fig. 2). The external surface of the calyx (tube and teeth) shows glandular hairs of the types A, B and C (excluding ssp. *germanica*) and type D hairs, internally they are found only on the teeth, the tube is glabrous, the throat of the calyx is closed by a ring of hairs, teeth 5, triangular-ovate or lanceolate, 1/3 to 1/4 the length of calyx, unequal, the front two smaller, the back central one the largest, all with mucronate tips, erect, erect-patent.

Corolla bilabiate, pink. Externally, on the corollas A, B, C1, Cx e D trichomes are present with occurrence and localization varying in the different zones, on the inner surfaces A and D trichomes are scarce. Tube cylindrical, included or slightly protruding from calyx, curved in upper part, glabrous in lower part ringed at the mouth by the particular type of unicellular D hairs with micropapillae, interrupted for the passage of the style. Upper lip erect, subpatent, concave, obovate, entire or emarginate, rarely bilobate, lower lip patent, turned down, trilobate, with obtuse lobes the central one wider, obovate, rounded or notched.



Androecium: stamens 4 didynamous, protruding from tube (the back pair usually shorter than the front pair), ascendent, first with parallel filaments, and later, after fecondation, divergent and twisted; base of filaments present short D hairs together with short four-celled Cx hairs which are also found on central part of filament, where they are gradually substituted by long one-celled capitate hairs. The C1 are first interspersed with articulated D hairs and then remain alone up to the point of attachment of the anthers.

On the anthers are found more or less abundant stalkless A hairs. Anthers bilocular with parallel or divergent lobes, then divaricate and opposite at the tip, dehiscent. Pollen grains spheroid or ovoid, generally triculcate, tectate, surface reticulate or microreticulate.

*Cytology.* All the populations investigated (FALCIANI & FIORINI, 1996) show a chromosome number  $2n = 30$  according to authors cited in GOLDBLATT (1981, 1984, 1985, 1988) and GOLDBLATT & DALE (1990, 1994).

*Iconography.* Original drawings by A. Maury (Florence), based on both living and dried material, illustrate the text. A selection of previous drawings, all personally checked, is listed for each species.

*Distribution.* The distribution in Italian territory (local distribution) has been defined on the basis of the inspected herbarium material which is briefly shown (main locality, year, collector) under the item voucher specimens. Only for *S. byzantina* a few more data from literature have been added as being particularly significant.

#### Key to the Italian species

1. Calyx tubular - urceolate with triangular teeth definitely  
divaricate-stellate ..... *S. thirkei*
1. Calyx tubular-campanulate with ovate-triangular teeth not divaricate stellate ..... 2
2. Basal leaves with petioles 4-9 cm long, base asymmetrical; bracts  
ovate-lanceolate, ciliate, distinct from basal and cauline leaves  
(which are oblong-elliptical) ..... *S. heraclea*
2. Basal leaves with petioles 3-6 cm long, base symmetrical; basal and  
cauline leaves progressively reduced passing into bracts ..... 3
3. Stem violet and hirsute in the lower part; inflorescence axis and  
bracts glandular with long stalked capitate Cx hairs ..... *S. alpina*
3. Stem greenish, woolly or tomentose; inflorescence axis and bracts  
without capitate Cx hairs ..... 4

---

Fig. 2. Calices. 1, *Stachys germanica* L. subsp. *germanica*. 2, *Stachys germanica* L. subsp. *salviifolia* (Ten.) Gams. 3, *Stachys germanica* L. subsp. *dasyanthes* (Rafin.) Arcangeli. 4, *Stachys alpina* L. 5, *Stachys tymphaea* Hausskn. 6, *Stachys thirkei* C. Koch. 7, *Stachys byzantina* C. Koch. 8, *Stachys heraclea* All.

4. At least basal leaves, calyx and bracteoles so densely covered with D hairs as to form a white felt ..... *S. byzanthina*
4. Plant woolly or tomentose with D hairs through which it is possible to see the morphology of the various parts of the plant ..... 5
5. Flowers with pedicels 2,5-3 mm long; calyx tubulose-campanulate, glandular on the external surface with Cx and C1 hairs ..... *S. tymphaea*
5. Flowers almost sessile with pedicels 0,5- 1 mm long; calyx ovoid-tubular, glandular on external surface which does not show Cx hairs, or at least never together with C1 hairs ..... *S. germanica*

***Stachys alpina* L., *Sp. Pl.*: 581 (1753)**

Herb perennial. Stems erect or ascendent, 30-80 cm, simple, violet and hirsute with B and few long D hairs in the lower part, rarely branched, greenish, hirsute also with glandular Cx hairs in the upper part. Leaves petiolate (petioles 40-70 mm), to subsessile, gradually passing from larger to smaller sizes in the bracts; blade with A, B and few D hairs, 50-120 x 30-90 mm, ovate to lanceolate, irregular serrate, apex acute, base cordate-ovate. Bracts subsessile to sessile, lanceolate, acute, dentate, with teeth gradually lengthening until margin becomes entire, with B, Cx and D hairs. Verticillasters 8-12-flowered. Flowers almost sessile, pedicels 0,5-1 mm, bracteoles sessile, lanceolate, entire, nearly as long as the calyx, pubescent, glandular with the same hairs as the bracts. Calyx 8-10 mm, tubular-campanulate, violet-green, pubescent, externally glandular with trichomes A, B, Cx with long stalk and D; teeth unequal, ovate triangular, as long as 1/2 of the tube, with mucro of 1 mm. Corolla bilabiate, 12-15 mm, rose with whitish splotches; tube glabrous, included; lips inner surface with sporadic B, C1 and D hairs, the apical zone glabrous, external surface with A and Cx hairs besides abundant of D hairs; upper lip concave, lower lip trilobate, middle lobe generally emarginate. Stigma rose-violet. Nutlets ovoid, dark.

*Typus.* "3 alpina" (LINN 736. 3, photo!)

Lectotypus here designated from among the following elements: two specimens correlated to the Hortus Cliffortianus of LINNAEUS (1737), present in the Clifford Herbarium (BM), the plate of PLUKENETT (1696), one specimen in the Linnean Herbarium in Stockholm, one specimen in the Burser Herbarium (UPS). The selected specimen is the most complete element, perfectly agreeing with the protologue; it carries the inscription in the lower right corner "3 alpina" in Linnaeus' handwriting (SAVAGE, 1945), and was part of the material in his possession before the publication of his *Species Plantarum* of 1753 (JACKSON, 1912).

*Iconographia selecta.* FIORI (1898, fig. 3113), HEGI (1927, fig. 3287: habitus, flower, calyx), ZANGHERI (1976, tab. 113 fig. 4173: flower and bracteole; tab. 113 fig. 4177: leaf), PIGNATTI (1982) uses the same iconography as Fiori, Fig. 3



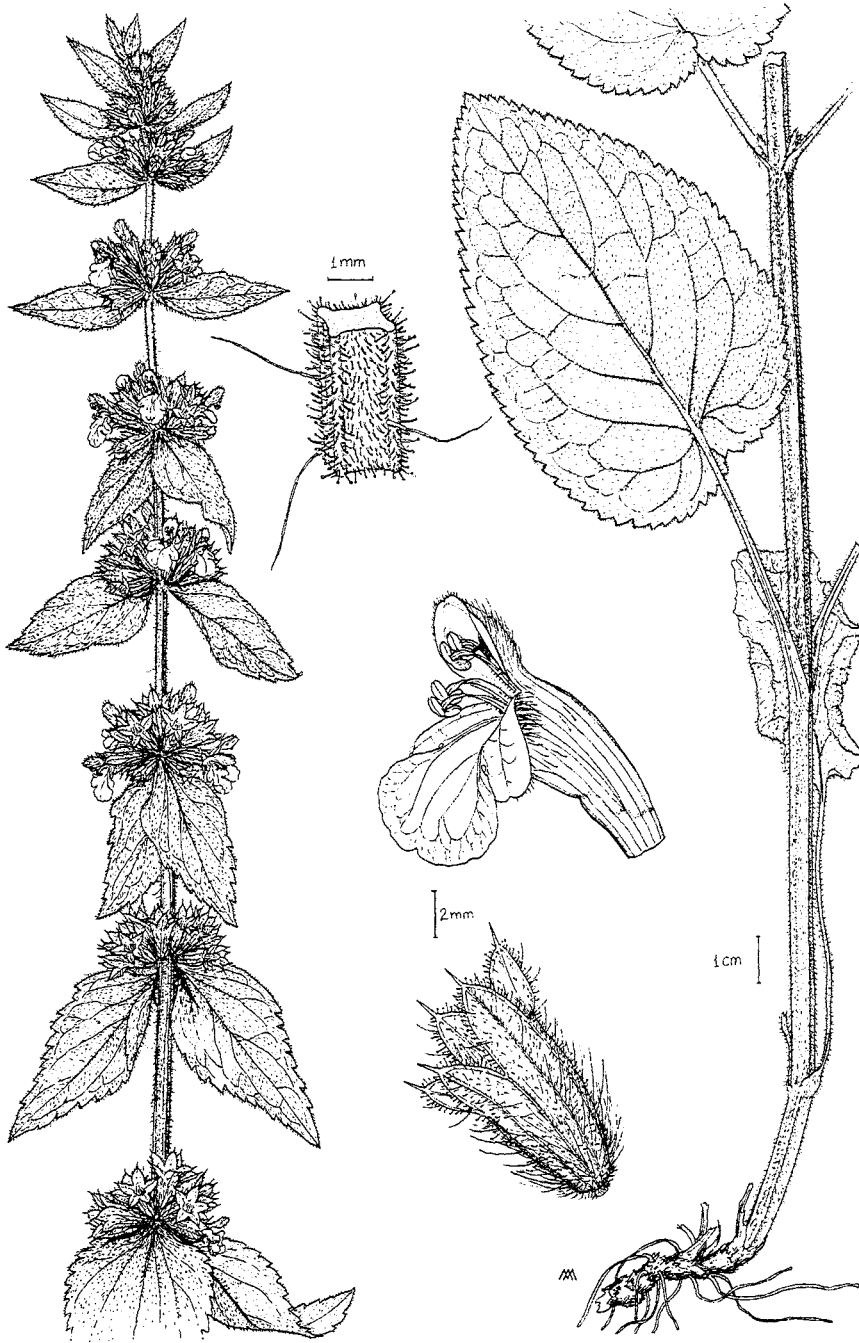


Fig. 3. *Stachys alpina* L.

*Flowering period.* (June) July - Aug.

*Chromosome number.*  $2n = 30$  according to authors cited in GOLDBLATT (1981; 1984, 1985).

*Ecology.* Margins or clearings in coppice woods (beech or more rarely turkey oak) or fir woods, pastures in alpine valleys, edges of roads; arenaceous-marly soil, crystalline schists, dolomites; humus from scarce to more or less abundant; (600) 800 - 1800 m.

*General distribution.* Albania, Austria, Belgium, Great Britain, Bulgaria, Czechoslovakia, France, Germany, Spain, Hungary, Italy, ex-Yugoslavian territories, Poland, Rumania, South European Russia, Greece.

*Local distribution.* N-Italy, Tuscany and N- Umbro-Marchigiano Apennines as far as Massa Trabaria, (Fig. 4).

*Voucher specimens.*

**Liguria** - Val Casterino (Tenda) Alpi Marittime italiane, 28 Jul 1912, *C. Bickell* (FI) - Liguria Orientale, Casa del Penna, alt. 1400 m, 2-5 Aug 1894, *G. Doria & R. Gestro* (PAD) - prati di Viosenne?, 19 Jul ?, *Ricca* (FI) - **Val d'Aosta** - Valtournance, 2 Aug 1955, *P. Paradossi* (FI) - Courmayeur al Lago di Combal, 30 Jul 1898, *L. Vaccari* (FI) - Courmayeur verso N. D. de Berriet, 5 Aug 1899, *E. Ferrari* (TO) - Sopra Ivino Cervinia (?) reg. dell' abete, 26 Jul 1864, s.c. (FI) - **Piemonte** - Valle Formazza fra Chiesa e Fracchie 1220 m, 24 Aug 1918, *O. Boggiani* (FI) - Valle Formazza Riale: torrente Grie 1700 m, 7 Aug 1914, *O. Boggiani* (FI) - Formazza tra Langa e Grovella 1450 m, 8 Aug 1914, *O. Boggiani* (FI) - Valstrona (NO) Piana di Forno, verso Campello Fonti, 21 Aug 1987, s.c. (TO) - Riva (Valsesia), 14 Jul 1859, *Ab. Carestia* (FI) - Riva (Valsesia), 14 Jul 1860, *Carestia* (FI) - Riva Val Sesia al Ribasso, 15 Jul 1871, *Carestia* (TO) - Riva Val Sesia, 21 Jul 1871, *Carestia* (TO, PAD) - Valle Sesia, Riva, Jul 1846, s.c. (TO) - Val Sesia, tra Alagna e la cappella di S. Antonio, 1300 m, 27 Aug 1910, *E. Ferrari & G. Gola* (TO) - Riva Val Sesia, villaggio la Balma, 2 Jul 1866, *Carestia* (TO) - Riva Val Sesia, Balma, 14 Jul 1859, *Carestia* (TO) - Riva Val Sesia, al Ribasso, 21 Jul 1870, *Carestia* (TO) - Riva Val Sesia, Aug 1873, s.c. (TO) - ... sopra i bagni di Val... regione del faggio 1200 m, 7 Aug 1869, s.c., (FI) - Fontana di Fossignana, 1882, s.c. (TO) - Fossignana Val Susa, Jul 1888, s.c. (TO) - Fra Forsignana, Val Susa, Jul 1888, s.c. (TO) - Ivrea, 6 Jun 1900, *L. Vaccari* (FI) - Alpi Marittime, Limone: salendo alla Buffa, 8 Jul 1894, *Ferrari* (FI, TO) - Lungo il torrente presso Limone, Jul - Aug 1849, s.c. (TO) - Limone Piemonte, m 1200 c., 8 Aug 1935, *Vignorolo*, (TO) - Limone 1200 m, 8 Aug 1935, *Vignolo, Luzzati, Castiglioni & Fontana* (TO, JE) - Val Gesso (A.M.), 22 Jul 1961, *P.G. Bono* (FI) - Vallone di Monte Colombo presso S. Giacomo di Entraque (1450 m) Val Gesso (A.M.), 26 Jul 1961, *P.G. Bono* (FI) - Vallone del Piz 1500-1600 m Valle Stura (A.M.), 28 Jul 1966, *G. Bono* (FI) - Alpi marittime: Pinetto, 15 Jul 1872, *Unger- Sternberg* (TO) - Intorno la borgata N. Pallanfrè sul versante Val Vermegnana, Alpi Marittime, 1906, s. c. (TO) - Pallanza sul versante Val Vermenagna, Alpi Marittime, 1906, s.c. (TO) - Presso Pallanza sul versante Val Vermemagna, Alpi Marittime, s.d., s.c. (TO) - Fra i due.... lungo la ...., 16 Jul 1913, *O. Bolzon* (FI) - Chargeoir (Pinerolo) Vallone Borsetto boschi salendo all'Alpe Comba del Torno m 1550, 10 Aug 1939, *Fontana Cereglia* (FI, TO) - Boschi dei monti, s.d., s.c., (TO) - Garresi in pratis

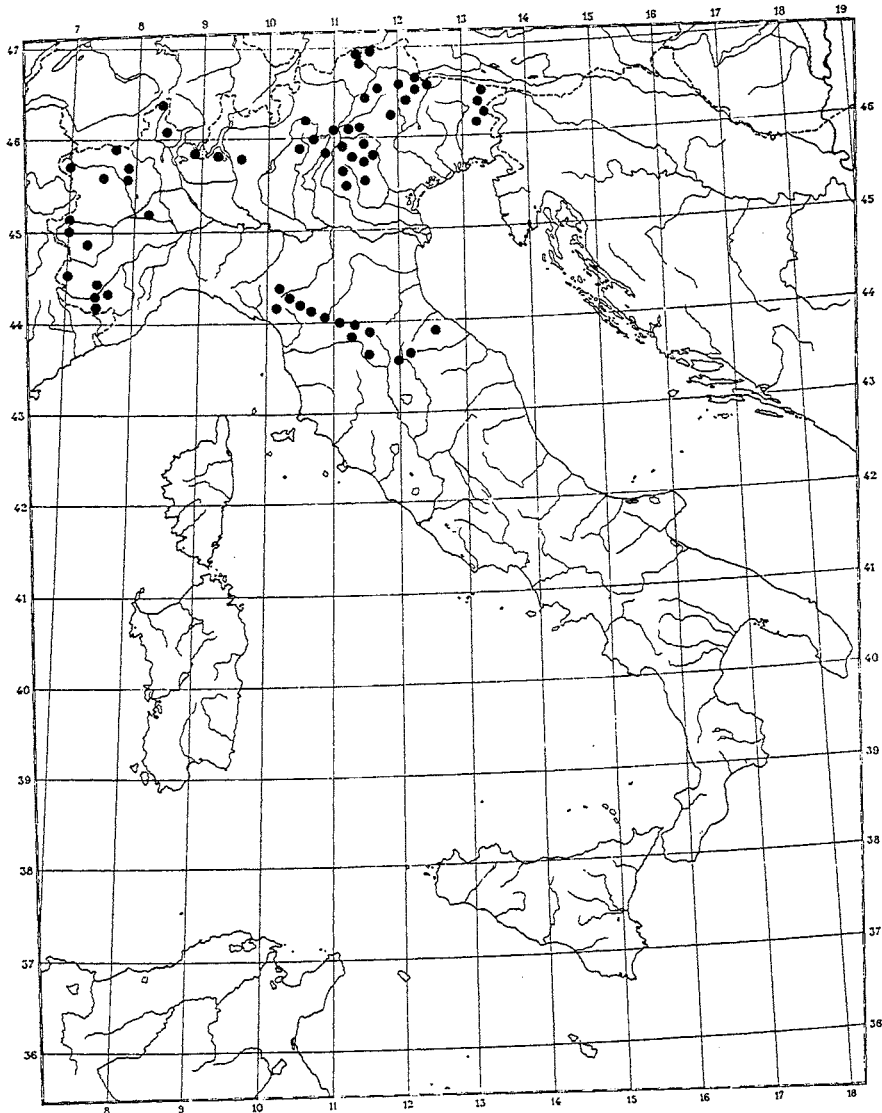


Fig. 4. Distribution of *Stachys alpina* L. in Italy.

Peinnini in herbosis Barrera et in alpestribus, 21 Jul 1866, *M. Gallerio* (TO) - Garresi in Monte Gallero, 23 Jul, s.c. (TO) - Garresii Pennini ..., s.c. (TO) - Casteldelfino: borgata La Chiamate, 30 Jul 1925, *R. Fontana & F. Niola* (TO) - Valli di Rocheforte Corvaia ed altrove, Mondovì, Jul 1874, s.c. (TO) - Valle Maera, Aug 1844, s.c. (TO) - Versante sopra Pallavifra, 6 Jul 1906, *Ferari, D. Vallino & Gola* (TO) - Oltre il Pian del Fraiss (Val Susa), q.m. 1700, 5 Sep 1969, *F. Montacchini & Ariello* (TO) - Alpi Cozie, Col de la Ro, 11 Sep 1879, *Ungern - Sternberg* (TO) - Presso S. Bartolomeo di Pesio 1100 m, 28 Jun 1898, *C. Bicknell* (FI) - Val Pesio, Val Cravina sotto G.

Bormazza, 1300 m, 31 Jul 1947, *Sappa & al.* (TO) - Val Pesio, Gius Fontana alt. 1200, 30 Jul 1946, *Sappa & al.* (TO) - Regione superiore dell'abete di M.te....1600-1700 m, 19 Jul 1864, s.c., (FI) - **Lombardia** - Prealpi insubriche Monte Campo dei Fiori (Varese) 1033-1226 m, 4 Jul 1952, *G. Negri & R. Bavazzano* (FI) - Prealpi insubriche Monte Campo dei Fiori (Varese) 1033-1226, 5 Jul 1952, *G. Negri & R. Bavazzano* (FI) - Monte Resegone, s.d., ... (FI) - Monte Garla nelle Alpi bresciane 1300 m, 22 Aug 1863, s.c. (FI) - Monte Gerla 1600-1800 m, 13 Jul 1864, s.c.(FI) - ..., Mai 1864, ... (FI) - Tonale, 11 Aug 1870, s.c. (FI) - Lecco culmine di San Pietro, 8 Sep 1895, *C. Camperio* (FI) - Lago di Como sopra Torno, Jun 1833o 58, s.c. (TO) - **Trentino Alto Adige** - Val di Racines, 1670 m, 12 Aug 1951, *S. Zenari* (PAD) - Mareta di Dentro Rupì, 1400 - 1450, 7 Aug 1935, *S. Zenari* (PAD) - Vipiteno V. di Racines, 1670 m, 12 Aug 1951, *S. Zenari* (FI) - Vipiteno, 1000 -1300, 24 Jul 1950, *S. Zenari* (sub *S. germanica*, PAD) - Vipiteno, Prati di V. Vizze, 975 - 1000, 3 Aug 1936, *S. Zenari* (PAD) - V. del Brennero, Alto Adige, Treme del Brennero Rio del Cambio, q. 1500-1600, 30 Jul 1951, *S. Zenari* (sub *S. germanica*, PAD) - Tirolia australis, Val di Ledro 1000-1500 m, Aug 1888, *Porta* (FI) - Bondone, Gazza, Sep 1844, fratelli *Perini* (FI) - Tirolia australis, vallis Virgen Pustariae 4000', 23 Jul 1875, *Aufserdorfer* (?) (FI) - Tirolo S. Martino di Castrozza sulla strada Primiera, 8 Jul 1897, s.c. (FI) - Tirolo S.Martino di Castrozza Col Fosco, 27 Jul 1897, s.c. (FI) - San Martino di Castrozza, 9 Aug 1927, s.c. (PI) - Umgebung von S. Martino di Castrozza, Mitte Juli 1910, *A.V. Sterneck* (JE) - Col Fosco S.Martino di Castrozza, 19 Jul 1899, *F. Thomas* (JE) - Tirolo australe, Slendel presso Bolzano, 25 Jul 1885, *W. Vatke* (JE) - In Tiroliae australis, Pali 3500, Jul 1862, *Auperardorfer* (JE) - Intago, Rio Rosso, M. Lupo. Alto Adige 1450 m, 27 Jun 1954, *S. Zenari* (PAD) - Ratzes, 28 Jul 1889, s. c. (JE) - V. Ridanna, 1320-1332, 7 Aug 1935, *A. Zenari* (PAD) - V. Ridanna, fontana fredda di Telves, 1294, 21 Aug 1935, *S. Zenari* (PAD)- **Veneto** - Valle Frisone, Comelico sopra ponte di Masade (?) ... 1050, 15 Aug 1934, *S. Zenari* (PAD) - Cortina d'Ampezzo, V. Fal..., 1700-1800, 26 Jul 1937, *S. Zenari* (PAD) - Prati alpini del Finitetia (?), 7 Aug 1886, *A. Fiori* (FI) - Collalti , Jul-Sep 1896, *L.Vaccari* (FI) - Larine di Laggio, s.d., s.c. (FI) - Nel bosco di S. Leonardo, Domegge Cadore ..., s.d., *Venzo* (FI) - Luzzana di Lozzo, s.d., *Venzo* (FI) - Cadore Monte Mauria, 2 Aug 1885, *T. Caruel* (FI) - Prov. di Belluno, fra Saviner e Selva, 20 Jul 1889, s.c. (FI) - Valle del Boite: M. Pelmo: Boschi di Tiera, 1200- 1400 m, 15 Aug 1923, *R. Pampanini* (PAD) - Cadore: M.Pelmo, Aug 1879, *C. Marchesetti* (FI) - Monte Cavallo, 1847, *Keller* (FI) - Monte Branchetto, Aug 1887, *A. Goiran* (FI) - Bellunese Molin dei Fiori, 8 Aug 1943?, *M. Minio* (FI) - Biois (Belluno), 16 Aug 1943, s.c.(FI) - Pecol di Zoldo (Belluno), 17 Jul 1935, *A. Marcello* (PAD) - Cadore, sopra Pelos, al ponte sul torrente Piova, presso Lorenzago (Belluno) alt. 800 m, 21 Jun 1958, *C. Ricceri & al.*, (FI) - Nel Cansiglio 1667 m, 8 Jul 1895, *R. Pampanini* (FI) - M.te Terme sopra.... a 600-800 m, 24 Jun 1917, *P. Bolzon* (FI) - Cansiglio (Belluno), da Crosetta a Candaglia, 25 Aug 1951, *A. Marcello* (PAD) - Valle di Enge, q. 1550- 1650, 6 Aug 1934, Pieve di Sappada, Cadore, *S. Zenari* (PAD) - Dintorni di Federa vecchia (V.Ansei Cadore 1930), 1400-1800, 29 Jul 1930, *S. Zenari* (PAD) - Valle d'Antola, bosco umido, scisti ed arenarie q. 1500-1700, 21 Aug (?), *S. Zenari* (PAD) - (?) Piave di Visdende, Camelico, 1934, s. d. (PAD) - Cadore: Sappada in Val Sesis, 24 Aug 1929, *O. Bargagli & Petrucci* (PAD) - Valle della Piova, alt. 1250-1350 m, 16 Jul 1937, *R. Pampanini* (PAD) - Valle del Piova: Laggio l.d. Antoia, alt. 1400-1600 m, 16 Jul 1937, *R. Pampanini* (PAD) - Sappada, (?) Piave di Sappada, bosco delle Digora, 1400-1500, 21 Jul 1934, *S. Zenari* (PAD) - Rio Valseura, 1500 m, 14 Jul 1929, *S. Zenari* (PAD) - Prati di Pianosa?, marne di S. Carfiano, 1400-1480 m, 4 Jul 1930, *S. Zenari* (PAD) - M...., vers. W, ... 800-900 m, Belluno, 20 Jul 1933, *U. dell'Ardo & S. Zenari* (PAD) - Mt. Bosco negro prope Fornesighe di Zoldo, Prov. Bellunensis, Aug 1882, *Bizzorew* (PAD) - Mendel am Wege zum Penegal, Kalk, 1500 m, 25 Aug 1901, *W. Pfaff* (PAD) - Vallelunga di ..., Rio Carlino m 1540, 12 Aug 1920, (Curon Venosta A.A.), s.c. (PAD) - Vinigo, fra R. Budain e R. Baldo, 1400 m, 22 Jul 1931, *S. Zenari* (PAD) - Boschi sopra Diomegge, 10 Aug 1912, *R. Pampanini* (PAD) - M.te

Pelmo, 1500 m, *R. Pampanini* (PAD) - Valle del Piave: Lozzo V. Longiarun, alt. 1200- 1400 m, 26 Jul 1937, *R. Pampanini* (PAD) - Valle del Piave, bosco della Digola, l.d. Eulen Bach. 1450 - 1650 m, 22 Jul 1934, *R. Pampanini* (PAD) - Bosco del Piave: Lozzo, Valle Lungarin, 900-1000 m, 19 Aug 1933, *R. Pampanini* (PAD) - Valle del Boite: Ampezzo: Podestagno, 1500 m, 29 Jul 1922, *R. Pampanini* (PAD) - Strada del Falzarego da Pacol a Stuoires, S. Cassiano, 1600-1700 m, Cadore, 31 Jul 1941, *S. Zenari* (PAD) - Valle del Frisone, Piano di Sire, alt. 1300-1400 m, 7 Aug 1933, *R. Pampanini* (PAD) - Valle dell'Ansiei: Val Debbia, 1100-1300 m, 19 Jul 1928, *R. Pampanini* (PAD) - Valle dell'Ansiei, Federavecchia, 1300-1350 m, 25 Jul 1922, *R. Pampanini* (PAD) - Valle del Piova, 750-950 m, 21 Jul 1936, *R. Pampanini* (PAD) - Valle del Dignon: Valle del Melin, 1600-1800 m, 10 Aug 1928, *R. Pampanini* (PAD) - Valle del Padola: Padola l.d. Palù, 1200 m, 3 Jul 1924, *R. Pampanini* (PAD) - Padola sup. M... m 1400, *P. Bolzon* (PAD) - Valle del Piave, Valle Talagona alt. 850-1100 m, 2 Aug 1932, *R. Pampanini* (PAD) - Valle del Padola, Passo di M. Croce, alt. 1600- 1700, 3 Aug 1928, *R. Pampanini* (PAD) - Valle del Piave: V. Talagona, 1200 m, 1 Aug 1932, *R. Pampanini* (PAD) - Valle del Piave, Perarolo, M. Dubiea, 1100- 1300 m, 28 Jul 1931, *R. Pampanini* (PAD) - Valle Visende: sotto il Colle Spina, alt. 1600-1650 m, 20 Jul 1936, *R. Pampanini* (PAD) - Valle del Padola: M. Croce vers. mer. alt. 1500-1600 m, 18 Jul 1928, *R. Pampanini* (PAD) - Valle del Boite: S. Vito: Col Sentinella, 1500 -1800 m, 21 Jul 1922, *R. Pampanini* (PAD) - Valle del Frisone, 17 Aug 1926, *M. Minio* (PAD) - Pian di Madier (M. Pelmo) (Cadore), 13 Aug 1900, *R. Pampanini* (PAD) - "Pian di Madier", M. Pelmo (Alpi Cadoriche), 1750 m, 7 Aug 1900, *R. Pampanini* (PAD) - Valle del Boite: M. Rite, vers. sett. alt. 1300-1700 m, 1 Aug 1922, *R. Pampanini* (PAD) - Valle del Boite: Borca, 1000 m, 22 Aug 1922, *R. Pampanini* (PAD) - Cevedale V. Saent. Rabbi Coller 1000-1300 m, 15 Aug 1938, *V. Marchesoni* (PAD) - Alpi di Ledro, 700-800 m, Jul 1934, *Foletto* (PAD) - Cadore Calazo V. Vedessana, salita a fen.li Casapiana, 1200-1400 m, 27 Jul 1940, *S. Zenari* (PAD) - Montebaldo, 18 Jul 1909, *A. Forti* (PAD) - Monte Lessini, Covolo sul Corno d'Acquiglio, *A. Forti* (PAD) - Cadore, Cunanzo, q. 800-850, 11 Jul 1929, *S. Zenari* (PAD) - Cortina d'Ampezzo, Cadore, V. Tal...rego, Vernei, S. Cassiano, 26 Jul 1937, *S. Zenari* (PAD) - Cadore, Lozzo di C. Rio Rin, 1300-1600, 6 Aug 1940, *S. Zenari* (PAD) - Calalzo, V. de Vessana, da f. la Bassa al Gian Stretto, 1300-1600, 4 Aug 1940, *S. Zenari* (PAD) - V. d'Oten, Valle Antelao, bosco folto, detriti dolomitici umidi, 1200-1250 m, 16 Jul 1940, *S. Zenari* (PAD) - Perarolo, forra del Piave, bosco, detriti misti, 550-600, 12 Jul 1940, *S. Zenari* (PAD) - Monte Baldo, Val Losana, Jul 1872, *A. Goiran* (TO) - Monte Baldo in prov. di Verona: in pascuis del Pravazar, 21 Jul 1871, *A. Goiran* (TO) - E.Monte Baldo in prov. di Verona, circum le acque Negre, Aug 1870, *A. Goiran* (TO) - Monte Baldo, s.d., s.c. (FI) - Monte Baldo, s.d., s.c. (FI) - Monte Grappa Val di Seren nella Busa della neve 1200-1300 m, 7 Aug 1919, *L. Vaccari* (FI) - Boscon (zona del Monte Grappa), 26 Jul 1919, *L. Vaccari* (FI) - Dintorni di Recoaro per andare alla Pace, Jul 1883, s.c.(FI) - Nei colli sopra Puise 1400 m, 20 Jul 1919, *L. Vaccari* (FI) - V. di Fleres, rio Covolo, 1300-1500 m, 8 Aug 1936, *S. Zenari* (PAD) - Valdobbiadena, Costa Pianerre, 800-900, 3 Jun 1934, s.c. (PAD) - Valle Frisone: sopra ponte di "Masare", 1050 m, 15 Aug 1934, *S. Zenari* (PAD) - **Friuli Venezia Giulia** - Tarvisio (Udine) dintorni, 17 Aug 1963, *A. Contardo* (FI) - Udine Monte Cuarnan ad est di Gemona 1100-1370 m, 2 Jul 1949, *A. Contardo* (FI) - Collalti, Jun - Sep 1896, *L. Vaccari* (FI) - Udine Monte Crosis 867 m a nord di Ciserius, 4 Jul 1952, *A. Contardo* (FI) - Udine Alpi Carniche: Monte Paularo sopra la P.de Valpudia 1300 m, 19 Jul 1972, *L. Chiappella* (FI) - Selva di Ternova, 20 Jul 1921, *A. Vatova* (FI sub *S. germanica*) - **Emilia Romagna** - Cisa, s.d., *G. Vallerini* (FI) - Ventasso, 6 Jul 1887, s.c. (FI) - Montefiorino, Aug 1939, *Mori* (FI) - Pietra di Bismantova, Reggio Emilia, Jul 1895, *Vaccari* (FI) - Dintorni di Lagosanto, 18 Jul (?), *U. Martelli* (FI) - Pievepelago 800 m vicino alla strada che conduce alle Tagliole, 10 Aug 1933, *Mori* (FI) - Appennino Bolognese, 19 Jul 1891, s.c. (FI) - Prope Vidiciatico, 31 Jul 1838, *S. Bertoloni* (FI) - Piana di Lag(?) dei ..., 17 Jul 1838, s.c. (FI) - Pievepelago 1000 m, 10 Oct 1932, *V. Mori* (FI) -

Piandelagotti fredde di casa Gigli, Jul 1907, *Lunardi* (FI) - Piandelagotti sopra casa Pellini, 6 Aug 1919, *Lunardi* (FI) - Piandelagotti prati ..., 3 Jul 1934, *Lunardi* (FI) - Piandelagotti 1230 m, 29 Jul 1954, *A. Lunardi* (FI) - Dogana Nuova, 4 (?) 1888, s. c.(FI) - Piandelagotti 1200 m, fine Jul, *V. Mori* (FI) - Torrente Dolo 200 m, fine Mai 1914, *V. Mori* (FI) - Strada per la Pieve di Macagno 1900 m, Aug 1975, s.c. (FI) - Faidello sopra Fiumalbo, Aug 1879, s.c.(TO) - **Toscana** - Toscana, 1830, s.c., (FI) - Appennino estensi in Alpi di Massa, 21 Jul 1857, *Ad. Targioni Tozzetti* (FI) - Campurgliano Alpi di Massa in Garfagnana, 21 Jul 1857, s.c.(FI) - Firenze Passo della Colla, Capanna Marcone al Torrente Rovigo, 21 Jul 1946, *A. Contardo* (FI) - Monte Rondinajo, Jul 1853, *T. Caruel* (FI) - Recueille le 25 Jul 1853 dans le M.te Rondinajo, *T. Caruel* (PI) - M. Teso, App. pistoiese, Jul 1883, *Martelli* (JE) - Abetone, 24 Jul, s.c. (PI) - Tereglio, 21 Jul 1843, s.c. (PI) - Dogana Nuova, 4 Aug 1898, s.c. (PI) - Monte Ursario, 20 Jul 1858, *T. Caruel* (PI) - Campagliano (Alpi di Massa in Garfagnana), 21 Jul 1857, *Targ.* (PI) - Boscolungo, 27 Jul 1884, s.c. (FI) - Poggio Bello, prope Pontepetri (Pistoia) alt. 669 m, 15 Jul 1958, *A. Contardo* (FI) - Appennino pistoiese, in Val del Sestaione alla Lega, 24 Jul 1861, s.c. (FI) - Appennino pistoiese al Teso, 19 Jul 1861, s.c.(FI) - In appennini loc. dicto Teso, Aug 1838, *P. Savi* (PI) - Prope la Foce a Lupo, Alpe di Contione (?), s.d., s.c. (FI) - Presso Fiumalbo, Jul 1880, s.c. (TO) - Appennino Pistoiese, Boscolungo, Jul 1877, *G. Gibelli* (TO) - Appennino Pistoiese al Teso, 8 Jul 1842, *Parlatore* (FI) - In Appennino Pistoiesi, s.d., *P. Savi* (FI) - Boscolungo, 24 Jul 1857, s.c. (FI) - Boscolungo, 1500 m, 18 Jul 1865, s.c. (FI) - Appennino pistoiese, foresta del Teso, 17 Jul 1951, *R. Corradi & A. Contardo* (FI) - Boscolungo, 29 Aug 1875, s.c.(FI) - Boscolungo (App. Pistoiese), 11 Jul 1857, *Targioni* (FI) - V. Sestaione, 21 Jul 1887, ... (FI) - Boscolungo, Appennino pistoiese, circa 1200 m, 13 Aug 1873, *S. Sommier* (FI) - Boscolungo, Jul 1857, s.c. (PI) - Abetone, 5 Aug 1920, s.c. (PI) - Foresta del Teso sopra Maresca 900-1000 m, 24 Jun 1904, *S. Sommier* (FI) - Faggeta del Teso, appennino pistoiese, Jul 1883, s.c. (FI) - Foresta del Teso sopra Maresca 900-1000 m circa, 24 Jun 1904, *S. Sommier* (FI) - Monte Senario, 1836, s. c., (FI) - Vallombrosa nell'abetina, Boschi di Vallombrosa, 6 Aug 1883, s.c. (TO) - Vallombrosa, 15 Aug 1880, *Micheletti* (TO) - Aug 1905, *A. Fiori* (FI) - Vallombrosa, verso Masso al Monte, 17 Aug 1902, *A. Fiori* (FI) - Vallombrosa, 7 Jul 1904, *A. Fiori* (FI) - Vallombrosa, 15 Jul 1902, *A. Fiori* (FI) - Vallombrosa, 7 Aug 1902, *A. Fiori* (FI) - Vallombrosa, 6 Jul 1902, *P. Baccharini* (FI) - Vallombrosa, 27 Jul 1855, *T. Caruel* (PI) - Vallombrosa, 1946, *Fiori* (PI) - Camaldoli, 23 Aug 1910, *M. Savelli* (FI) - Da Campigna a Pian del Pero, 22 Jul 1913, *P. Baccharini* (FI) - Camaldoli (Eremo), 8-13 Aug 1910, *Baccharini* (FI) - Tra Camaldoli e l'Eremo (Casentino), Aug 1911, *P. Baccharini* (FI) - Vallombrosa sopra il Saltino salendo a Rocca di Infero (?), 20 Jul 1898, *S. Sommier* (FI) - Vallombrosa, 5 Jul 1874, *A. Borzi* (FI) - Monte Senario, s. d., *Ricasoli* (FI) - ... e Valle Umbrosa, in Appennino ad orientem Florentiae, Bocca di Lupo, Aug 1884, *E. Levier* (FI) - Vallombrosa, Aug 1877, *E. Levier* (PAD) - ..., 31 Jul 1884, ... (FI) - Tosi, sous Vallombrosa, 2 Aug 1886, s.c.(FI) - Vallombrosa, 27 Jul 1855, *Caruel* (FI) - Prov. di Firenze: Vallisumbrosae (Vallombrosa), alt. 950-1100 m, 16 Jul 1912, *A. Fiori* (FI, TO, PI, PAD) - Scendendo dal Prato alle Pазze al Sacro Eremo nell'Appennino del Casentino, 1 Aug 1867, s.c. (FI) - Camaldoli, nell'Appennino del Casentino, 1 Aug 1867, s.c. (FI) - Fangacci scendendo da Poggio allo Spillo nell'Appennino del Casentino, 27 Jul 1867, s.c. (FI) - Presso Viamaggio alla radice settentrionale dell'Alpe della Luna, s.d., s.c (FI) - Alpi di Maurenio (?), Jul 1851, *F. Calandrini* (FI sub *S. germanica*) - Alpe della Luna (AR), da Pian delle Capanne alla Sella fra M.Maggiore e M. dei Frati, 23 Jul 1988, *M. Raffaelli & al.* (FI) - Alpe della Luna (AR), da Pian delle Capanne alla Sella fra M. Maggiore e M. dei Frati, m1000-1350, 22 Aug 1989, *M. Raffaelli & A. Formelli* (FI) - Alpe della Luna (AR), da Pian delle Capanne alla Sella fra M. Maggiore e M. dei Frati, 18 Aug 1988, *M. Raffaelli & al.* (FI) - Alpe della Luna (AR), da Pian delle Capanne alla Sella fra M. Maggiore e M. dei Frati, m 1100, 22 Jul 1992, *C. Bini, & al.* (FI) - **Marche** - Massa Trabaria: Fonte degli Abeti presso il valico di Bocca Trabaria, 925-950 m, 22 Jun 1966, *A. Brilli Cattarini & al.* (PESA) - Massa

Trabaria: versante E del Poggio Alto, c. 1100 m, 9 Jul 1979, A. Brillì Cattarini (PESA) - Massa Trabaria: versante E del Poggio Alto 1050-1075 m, 9 Jul 1979, A. Brillì Cattarini (PESA) - Massa Trabaria: versante E del Poggio Alto, 1025-1050 m, 9 Jul 1979, A. Brillì Cattarini (PESA) - Massa Trabaria: versante E del Monte Sodo Pulito, 1100-1125 m, 30 Jun 1966, K. Thams (PESA) - Massa Trabaria: versante W del Monte S. Antonio sopra il valico di Bocca Trabaria, 1075-1150 m, 30 Jun 1966, A. Brillì Cattarini & al. (PESA) - Massa Trabaria: versante W del M.S. Antonio sopra il valico di Bocca Trabaria, 1125 m, 30 Jun 1966, A. Brillì Cattarini & al. (PESA) - Massa Trabaria: versante W del M.S. Antonio sopra il valico di Bocca Trabaria, 1150-1169 m, 30 Jun 1966, A. Brillì Cattarini & al. (PESA) - Massa Trabaria: versante E del Poggio del Romito sopra il valico di Bocca Trabaria, 1150-1175 m, 17 Jun 1966, A. Brillì Cattarini & al. (PESA) - Massa Trabaria: Fonte degli Abeti 950-1000 m, 13 Jul 1966, A. Brillì Cattarini & al. (PESA) - Monti di Carpegna: presso il M. Simoncello, circa 1125 m, 12 Jul 1961, A. Brillì Cattarini (PESA) - Gruppo del M. Carpegna: tra il Passo della Cantoniera e il Ronco del Cerro, 1000-1025 m, 13 Sep 1977, A. Brillì Cattarini (PESA).

***Stachys germanica* L., *Sp. Pl.*: 581 (1753).**

Herb perennial. Stems erect, simple or branched in the upper part, 60-120 (150) cm, tomentose or woolly, with B and D hairs. Leaves petiolate (petioles 30- 80 cm), to subsessile, gradually passing from larger to smaller sizes in the bracts; blade 50-90 x 20-50 mm, ovate to ovate-lanceolate to oblong elliptic. Bracts subsessile to sessile, ovate lanceolate, 50-10 mm, subequal to or longer than the corresponding verticillaster. Verticillasters, (8)10-30(35) flowered. Flowers almost sessile, pedicels 0-1,5 mm, bracteoles sessile, lanceolate to linear, 6-10 mm, shorter than the calyx, apex blunt, margin entire. Calyx ovoid-tubular, 7-12 mm, tomentose-woolly with glandular trichomes; teeth unequal, triangular-lanceolate, with mucro 0,5-2 mm long. Corolla bilabiate, 10-15 mm, pink; tube 7-8 mm, glabrous, included; lips woolly on the outside, upper lip concave, entire, lower lip trilobate, middle lobe entire. Nutlets ovoid.

*Typus.* "4 germanica" (LINN 736. 4, photo!)

Lectotypus here designated from among the following elements: the illustration of FUCHS (1542), three specimens correlated to the Hortus Cliffortianus of LINNAEUS (1737) present in the Clifford Herbarium (BM), two specimens in the Burser Herbarium (UPS); one 40 cm high, the other only the upper section of a stem. The selected specimen is the most complete element, perfectly agreeing with the protologue; it carries the inscription in the lower right corner of the sheet "4 germanica" in Linnaeus' handwriting (SAVAGE, 1945), and was part of the material in his possession before the publication of the first edition of his *Species Plantarum* of 1753 (JACKSON, 1912).

*Observations.* *S. germanica* L. is a very variable species, widely diffused in Europa and Southeast Asia (BHATTACHARJEE, 1980; BADEN, 1991). It shows considerable morphological variability also in Italy. When this variability has shown a clear relation to the distribution of the populations under examination, it has been considered significant in the formation of subspecies. Within this large complex three subspecies

have been identified: the ssp. *germanica* distributed throughout Italy except for Sicily, but prevalently in northern and central Italy; the ssp. *salviifolia* present throughout central and southern Italy; the ssp. *dasyanthes* localized in Sicily. The distinction between the ssp. *germanica* and the ssp. *salviifolia* is sometimes debatable because of the overlapping, especially in central Italy, of their areas of distribution and for the presence of introgressive populations which present a mixture of characters which are considered differential. In spite of this, the distinction between the two subspecies seems justified by ecological factors: ssp. *germanica* is a northern entity which descends towards the south and is usually found in cool humid zones, while ssp. *salviifolia* of Balcan derivation is locally found in drier sunnier areas, prevalently on calcareous soil and in ruderal areas which have undergone anthropical influences.

#### Key to the subspecies

1. Verticillasters distant, with fewer than 10 flowers per verticillaster ..... subsp. *dasyanthes*
1. Verticillasters, all or at least the upper ones, close together, with 15-30 (35) flowers per verticillaster ..... 2
2. Stem woolly; leaves from ovate to ovate-lanceolate, at least the lower ones crenate-dentate; external surface of calyx glandular with long stalked A hairs and no Cx hairs ..... subsp. *germanica*
2. Stem tomentose; leaves oblong-elliptical, all regularly crenate; external surface of calyx glandular with stalkless A hairs and Cx hairs ..... subsp. *salviifolia*

#### *Stachys germanica* subsp. *germanica*

*Eriostomum germanicum* (L.) Hoffmanns. et Link, *Fl. Portug.* 1: 106 (1809).

*Stachys germanica* var. *viridis* Caruel in Parl., *Fl. Ital.* 6: 169 (1884).

*Stachys germanica* var. *typica* Fiori, *Nuov. Fl. Anal. Ital.* 2: 429 (1926).

*Stachys germanica* f. *genuina* Béguinot in Fiori e Paoletti, *Fl. Anal. Ital.* 2: 43 (1903).

*Stachys polystachya* Ten., *Prodr. Fl. Nap.* 1: xxxiv (1812).

*Stachys germanica* subsp. *polystachya* (Ten.) Arcangeli, *Comp. Fl. Ital.* 553. 1882

*Stachys germanica* var. *polystachya* (Ten.) Ces., Pass. & Gibelli, *Comp. Fl. It.* 318 (1874).

Stems greenish, woolly, with long D hairs, and sporadic stalked A hairs. Leaves ovate to ovate-lanceolate, at least the lower ones crenate-dentate, apex acute, base cordate, tomentose above, white-tomentose below, on the lower surface with the same types of trichomes of the stem and many D hairs. Bracts equal to or longer than the corresponding verticillaster. Bracteoles green, the abaxial surface covered with D hairs located primarily on the margin of lower surface while on the upper surface they are bent backwards and give the impression of a hairier surface. Verticillasters 15-30 (35) flowered. Calyx with teeth as long as 1/3 of calyx, white mucro. External surface shows



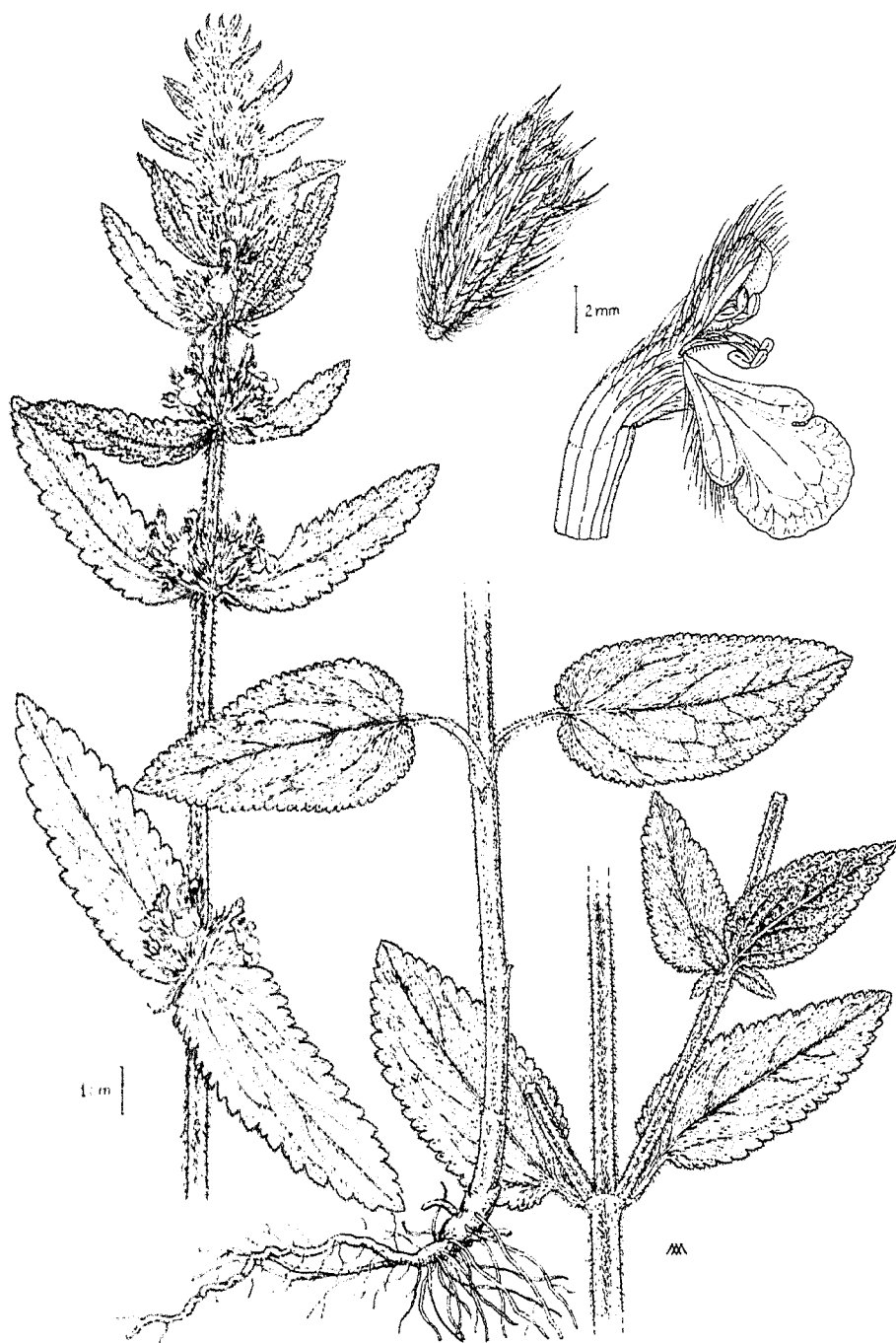


Fig. 5. *Stachys germanica* L. subsp. *germanica*.

long stalked A trichomes and Cx hairs are absent. Corolla with A hairs present only on external surface. Internally the extremities of both lips present few C1 and D hairs. The external surface of upper lip instead is thick with D hairs. Achenes reticulate, 2 x 1,6 mm.

*Iconographia selecta.* TENORE (1811-1838, tab. LIII), FIORI (1897, fig. 3111), HEGI (1927, fig. 3290: habitus, flower, calyx), VALSECCHI (1974, fig. 2 c, d: basal leaf and calyx), ZANGHERI (1976, tab. 113 fig. 4179: leaf), PIGNATTI (1982) uses the same iconography as Fiori, BHATTACHARJEE (1982, fig. 8,1: leaf; fig. 9, 1: calyx), Fig. 5.

*Flowering period.* (Mai) Jun - Aug (Sep)

*Chromosome number.*  $2n = 30$ , according to authors cited in GOLDBLATT (1981; 1984, 1985, 1988) and in GOLDBLATT & DALE (1990, 1994).

*Ecology.* stony uncultivated places, formerly cultivated lands, grassy roadsides, fields and woods, banks of streams or rivers; clayey - calcareous soil; from 0-1100 m.

*Distribution.* France, Corsica, Italy, Germany, Great Britain, Belgium, Poland, Czechoslovakia, Hungary, European Russia, Bulgaria, Rumania, Austria, Switzerland, Portugal, Spain, Morocco, Algeria, ex Yugoslavian territories, Albania, Greece.

*Local distribution.* Throughout Italy except Sicily (Fig. 6).

*Voucher specimens.*

**Liguria** - Monte di S. Calocero nella Val d'Albenga, s.d., *Bodarò* (TO sub *S. heraclea*) - In Appennino ligure orient. supra Varese (?), Jun 1855, s.c. (TO) - **Piemonte** - Nei colli di Torino presso S. Vito, 20 Jul 1853, s.c. (TO) - Colline di Torino, Jul 1887, s.c. (PI) - Torino lungo la Dora a Lucento, 14 Mai 1897, *E. Ferrari* (TO) - ....d. Dora, unweit der Mailand, Eisenbahn, 4 Jul 1878, *Ungern-Sternberg* (TO) - Lungo la via dalla Crocetta alla Barriera, Torino, Mai 1867, s.c. (TO) - Torino, Jun 1855, s.c. (TO) - Torino lungo la Dora tra il Ponte Rossini e il cimitero, (?) 1 Jul 1900, *Fontana & Crosetti* (PAD) - Torino lungo la ferrovia di Milano, 250 m, 28 Jul 1936, ... & *Massa* (TO) - Stupinigi, Jul 1901, *Crosetti* (PAD) - Moncalieri, lungo la strada i "Baiducchi", 30 Aug 1899, *E. Ferrari* (TO) - Moncalieri, presso Carpice, 15 Jul 1909, *Fontana & Crosetti* (PAD) - ... presso Arignano sopra Chieri, 12 Sep 1909, *E. Ferrari*, ..., *Zola* (TO) - Villanova d'Asti, Sep 1906, *E. Ferrari* (TO) - Frequente lungo il torrente Bormida, Jul 1848, s.c. (TO) - Verso la cittadella di Casale, Jun 1869, *Negri* (TO) - Vignale Monf., 15 Sep 1942, s.c. (TO) - Transano (Vercelli) alla Foglietta sulle sponde del canale Avigliani, 1916, A.M. (?) (TO) - Vignale Monferrato, 15 Sep 1912, s.c. (TO) - Casale Monferrato, 18 Jun 1869, s.c. (TO) - Casale Monferrato, Jun 1869, *Negri* (PAD) - Tra Agliano e S.Marzano, Nizza Monferrato, 18 Jul 1912, *E. Ferrari* & al. (TO) - Alba, 1808, s.c. (TO) - Alba, Aug 1811, s.c. (TO) - Vie circa Legni verso la Lombardia, Mai 1884, s.c. (TO) - Lungo le vie verso la Vanda di Legni, Mai 1884, s.c. (TO) - San Raffaele, Jul 1887, *Bassino* (TO) - Castello di Volpiano, nel luogo detto al Guevnaw, 1906, ... (TO) - Giaveno, presso Cappella Valletti (Sala), 16 Sep 1925, *P. Fontana* (TO) - Giaveno: tra Sala e Valgiore, 23 Jul 1921, *P. Fontana* (TO) - Viola (Cuneo), nella zona Tetti, 5 Aug 1980, *Gavesi* (TO) - Vicino a Roccavione, prov. di Cuneo, 12 Aug 1869, s.c. (FI) - Alture di Costigliole Saluzzo, 11 Jul 1881, s.c. (PAD) - Presso S. Anna di Valdier, 1100 m, Val Gesso

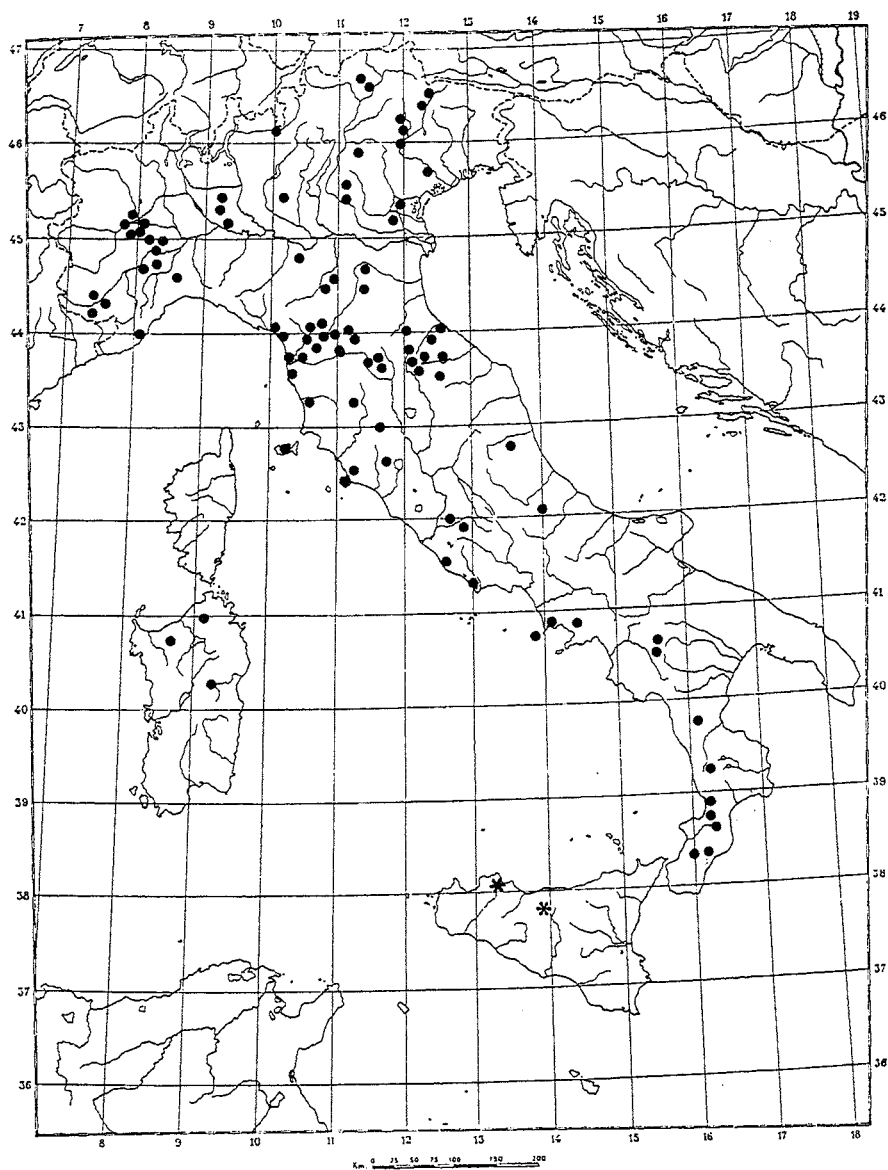


Fig. 6. Distribution of *Stachys germanica* L. subsp. *germanica* (circles) and subsp. *dasyanthes* (Rafin.) Arcangeli (asterisks) in Italy.

(A. M.), 23 Jul 1963, *G. Bono* (FI) - Ferrere (At), frazione di S.Secondo, 4 Jul 1972, *G. Abbà* (TO) - Castella Polpiana, Mai 1900, s.c. (TO) - S. Vincenzo, Aug 1870, A.M. (?) (TO) - ...Prov. ad Lesirna, 16 Jul, s.c. (TO) - S. Petri cum Tigone, Jul 1846, *Romano* (TO) - Prov. di Lesegno ...fossas in planitia S.Petri, 29 Jul 1864, s.c. (TO) - ... Molino Galletto lungo rio per Castellineldo,

28 Jun 1846, *Sassi* (TO) - Nel rio Teppi ..., estate 1896, R. P. Cavena (FI) - S. Raffaello, Jul 1887, *E. Ferrarini* (FI) - **Lombardia** - Lombardia, 1802, s.c. (PAD) - Naviglio della Mantegana prope Mediolanum, s.d., s.c. (FI) - Brescia, 1832, s.c. (PAD) - Ticinum, Jun 1862, *Gibelli* (PI) - Contorni di Pavia, settembre 1844, *Rota* (FI) - Presolana, 20 Jun 1915, *Radeglia* (FI) - **Trentino Alto Adige** - Prope Botzen, Jul Aug, *Haussmann* (TO) - Halam, Jun 1872, *F.J. Gumberich* (PAD) - Sigmundskron, 260 m, 15 Aug 1886, *W. Pfaff* (PAD) - **Veneto** - Verona fuori Porta S.Zeno, lungo la via che conduce a Chiero, 11 Jul 1869, *Micheletti* (TO) - Verona, 3 Jul 1870, *A. Goiran* (TO) - Rive del torrente di Pojano Veronese, s.d., *Forti* (PAD) - Valle Oten: Rizzios alt. 775-850 m, 20 Aug 1932, *R. Pampanini* (PAD) - V. d'Oten, dal Ponte del Molina verso Rizzios, 750-800, 31 Jul 1940, *S. Zenari* (PAD) - ... presso Lazzanni, 12 Aug 1889, s.c. (PAD) - Alveo del Piave, ponte di Valsella, 17 Jul 1908, *M. Minio* (FI) - Al ponte di Valsella (Cadore), pr. le rive del Piave; e a S. Sebastiano (Belluno), 23 Jul 1913, *M. Minio* (FI) - Sopra Croda, Bellunese, 17 Oct 1915, *M. Minio* (FI) - Feltre (Belluno), Jul 1882, s.c. (PAD) - Selva, Fl. Trivigiana, Aug 1890, *D. Saccardo* (PAD) - Montello, Fl. Trivigiana, s.d., *Saccardo* (PAD) - Bosco Montello, sett. 1872, *Bizz.* (PAD) - Cerrago, 32 m, prov. di Treviso, 19 Jul 1898, *R. Pampanini* (FI) Orsago (92 m) prov. di Treviso, 19 Jul 1898, *R. Pampanini* (FI) - Orsago (50 m) prov. di Treviso, 19 Jul 1898, *R. Pampanini* (FI) - Colline di Teolo a Tre Ponti (Colli Euganei), 22 Jun 1902, *A. Beguinot* (PAD) - Cadore, Pennanola, colle di Cianalte, 100-700 m, 13 Aug 1940, *S. Zenari* (PAD) - Cadore Sottocastello, M. Zovo, q. 700-800, 21 Aug 1940, *S. Zenari* (PAD) - Cadore, Calalzo, sopra S. Francesco, 850 m, 12 Aug 1940, *S. Zenari* (PAD) - Incolti e margine di fossi padovani, Jul 1896, *L. Vaccari* (FI) - Prope pagum Fosse vocatum (900-1000), Aug 1896, *A. Goiran* (FI) - E. M. Lessini - Fosse ad vias, Aug 1896, *A. Goiran* (FI) - Antellao, s.d., *Venzo* (FI) - Asiago, prov. di Treviso 32 m, 19 Jul 1898, *R. Pampanini* (TO) - **Emilia Romagna** - Prov. Mutinensis, Aug 1876, *G. Gibelli* (TO) - Villa Frato Sasso della Barchetta (Modena), 20 Jun 1882, *E. Ferrarini* (TO) - Lungo il rio di Valle Urbana, presso Sassuolo, prov. di Modena, 24 Jul 1883, *A. Mori* (TO) - Lungo la secchia alla Barchetta, 22 Jun 1884, s.c. (FI) - Villa Frato all' Olmo (Modena), 20 Jun 1882, *E. Ferrarini* (FI) - Colli di Sassuolo, prov. di Modena, 12 Jul 1884, s.c. (PI) - Lungo il Rio di Valle Urbana presso Sassuolo, prov. di Modena, 24 Jul 1883, *R. Pirota* (FI) - Emilia, prov. di Modena: Casinalbo, alt.80 m, solo vario, 26 Jul 1919, *A. Fiori* (TO, PI, PAD, FI) - Parma, Lesignano fiume, 23 Jul 1919, *M. Minio* (FI) - Presso Uzzano nel Parmense, 2 Aug 1858, s.c. (FI) - Contorni di Castrocaro, Jul 1858, *L. Caldesi* (FI) - Bologna, Selve degli Arienti, 5 Jun 1873, *C. Marchesetti* (FI) - Verghereto (alta valle del Sanio), 29 Jun 1899, *A. Del Testa* (FI) - Fiorentino, Repubblica di S. Marino, 27 Jun 1912, *R. Pampanini* (FI) - Serravalle, Repubblica di S. Marino, 24 Jun 1912, *R. Pampanini* (FI) - Domagnano, Repubblica di S. Marino, 26 Jun 1912, *R. Pampanini* (FI) - Rimini, Jul 1876, *L. Caldeti* (FI) - **Toscana** - Presso Seravezza, in Pozzi, Jul 1887, s.c. (PI) - Montignoso, 14 Jul 1858, *T. Caruel* (PI) - Uliveti fra Massa e Montignoso, Aug 1886, *Pellegrini* (PI) - Lungo la via delle Volte sopra Levigliani (Versilia), Aug 1896, *P. Pellegrini* (PI) - Versilia tra Stazzema e Ponte Stazzanese, 22 Jun 1930, *A. Chiarugi* (FI) - Uliveti presso Montignoso, Aug 1887, *P. Pellegrini* (PI) - Prope Asciano in agro pisano, 19 Jun 1865, *J. Arcangeli* (PI) - S. Giuliano di Pisa, Aug 1892, *C. Rossetti* (PI) - M.te Pisano, Mai 1838, P. Savi (FI) - M. Pisano fra S. Giuliano e Asciano, 17 Jul 1918, *M. Savelli* (PI sub *S. lusanica* Janka non Brot.) - Pisani, prope Asciano, 3 Jul 1875, *E. Levier* (FI) - Pisa presso S. Giuliano, Jun 1886, *Poggi* (PI) - Monti di Pizzorne, 30 Jun 1856, s. c. (PI) - Preso Stiappa da m 670 a m 900, 2 Jul 1964, *E. Nardi* (FI) - Foresta del Teso, Pistoia, alt. 1000 m ca., 17 Jul 1958, *A. Contardo* (FI) - Da Barga a Castelnuovo, presso la chiesa di S. Carlo, 20 Jun 1857, ... (PI) - Ad radicem montis Pisani, prope Asciano, 3 Jul 1875, *E. Levier* (FI) - Bagni di Lucca, Jun o Jul, s.c. (FI) - Bagni di Lucca, Aug 1870, s.c. (FI) - Bagni di Lucca, Aug 1873, *S. Sommier* (FI) - Torrente Orsigna presso Pracchia, 24 Jun 1904, *S. Sommier* (FI) - Bagni di Lucca, Jul 1869, s.c. (FI) - Presso i Bagni di Lucca al Mulino, 16 Jul 1837, s.c. (FI) - Presso Prato Fiorito, 21 Jul, s.c. (FI) - Albereta, 31 Jul

1843, s. c. (FI) - M.te Teso presso Pracchia, 31 Aug 1868, *Delpini* (FI) - Prope Pistoja, Aug 1845, *Pietro Savi* (TO) - Appennino toscano, Ponte a Sestaione, presso Cutigliano, 1 Jun 1868, s.c. (FI) - Limestre Pistoiese, 5 Jul 1928, s.c. (PI) - Collina pistoiese, 23 Jul 1911, s.c. (PI) - Pracchie di Pontiot, 26 Jul 1887, s.c. (FI) - In trocken Orten ... b. St. Marcello, Aug 1875, s.c. (FI) - Pracchia, 11 Jul 1908, s.c. (PI sub *S. italica*) - Presso il Prato Fiorito, via per foce Colonia, 22 Jun 1875, s.c. (PI) - Prato fiorito Appennino lucchese ..., Jul 1891, *S. Sommier* (FI) - Sotto Prato Fiorito (Appennino lucchese), Jun 1877, s.c. (PI) - Firenze, nel Monte Ceceri, 29 Jun 1891, *Micheletti* (TO) - Monte Asinario, 27 Jun 1867, s.c. (FI) - Cerreto Maggio sotto Monte Morello, Jul 1866, s.c. (FI) - Mugnone tra Badia e Ruota, 17 Jul 1932, *R. Corradi* (FI) - Certosa di Firenze, 10 Jun 1927, *R. Corradi* (FI) - Firenze alle cave di Maiano, 28 Mai 1916, *Chiovena* (TO) - Monte Giovi (Mugello), 11 Jul 1915, s.c. (PI sub *S. italica*) - Traversa, presso la Futa, Jun 1906, Pampanini (FI) - Alla Consuma in Casentino, 17 Jul 1873, *Borzi* (FI) - Vallombrosa, 26 Jun 1863, *T. Caruel* (PI) - Firenze, Vallombrosa, 3 Aug 1866, s.c. (FI) - Vallombrosa sopra Campiglioni, 7 Aug 1902, A. Fiori (FI) - Vallombrosa al Saltino, 1000 m, 11 Aug 1912, A. Fiori (FI) - Supra Valli Umbrosae, Collegium, 5 Sep 1875, *Arcangeli* (PI) - Da Poppi a Casina Micheli (Casentino), 25 Aug 1910, *Baccarini* (FI) - Grogana (Casentino), 10-20 Mai 1871, *Siemoni* (FI) - Dall'Eremo a Poggio Scali, 20 Sep 1912, *P. Baccarini* (FI) - Donoratico, S. Vincenzo - Livorno, Aug 1933, *R. Gabrielith & R. Corradi* (FI) - Donoratico, S. Vincenzo - Livorno, Aug 1933, *R. Gabrielith & R. Corradi* (FI) - Sopra il Bagno, Isola d'Elba, 31 Jul, s. c. (PI) - Curiano in prov. Senensi, 17 Jun 1864, *T. Caruel* (PI) - Cornia in Maremma, 13 Jul 1868, *T. Caruel* (PI) - In promontorio Argentario, 23 Mai 1903, *S. Sommier* (FI) - Stazione di Orbetello, 12 Jul 1895, *S. Sommier* (FI) - Monte Calvi, vicino a Campiglia, 1 Jun 1871, s.c. (FI) - In Monte Argentario, supra conventum "dei Passionisti", 5 Jun 1873, *E. Levier* (FI) - S. Casciano di Bagni, la Ripa, 23 Jun 1886, s.c. (FI) - M. Falterona, valle di S. Godenzo, Fiera ai Poggi presso il Muraglione, m 968, 8 Jul 1952, *M. L. Forasassi* (FI) - Insula Elba (olim Ilva vel Aetalia), inter Marciana et Procchio, 22 Jul 1900, *S. Sommier* (FI) - Insula Elba (olim Ilva vel Aetalia), San Cerbone (Marciana), presso la Cappella, 18 Jul 1900, *S. Sommier* (FI) - Arcipelago Toscano, Isola d'Elba, fra la fonte di Napoleone e San Cerbone, 1 Sep 1974, *T. Fossi Innamorati* (FI) - Nei colli aridi calcareo ..., 14 Jun 1888, *G. Arcangeli* (FI) - ..., 27 Jul 1860, s.c. (FI) - Alpe della Luna (AR), da Monte Maggiore al Poggio delle Giavattine, m1400-1000, 18 Jul 1988, *M. Raffaelli & al.* (FI) - Alpe della Luna (AR), Pian delle Capanne, 1025 m, 29 Jun 1987, *M. Raffaelli & al.* (FI) - Alpe della Luna (AR), dal bivio per Montagnana a Pian delle Capanne, 23 Jul 1992, *C. Bini & al.* (FI) - **Marche** - Gruppo del M.te Carpegna: versante NE del M. Tagiura presso S. Sisto, c. 725 m s.l.m., 11 Jul 1973, *A. Brilli Cattarini & al.* (PESA) - Gruppo del M.te Carpegna: versante NE del M. Tagiura presso S. Sisto, 700-725 m s.l.m., 11 Jul 1973, *A. Brilli Cattarini & al.* (PESA) - Cà del Poggio presso Montalto, c. 400 m s.l.m., 2 Jul 1979, *A. Brilli Cattarini & L. Gubellini* (PESA) - Gruppo del M.te Catria: versante E del M.te a Valpiana a Bocca della Valle, c. 1100 m s.l.m., 7 Jul 1971, *A. Brilli Cattarini* (PESA) - Gruppo del M.te Catria: bassoversante SW del M.te Acuto presso Fonte Luca, 900-925 m s.l.m., 6 Jul 1970, *A. Brilli Cattarini & al.* (PESA) - Gruppo del M.te Catria: bassoversante SW del M.te Acuto presso Fonte Luca, c.900 m s.l.m., 6 Jul 1970, *A. Brilli Cattarini & al.* (PESA) - Serre di M.Vicino: lversante ENE del M.Vicino, 650-700 m s.l.m., 28 Jun 1977, *A. Brilli Cattarini* (PESA) - Serre di M.Vicino: versante ENE del M.Vicino, 800-850 m s.l.m., 28 Jun 1977, *A. Brilli Cattarini* (PESA) - Monti della Cesana: (PESA) - Allo Sinighello di Is..., 22 Mai 1935, s.c. (FI) - Alle Fom...rei di Ripa, dietro alla chiesa, verso il fiume, 19 Jun 1942, s.c. (FI) - Selva di Porcassone di Ripa, 29 Jul 1938, s.c. (FI) - In pascoli ... della Strega presso Satria, s.d., s.c. (FI) - **Lazio** - Porto d'Anzio, s. d., *Fiorini* (PI) - In promontorio Circeo, prope Terracina, fra S. Felice e il Faro, 25 Mai 1893, *S. Sommier* (FI) - Pendici settentrionali di Monte Artemis, 10 Jul 1938, *L. Senni* (FI) - Pendici settentrionali dell'Artemis m 700, 21 Aug 1938, *L. Senni* (FI) - Maschio delle Taete, m 850, 4 Jul 1939, *L. Senni* (FI) - Dintorni di Albano, 14 Jun 1882,

*E. C.* (FI) - **Abruzzo** - Dintorni di Teramo, s.d., s.c. (FI) - M. Majella 1500 m circa, 3 Jun 1898, *F. Annigoni* (FI) - **Campania** - Ischia, s. d., s. c. (TO) - Ischia, s.d., ... (PI) - In vallibus prope Neapolina, M. S. Angelo di Castellamare 600 m, Jul 1911, *Guadagno* (FI sub *S. polystachya* Ten.) - M.ti Agerola a 600 m, 15 Mai 1911, *Guadagno* (FI) - In sylvaticis ..., s.d., Tenore (FI sub *S. polystachya*) - Napoli: Valle S. Rocco, 24 Aug 1840, s.c. (FI sub *S. polystachya*) - Avellino, s.d., s.c. (PI) - Avellino, Jul 1888, Milani (FI sub *S. germanica* var. *polystachya* (Ten.) Fiori) - Pian del Dragone, m 650, 25 Oct 1975, *B. Moraldo* (FI sub *S. salviifolia* Ten.) - **Puglie** - In locis saxosis ... prope ..., Jun 1874, *H. S.* (FI) - **Basilicata** - M. te Vulture in ..., alt. 800-1200 m, 18 Jun 1924, *C. Lacaita & O. Gavioli* (FI) - ... Castaldo in pascuis montis Sura della Crina, alt. 1300 m, 17 Jun 1920, *O. Gavioli* (FI) - Potenza in pascuis Montis Cicieniell. alt. 900 m circa, 1 Jul 1923, *O. Gavioli* (FI) - **Calabria** - Prov. di Cosenza, Castrovillari, 22 Jun 1898, *G. Rigo* (FI) - Sila Camignatello (Spezzano Grande), 1200-1300 m, 2-4 Aug, *A. Fiori* (FI) - S. Giovanni in Fiore, reg. Notaro Paolo, 1250 m, 18 Jun 1910, *G. Lopez* (FI) - ... presso Pizzo, 1874, *L. E.* (FI sub *S. germanica* fo. *polystachya* (Ten.) Fiori) - Giffoni di Cal., s.d., s.c. (FI) - Calabria I orient., ad Aspromonte supr. S. Lucia, 8-1000 m, 29 Mai 1877, *Porta & Rigo* (FI sub *S. germanica* fo. *polystachya* (Ten.) Fiori) - Serra San Bruno, 15 Jun 1884, *F. V. Zwiertein* (FI sub *S. dasyanthos* Raf.) - Monte Alto di Aspromonte, 8 Jul 1906, *U. Martelli* (FI) - **Sardegna** - Fra Sassari e Pilo, s.d., *L. Nicotra* (FI) - Fra Sassari e Pilo, Jul 1898, *L. Nicotra* (FI) - Sassari Sos Laccheddos (fonte), calcare miocenico m 350, 20 Jun 1981, *M. Luisa Ribotti* (SS) - Arrondissement de Tempio, 10 Jul 1882, *E. Reverchon* (TO) - Arrondissement de Tempio, 3 Jul 1882, *E. Reverchon* (TO) - Altipiano di Orgosolo (Nuoro), 1956, *P. Filigheddu* (FI) - In collibus apricis, Jun-Jul, s. c. (FI) - Baddesalighes, 5 Oct. 1992, *G. Moggi & al.* (FI) - Monte Spada a m 100 dal rifugio Enal, 27 Jul 1971, *F. Valsecchi* (SS) - Monte Nuovo S. Giovanni (Orgosolo), 21 Oct 1977, *B. Corrias & al.* (SS) - M.te Spada (Nuoro), 5 Oct. 1992, *G. Moggi & al.* (FI).

*Stachys germanica* subsp. *salviifolia* (Ten.) Gams in Hegi, *Ill. Fl. Mitteleur.* 5,4: 2427 (1927).

*Stachys salviifolia* Ten., *Prodr. Fl. Napol.* 1: xxxiv (1812) (cfr. SABATO, 1990) (basion)

*Stachys germanica* var. *salviifolia* (Ten.) Fiori, *Nuov. Fl. Anal. Ital.* 2: 429 (1926)

*Stachys cretica* subsp. *salviifolia* (Ten.) Rech. fil., *Ann. Naturh. Mus. (Wien)* 48: 170 (1937)

*Stachys germanica* var. *alba* Caruel in Parl., *Fl. Ital.* 6: 169 (1884)

*Stachys italica* Auct., non Miller (1768).

Stem tomentose with thick down, lower part usually violet. Leaves oblong-elliptic, crenate-crenulate, apex obtuse rounded, base rounded (attenuate), tomentose above, rugose below; lower leaf surface with many D hairs, the upper with some B hairs. Bracts as long as or less than the verticillaster, with A trichomes on both surfaces. Verticillasters 15 -20 - flowered, bracteoles with D hairs located mainly on the margins, the central areas are less hairy, generally with violet apex and Cx hairs. Calyx exterior covered with D hairs and showing sporadic Cx trichomes; teeth as long as 1/3 of the calyx, mucro usually violet, inner surface with many A, B, Cx and D trichomes. External surface of lower lip of corolla shows abundant A trichomes, inner surface has Cx, C1, B and D hairs. The inner surface of apical zones is nearly glabrous. Achenes reticulate, 2,7 x 2 mm.

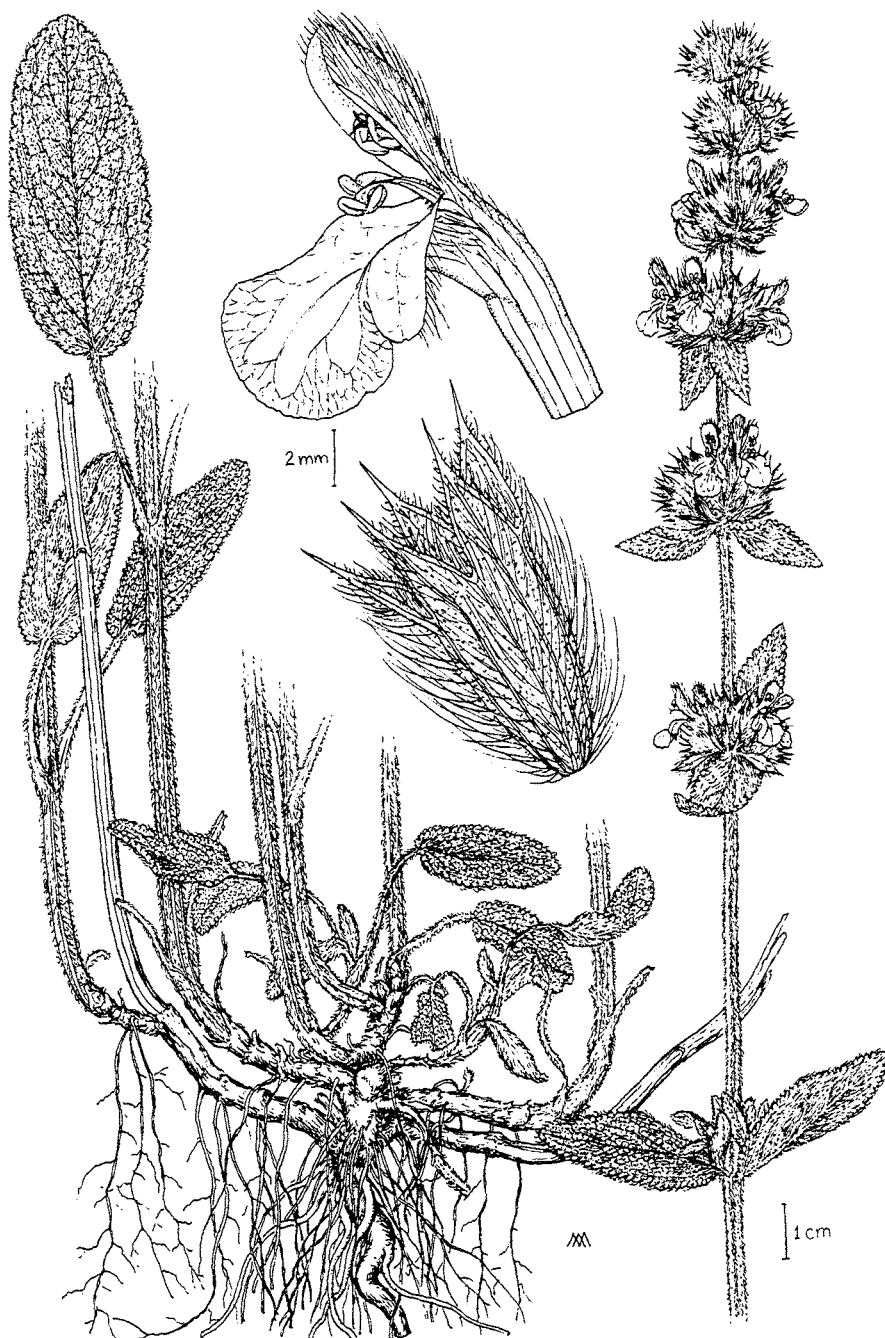


Fig. 7. *Stachys germanica* L. subsp. *salviifolia* (Ten.) Gams

*Typus.* “*Stachys salviaefolia* Tempone”, specimen “A” (Herb. Tenore, NAP!). Lectotypus here designated among the specimens referring to *S. salviifolia* conserved on several sheets in the Tenore Herbarium (NAP). We have chosen the specimen designated by the label on which is written an “A” in Tenore’s handwriting (LA VALVA, in verbis), referable to the variety described in *Flora Neapolitana* (1824). After the “A” another hand (Gussone ?) has added “*Stachys salviaefolia* Tempone”. This specimen has been chosen as the lectotype since it agrees with the description in the protologue and it is believed to be part of the original material used by Tenore for the description of *S. salviifolia*. There is also a small pale blue card on which is written the number 54, which is that of the iconographic table of *S. salviifolia* in the *Flora Neapolitana*. One could thus suppose that this material besides having been used by Tenore, was also used by the illustrator to draw the plant.

*Iconografia selecta.* TENORE (1811-1838, tab. LIV), FIORI (1898, fig. 3111), HEGI (1927, fig. 3291: habitus, flower, calyx), VALSECCHI (1974, fig. 2 a,b: basal leaf, calyx), ZANGHERI (1976, tab. 4180: leaf), PIGNATTI (1982) uses the same iconography as Fiori Fig. 7.

*Flowering period.* (Apr.) Mai-Aug. (Sep.)

*Chromosome number.*  $2n = 30$ , according to authors cited in GOLDBLATT & DALE (1994).

*Ecology.* Dry stony places, uncultivated grassy places, garigues; prevalently on calcareous soil; humus absent or scarce; from 0 - 1000 m.

*Distribution.* S-France and Italy, ex-Yugoslavian territories, Albania, Greece, Bulgaria.

*Local distribution.* Central and S - Italy (Fig. 8).

#### *Voucher specimens*

**Toscana** - Toscana, 1836, s.c. (FI sub *S. italica* Mill.) - Prov. di Firenze: Tavarnuzze, loco Ponte agli Scopeti dicto, alt. 130 m, 2 Jun 1918, A. Fiori 2536 (FI, PAD sub *S. italica* Mill., PI) - Montebuoni pres Florence, Jun 1882, H. Groves (PAD) - Montalbano, sud di Pistoia, Jun 1889, L. Morelli (PI sub *S. italica* Mill.) - Monte Labbro, 14 Jun 1888, s.c. (PI sub *S. germanica*) - Pian di S. Bartolo, 31 Mai 1891, U. Martelli (PI sub *S. germanica*) - Bord de la route de Fiesole, Florence, le 15 Jun 1847, T. Caruel (PI) - Arcidosso, 20 Jun 1864, T. Caruel (PI) - Coltano, Jun 1890, P. Pellegrini (PI sub *S. italica*) - Selva pisana a Castagnolo, Jun 1890, P. Pellegrini (PI sub *S. italica*) - Manzano Cortona, 30 Mai 1905, s.c. (PI sub *S. italica*) - Sovicille, 15 Jun 1925, s.c. (PI sub *S. italica*) - Montorsoli, Firenze, 31 Mai 1910, s.c. (PI sub *S. italica*) - Incontro (Firenze), 17 Jun 1916, s.c. (PI sub *S. italica*) - Fiesole dintorni, 8 Jul 1918, s. c. (PI sub *S. italica*) - In Promontorio Argentario, S.ta Liberata, 28 Mai 1889, S. Sommier (PI sub *S. italica*) - Donnini, 2 Jul 1921, s.c. (PI sub *S. italica*) - M. Baroni, Jun 1858, G. Campani (FI sub *S. italica* Mill.) - Presso Seggiano, 28 Mai 1853, s.c. (FI sub *S. italica* Mill.) - In promontorio Argentario, 1903,



*S. Sommier* (FI sub *S. italica* Mill) - Alla Romola, 28 Jul 1843, s.c. (FI sub *S. italica* Mill) - Firenze a Cercina, 15 Jun 1865, s.c. (FI sub *S. italica* Mill) - Monti dell'Incontro del Chianti, s.d., *V. Ricasoli* (FI sub *S. italica* Mill.) - Prope S. Andrea, Jun 1878, *Arcangeli* (FI sub *S. italica* Mill.) - Ex incultis agri florentini, s.d., s. c. (FI sub *S. italica* Mill.) - Lungo il Mugnone presso Firenze, 26 Jun 1869, s.c. (FI sub *S. italica* Mill.) - S. Ellero, (Valdarno), 28 Aug 1902, *A. Fiori* (FI sub *S. italica* Mill) - S. Ellero, (Valdarno), 17 Mai 1902, *A. Fiori* (FI sub *S. italica* Mill) - Prov. di Firenze, Poggio dell'Incontro, 500-550 m, 17 Jun 1916, *A. Fiori* (FI sub *S. italica* Mill.) - Presso il fiume la Fiora (Monte Amiata), 19 Jun 1888, s.c. (FI sub *S. italica* Mill.) - Presso M.te Rivecchi, 5 Jun 1873, s.c. (FI sub *S. italica* Mill.) - Monte dei ..., 26 Mai 1881, s.c. (FI sub *S. italica* Mill.) Monte Amiata, 5 Jul 1873, *S. Sommier* (FI sub *S. italica* Mill.) - Presso S. Fiora, Monte Amiata, Jun 1888, *A. Biondi* (FI sub *S. italica* Mill.) - Strada della ... Anghiari, Val Tiberina, 18 Jun 1875, ... (FI sub *S. italica* Mill.) - Prope Florentiam, poggio del Crocione, sopra Settignano, 12 Jun 1913, *S. Sommier* (FI sub *S. italica* Mill.) - Rapolano nel Senese, Jul 1873, *S. Sommier* (FI sub *S. italica* Mill.) - S. Andrea, 6 miglia da Firenze, ad vias, 2 Jun 1878, *S. Sommier* (FI sub *S. italica* Mill.) - Prope Florentiam, Poggio al Crocione, sopra Settignano, 12 Jun 1913, *S. Sommier* (FI sub *S. italica* Mill.) - Certosa di Firenze, 100 m, 23 Mai 1870, *S. Sommier* (FI sub *S. italica* Mill.) - Castel di Poggio, Firenze, 13 Jun 1909, s.c. (FI sub *S. italica*) - Prope Florentiam, Impruneta, 24 Jun 1915, *S. Sommier* (FI sub *S. italica* Mill.) - Impruneta, 2 Nov 1908, s.c. (FI sub *S. italica* Mill.) - Montebuoni Florence, ... 100 m, Jun 1912, ... (FI sub *S. italica* Mill.) - Tavarnuzze pres Florence, 150 m, 25 Mai 1871, *S. Sommier* (FI sub *S. italica* Mill.) - Prope Florentiam, Monte Rivecchi, 4 Jul 1915, *S. Sommier* (FI sub *S. italica* Mill.) - Florence, Montebuoni, Jun 1866, *E. L.* (FI sub *S. italica* Mill.) - Rapolano nel Senese, Jul 1873, *S. Sommier* (FI sub *S. italica* Mill.) - Rapolano nel Senese, Jul 1873, *S. Sommier* (FI sub *S. italica* Mill.) - Monte Amiata, 5 Jul 1879, *S. Sommier* (FI sub *S. italica* Mill.) - Sarteano, 7 Nov 1902, ... , (FI sub *S. italica*) - Pian dei Cerri (Firenze), 24 Jun 1933, *R. Corti & R. Corradi* (FI) - Maremma grossetana, tenuta Acquisti, Fossa Righino, 20-25 Jul 1946, *R. Corradi* (FI sub *S. italica* Mill.) - Maremma grossetana, 20- 25 Jul 1946, *R. Corradi* (FI sub *S. italica* Mill.) - Maremma grossetana, tenuta Acquisti, argine di colmata lungo la Bruma, 20-25 Jul 1946, *R. Corradi* (FI sub *S. italica* Mill.) - Maremma sulla Macchia: Poggio Calvello, 20-25 Jul 1946, *R. Corradi* (FI sub *S. italica* Mill.) - Lungo il Mugnone, Mai 1944, s.c. (FI sub *S. italica* Mill.) - Montebuoni, pres Florence (Italie), Jun 1882, *H. Groves* (FI sub *S. italica* Mill.) - Montebuoni, Florence ... 100 m, Jun 1872, *Groves* (FI sub *S. italica* Mill.) - Florence alle Tavarnuzze, 29 Mai 1866, s.c. (FI sub *S. italica*) - Florentia, Careggi, 14 Jun 1865, s.c. (FI sub *S. italica* Mill) - Supra " la Madonna del Sasso" ad sept. Florentine, 24 Jun 1874, *E. L.* (FI sub *S. italica* Mill.) - Presso Firenze, 23 Mai 1869, s.c. (FI sub *S. italica* Mill.) - Prope Florentiam, 9 Jun 1872, *E. L.* (FI sub *S. italica* Mill.) - Monte Ceceri, pr. Florence, 14 Oct 1870, s.c. (FI sub *S. italica* Mill.) - Insula Elba (olim Ilva vel Aetalia), Campo, 17 Mai 1901, *S. Sommier* (FI sub *S. italica* Mill.) - Insula Elba (olim Ilva vel Aetalia), salendo da Campo a S. Piero, 24 Jun 1901, *S. Sommier* (FI sub *S. italica* Mill.) - Insula Elba (olim Ilva vel Aetalia), verso Capoliveri, 10 Mai 1898, *S. Sommier* (FI sub *S. italica* Mill.) - Sarteano, stoppie del Renaio, Sep 1872, *P. Bargagli* (FI sub *S. italica*) - Alta Val Tiberina ..., 7 Jun 1937, *R. Pichi Sermolli* (FI sub *S. germanica* ssp. *salvifolia*) - Firenze, Ponte agli Scopeti, 7 Jun 1946, *R. Corradi* (FI) - Vallombrosa: verso Tosi, Jul 1908, *A. Fiori* (FI) - Casentino: presso Poppi, 28 Jun 1903, *A. Fiori* (FI) - Stazione del Buxus presso Sarteano, 19 Jul 1943, *G. Negri & R. Corti* (FI) - Monte Cetona, 15 Jun 1943, *G. Negri & R. Corradi* (FI) - Monte Cetona a Belvedere, 14 Jun 1943, *G. Negri & R. Corradi* (FI) - N. 75 Bossolana Sarteano, 20 Aug 1947, *R. Corti* (FI) - Tra Ginestra e Montelupo Fiorentino (FI), Jun 1991, *L. Falciani & R. Falciani* (FI) - Marche - Monte Conero: versante O presso Case S. Antonio, circa 225 m s.l.m., 27 Mai 1964, *A. Brilli Cattarini* (PESA) - Dintorni di Pesaro: versante NO dei Colli della Lupa, 75-100 m s.l.m., 19 Mai 1964, *A. Brilli Cattarini* (PESA) - Monte

Conero: versante SW, 500-550 m s.l.m., 1 Jun 1968, A. *Brilli Cattarini* & al. (PESA) - Monti Cingolani: vallone di Fonte delle Bussare (versante NE del M. Verde) 500-550 m m.s.m., 27 Mai 1968, A. *Brilli Cattarini* & al. (PESA) - Monte Conero: versante S lungo la strada per l'ex-Eremo di S. Pietro, 300-350 m m.s.l., 3 Jun 1968, A. *Brilli Cattarini* & al. (PESA) - Monti di Cingoli: versante NE della Cima delle Piane al Pieto delle Piane sopra Avenale, 650-700 m m.s.m., suolo calcareo, humus nullo, 13 Jun 1962, A. *Brilli Cattarini* & al. (PESA) - Gruppo del M. delle Tegge: versante S del M. Adria, 925 -950 m m.s.l., 31 Mai 1971, A. *Brilli Cattarini* & al. (PESA) - Dintorni di Castellone di Suana: in loc. Croce del Termine, 250-270 m m.s.m., 25 Mai 1968, A. *Brilli Cattarini* & al. (PESA) - Monti di Acervia: in loc. S. Giorgio presso Montefortino di Acervia, 400-450 m m.s.m., 21 Mai 1971, A. *Brilli Cattarini* & R. *Sialm* (PESA) - Dintorni di Moresco: sui colli di Montemaggio tra Moresco ed Altidona, 325-340 m m.s.l., 25 Mai 1969, A. *Brilli Cattarini* & al. (PESA) - Monti di Acervia versante SW del M. della Croce presso Acervia, 550-650 m m.s.l., 25 Mai 1967, A. *Brilli* & al. (PESA) - Monti di Acervia: versante SW del M. della Croce presso Acervia, 500-550 m m.s.l., 25 Mai 1967, A. *Brilli* & al. (PESA) - Gruppo del M. del Tegge: versante W del M. d'Aria, 850-875 m m.s.l., 9 Jun 1971, A. *Brilli Cattarini* & R. *Sialm* (PESA) - Monti dei Cigoli: versante SE della Cima delle Piane, 675-725 m m.s.l., 21 Mai 1967, A. *Brilli Cattarini* & al. (PESA) - Monti di Acervia: versante SE del M. di S. Angelo presso S. Maria delle Grazie, 400-500 m m.s.l., 12 Mai 1967, A. *Brilli Cattarini* & al. (PESA) - Gruppo del M. Murano - Valmontagnana: versante N del M. di Valmontagnana c. 700 m m.s.l., 16 Jun 1970, A. *Brilli Cattarini* & al. (PESA) - Piano di Colfiorito: nel settore NE, c. 750 m m.s.l., 14 Jul 1975, A. *Brilli Cattarini* & L. *Poggiani* (PESA) - Monte Conero: versante SW, 400-475 m m.s.l., 1 Jun 1968, A. *Brilli Cattarini* & al. (PESA) - Monte Conero: versante NW al Pian Grande, 400-425 m m.s.l., 21 Mai 1966, A. *Brilli Cattarini* (PESA) - Selva di Montoro, 30 Mai 1960, A. *Brilli Cattarini* (PESA) - Gruppo del M. di Fegni: versante SE del M. Parrone presso Montalto, 475 - 500 m m.s.l., 31 Mai 1972, A. *Brilli Cattarini* & al. (PESA) - Gruppo del Montigno: versante S del M. Maggio sotto la Fonte della Rocca di Sotto, 750-775 m m.s.l., 2 Jun 1972, A. *Brilli Cattarini* & al. (PESA) - Gruppo del Montigno: presso la Fonte della Rocca di Sotto, 825-850 m m.s.l., 2 Jun 1972, A. *Brilli Cattarini* & al. (PESA) - Gruppo del Montigno: Piano Inferiore di Montelago, c. 895 m m.s.m., 16 Jun 1972, A. *Brilli Cattarini* & al. (PESA) - Gruppo del Montigno: Piano Inferiore di Montelago, c. 895 m m.s.m., 16 Jun 1972, A. *Brilli Cattarini* & al. (PESA) - Dintorni di Camerino: tra la Villa Napoleoni e il Torrione, c. 650 m m.s.l., 5 Mai 1977, A. *Brilli Cattarini* (PESA) - Dintorni di Camerino: tra la Villa Napoleoni e il Torrione, 700-725 m m.s.l., 5 Mai 1977, A. *Brilli Cattarini* (PESA) - Dintorni di Filottrano: Selva di Montoro, c. 160 m m.s.l., A. *Brilli Cattarini* (PESA) - M.ti di Acervia: versante SW del M. della Croce presso Arcevia, 525-575 m m.s.l., 25 Mai 1967, A. *Brilli Cattarini* & al. (PESA) - Gruppo del M. delle Tegge: versante E del M. d'Aria sopra la Madonna del Monte, 800-850 m m.s.l., 9 Jun 1971, A. *Brilli Cattarini* & R. *Sialm* (PESA) - Gruppo del M. delle Tegge: versante E del M. d'Aria sopra la Madonna del Monte, 800-850 m m.s.l., 9 Jun 1971, A. *Brilli Cattarini* & R. *Sialm* (PESA) - Gruppo del M.te Murano-Valmontagnana: Pian delle Monache a SW del M. Sassone, c. 650 m m.s.l., 5 Jun 1971, A. *Brilli Cattarini* & R. *Sialm* (PESA) - Gruppo del M. Catria: versante SO del M. Catria presso la Strada, c. 625 m m.s.l., 7 Jul 1962, A. *Brilli Cattarini* (PESA) - Monte Conero: versante S lungo la strada per l'Eremo di S. Pietro, 300-350 m m.s.l., 3 Jun 1968, A. *Brilli Cattarini* & al. (PESA) - Dintorni di Urbisaglia: Selva della Badia di Fiastra, c. 250 m m.s.m., 16 Jul 1975, A. *Brilli Cattarini* (PESA) - Monti di Cingoli: versante E del M. Acuto presso S. Lorenzo 525-550 m m.s.l., 22 Mai 1972, A. *Brilli Cattarini* & al. (PESA) - Gruppo del M. Murano: versante N del M. Castellano presso Genza circa 400 m m.s.l., 17 Jun 1963, A. *Brilli Cattarini* (PESA) - Gruppo del M. Letegge: Torre Beregna: c. 750 m m.s.l., 6 Jun 1967, A. *Brilli Cattarini* & al. (PESA) - Gruppo del M. Letegge: Torre Beregna: c. 750 m m.s.l., 6 Jun 1967, A. *Brilli Cattarini* & al. (PESA) - Gruppo del M. Letegge: Torre Beregna: c. 750 m

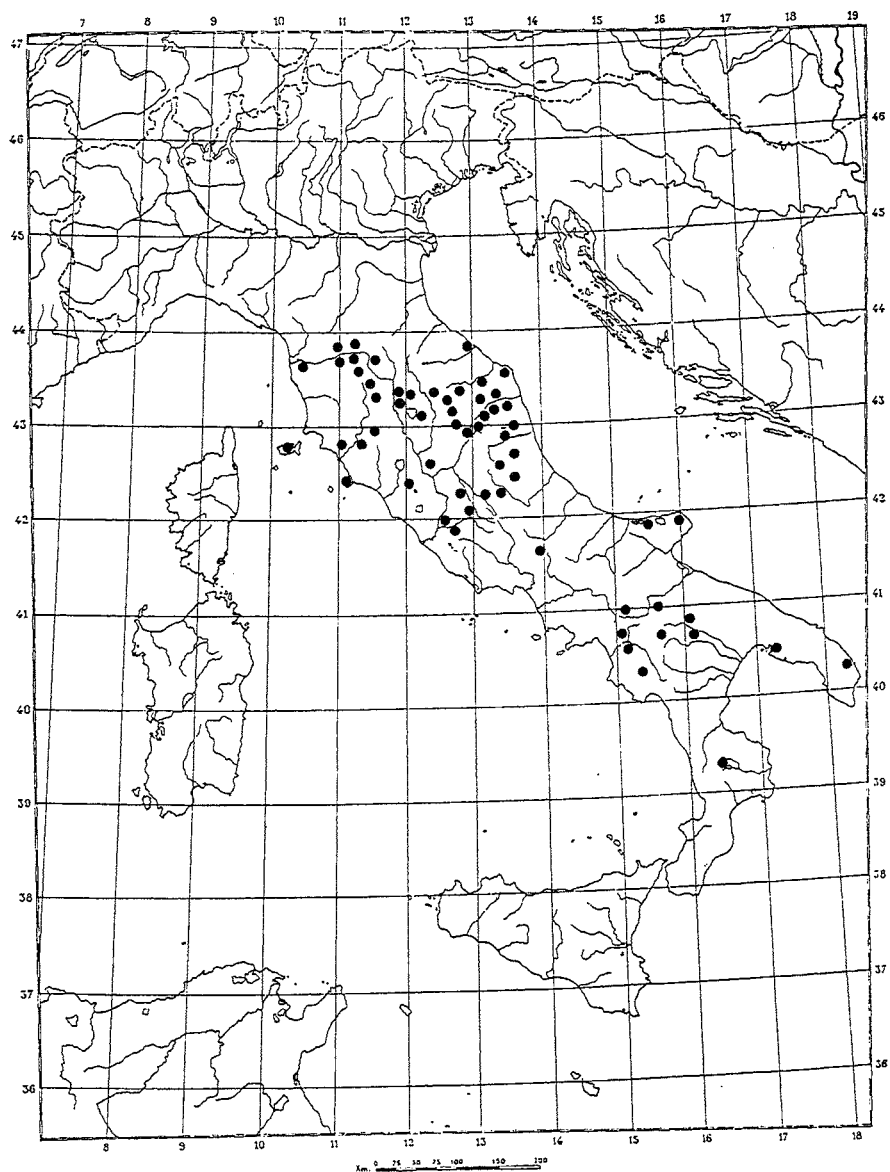


Fig. 8. Distribution of *Stachys germanica* L. subsp. *salviifolia* (Ten.) Gams in Italy.

m.s.l., 6 Jun 1967, A. Brilli Cattarini & al. (PESA) - Gruppo del M. delle Tegge: versante S del M. di Capolapiaggia presso Campolarzo, c. 340 m m.s.l., 24 Mai 1971, A. Brilli Cattarini & R. Sialm (PESA) - Dintorni di Sarmano: Fonte Logigia presso Gabella Nuova, 525-550 m m.s.l., 10 Jul 1980, A. Brilli Cattarini & L. Gubellini (PESA) - Gruppo del M. San Vicino: versante SW del M. Pormicio 350-375 m m.s.l., 26 Jun 1980, A. Brilli Cattarini & L. Gubellini (PESA)

- Gruppo del M. San Vicino: versante SW del M. Pormicio 325-375 m m.s.l., 26 Jun 1980, A. Brilli Cattarini & L. Gubellini (PESA) - Gruppo del M. San Vicino: versante SW del M. Pormicio c. 325 m m.s.l., 26 Jun 1980, A. Brilli Cattarini & L. Gubellini (PESA) - Dintorni di Rotella: versante N del M. dell'Ascensione, 700-750 m m.s.l. 16 Jul 1979, A. Brilli Cattarini & L. Gubellini (PESA) - Dintorni di Porto Recanati, 7 Mai 1980, A. Brilli Cattarini (PESA) - Pian di Colfiorito: tra Taverne e il Casone c.750 m m.s.l., 7 Jun 1977, A. Brilli Cattarini (PESA) - Piani di Colfiorito: tra Taverne e il Casone, c. 750 m m.s.l., 7 Jun 1977, A. Brilli Cattarini (PESA) - Monti Sibillini: Santuario di Macereto, c. 1000 m m.s.l., 9 Jun 1977, A. Brilli Cattarini (PESA) - Monti Sibillini: versante W del M. di Macereto c. 1050 m m.s.l., 9 Jun 1977, A. Brilli Cattarini (PESA) - Gruppo del M. Pennino: Valle della Scurosa, 575-600 m m.s.l., 29 Jun 1978, A. Brilli Cattarini (PESA) - Gruppo del M. Pennino: Valle della Scurosa, 575-600 m m.s.l., 29 Jun 1978, A. Brilli Cattarini (PESA) - Dintorni di Carassai: versante NW del colle della Rocca di M. Varmine, 325-350 m m.s.l., 16 Mai 1979, A. Brilli Cattarini & L. Gubellini (PESA) - Monte Conero: versante NO presso Villa Angiolani, c. 150 m m.s.l., 1 Jun 1965, A. Brilli Cattarini (PESA) - Dintorni di Torre di Palme: sopra il fosso del Molinetto, 50-95 m m.s.l., 11 Jun 1965, A. Brilli Cattarini (PESA) - Dintorni di Valle Avellana (valle del Foglia): sulla cresta del M. Osteriana (spartiacque Foglia - Ventena), 600-630 m m.s.l., 18 Mai 1961, A. Brilli Cattarini (PESA) - Gruppo del M. Sanvieino: versante SO della catena del M. Petroso tra Case Mariani e Case Fossaccio (Valle dell'Esino), 225-275 m m.s.l., 16 Jun 1964, A. Brilli Cattarini (PESA) - Gruppo del M. Sanvieino: Colle Strippanelli presso la confluenza del Fosso della Grotta nell'Esino, 175-200 m m.s.l., 11 Jun 1964, A. Brilli Cattarini (PESA) - Gruppo del M. Letegge: Rocca di Sferni, c. 450 m m.s.l., 15 Jun 1965, A. Brilli Cattarini (PESA) - Dintorni di Pedaso: versante NO dei Colli della Cupa, 75-100 m m.s.l., 19 Mai 1964, A. Brilli Cattarini (PESA) - Dintorni di Pedaso: versante NO dei Colli della Cupa, circa 100 m m.s.l., 19 Mai 1964, A. Brilli Cattarini (PESA) - Dintorni di Torre di Palme: sopra il Fosso del Molinetto, 50-75 m m.s.l., 11 Jun 1965, A. Brilli Cattarini (PESA) - Vicinanze di Ascoli, s.d., s.c. (PAD) - Alveo del Nevola al guado del ..., 30 Sep 1942, s.c. (FI sub *S. italica*) - ... , 19 Jun 1935, s.c. (FI sub *S. italica* Mill.) - Al trave al M.te Conero, 6 Jul 1939 (?), s. c. (FI sub *S. italica* Auct = *S. germanica* L. var. *salviifolia* Ten.) - Selva di Porcozzone, 4 Jun 1940, s.c. (FI sub *S. germanica* var. *salviifolia* Ten. = *S. italica* Auct.) - Val Sentino, 30 Mai 1946, s.c. (FI sub *S. germanica* L.) - A Marotta di Monvolfo (Pesaro) ciglio ..., 11 Jul 1949, s.c. (FI sub *S. italica* Mill.) - Al ... di Rupe, 31 Jul 1948, s. c. (FI) - A Montefortino di Acervia, 5 Jul 1948, s.c. (FI) - Al passo del versante sul Mesa, 29 Sep 1948, s. c. (FI sub *S. germanica* L. var. *salviifolia* Ten. = *S. italica* Mill.) Monte Fortino al Girone, Jul 1834-9, D. Marzialelli (FI sub *S. italica* Mill.) - Appennino Piceno, presso le Acque Sante, 5 Jul 1836, s.c. (FI sub *S. italica* Lamk.) - Monte Catria, 25 Jul 1866, s.c. (FI sub *S. italica*) - Falde del Catria, strada di Sitria, s.d., s.c. (FI) - Pascoli del Consibio, s.d., s.c. (FI sub *S. italica* Mill.) - Monti della Serra S. Quirico, 3 Jul 1867, s.c. (FI sub *S. italica* L.) - Reperitus in siccis, s.d., s.c. (FI sub *S. italica*) - Trovata nel vialetto che dalla villa di Compagnoni conduce a Collevario presso Macerata, s. d., s.c. (FI sub *S. italica*) - Monti di Fabriano e Acervia (700-1000 m), Aug 1885, G. Bargellini (FI sub *S. italica* Mill.) - Umbria - Lago Trasimeno, Perugia, 23 Jul 1955, F. Palombini (FI sub *S. germanica* var. *italica* (Mill) Fiori) - Prati elevati di Stroncone (Circ. di Terni) luoghi sassosi, 22 Sep 1893, s.c. (FI sub *S. italica* Mill.) - In apennino Umbro, 1865, A. Piccinni (FI sub *S. italica* L.) - Luoghi aridi vicino a Fossato (?) in Umbria, 28 Jul 1866, s. c. (FI sub *S. italica* Mill.) - Monte Teti (Perugiam), Jun 1896, s.c. (FI sub *S. italica* Mill.) - Dintorni di Terni, 16 Sep 1895, s.c. (FI sub *S. italica* Mill.) - Contorni di Perugia, 3 Oct 1897, L. Palomba (FI sub *S. italica* Mill.) - Lungo la strada da Perugia a Ceneriente. Trovasi anche a Gualdo Tadino, Mai 1912, E. Barsali (PI sub *S. italica* Mill.) - Dintorni di Gualdo Tadino, 24 Jun 1913, E. Barsali (PI sub *S. heraclea*) - Sopra Assisi andando al Monte Subiaso, 11 Aug 1953, S. Sommier (FI sub *S. italica*) - Lazio - Lungo la via Quinzia a Rieti, 6 Jun 1914, E. Barsali (PI

sub *S. italica* Mill.) - Tivoli, Mai 1901, *L. Vaccari* (FI sub *S. germanica* L. var. *italica* (Mill.) Fiori) - Colline di Tivoli, Mai 1902, *L. Vaccari* (FI sub *S. italica*) - Monterotondo, Roma, 18 Jun 1950, *C. Steinberg* (FI) - Salita da Palontana al Monte Gennaro, 600-1100, 15 Jul 1906, *L. Vaccari* (FI sub *S. italica* L.) - Acqua Acetosa, 8 Jul 1892, M.re *G. Doria* (FI sub *S. italica*) - Circa Romam, 26 Mai 1848, s.c. (FI sub *S. italica* Mill.) - Monte Gennaro, (p. Roma), Jun 1885, *R. Pirota* (FI sub *S. italica* Mill.) - Dintorni di Viterbo, 20 Jun 1888, s.c. (FI) - Al Monte Tugo (... di Montefiascone) nel Circeo di Viterbo, 21 Jun 1896, s.c. (FI sub *S. italica* Mill.) - Tivoli, 25 Mai 1906, *L. Vaccari* (FI sub *S. italica* Mill.) - **Abruzzo** - in ... incultis montis dei Fiori, m 1000-200, 21 Jun 1906, *G. Rigo* (PAD sub *S. italica* Mill.) - Abruzzi, s.d., *Orsini* (PI sub *S. italica* Mill.) - Versante nord del M. dei Fiori, 5 Jul 1881, *A. Mascarini* (PI sub *S. italica* Mill.) - Colline di Monsanpolo (Ascoli Piceno), 21 Jun 1881, *G. Silvestri* (PI sub *S. italica* Mill.) - Al M. te Vettore, 1852, *A. Spada* (PI sub *S. italica*) - Presso la Piazza d'Armi ad Aquila, Jun 1908, *P. Pellegrini* (PI sub *S. italica*) - Presso Porta (Aquila), Jul 1908, *P. Pellegrini* (PI sub *S. italica*) - Notaresco, Teramo, Mai 1902, *P. Pellegrini* (PI sub *S. italica*) - M. te di Caramanico, 1874, s.c. (FI sub *S. italica* Mill.) - Prope pagum Massa d'Alba, ad ... montis Velino, 10 Aug 1875, *E. Levier* (FI sub *Stachys*) - Montis Morrone, supra Sulmona, presso l'Avellanito, 1 Aug 1873, *E. Levier* (FI sub *S. italica* L.) - Monte dei Fiori negli Abruzzi, 16 Jul 1856, s.c. (FI sub *S. italica* Lank) - Valle di Malacapa, Morrone, 1872, *H. Groves* (FI sub *S. italica* Mill.) - Fosse Casansia presso la sorgente del petrolio, 300-600 m, 3 Jul 1906, *L. Vaccari* (FI sub *S. italica*) - Majella tra Campo di Giove fino al Lago Femmina morto, 1000-2300, 27 Sep 1903, *L. Vaccari* (FI) - Scanno, 30 Jun 1911, *L. Vaccari* (FI) - Tagliacozzo, 10 Jun 1905, *L. Vaccari* (FI) - Tra Cappelle e Masso d'Alba (Avezzano), 600-800 m, 2 Jun 1906, *L. Vaccari* (FI sub *S. italica*) - Pizzone alto Volturmo, sponde torrente "il Fosso", 700 m, s.d. ... (FI) - Poggio Picenze (AQ), 11 Jun 1991, *L. Falciani & E. Luccioli* (FI) - **Campania** - Pertosa (Salerno), 2 Jun 1952, *A. Marcello* (PAD) - Torr. Peglio (Buonabitacolo, SA), 30 Mai 1955, *Renzo Repisteni* (FI) - Monte Alburno, da Coletto a C. Sierro, 1200 m (presso C. Sierra), 12 Aug 1836, *A. De Philippis* (FI) - Monte Alburno, lecceta a monte di Controne (m 400), 30 Mai 1951, *A. De Philippis & G. Moggi* (FI) - Monte Alburno, presso Polla, 6 Jun 1948, *A. De Philippis* (FI) - Monte Alburno, da S. Rufo a Piazza del Ceraso e Corleto, 820 m (marginale), 19 Aug 1941, *A. De Philippis* (FI) - Nei boschi del Vulture, 9 Jul 1880, s.c. (FI sub *S. italica* Benth.) - In montosis campaniae, ..., Sep 1872, *Terracciano* (FI sub *S. italica* Benth.) - **Puglie** - Puglie, s.d., s.c. (FI) - N 326, Italia australis ... circa Otranto, 11 Mai 1875, *Porta & Rigo* (FI) - Leucaspide prope Tarentum, 1876, *H. Groves* (FI sub *S. italica*) - Dintorni di S. Nicandro, 13 Mai 1893, *U. Martelli* (FI sub *S. italica*) - Prope St. Nicandrum, Jun 1875, *Don ...* (FI sub *S. italica* Mill.) - Lecce presso Otranto, 30 m c., 30 Mai 1913, *A. Fiori* (FI) - Gargano, presso Vieste, 30 m c., 23 Mai 1913, *A. Fiori* (FI) - Gargano: M.te S. Angelo nella valle delle Macchie, 14 Jun 1898, *A. Fiori* (FI) - Taranto al Pizzone, Jul 1921, *A. Vaccari* (FI) - Gargano, Cagnano presso il paese, m 150, 7 Jul 1915, *A. Fiori* (FI) - Le Murge, Altamura, alt. 400 m c, 11 Jun 1968, *E. Nardi & R. Bavazzano* (FI) - Gargano S. Nicandro a S. Giuseppe, 250-300 m, 7 Jul 1915, *A. Fiori* (FI) - Gargano, Valle Carbonara (Monte S. Angelo), 600-650 m, 26 Mai 1968, *G. Moggi* (FI) - Le Murge, della Murgia di Lamapera a NO di Gravina di Puglia, 668 m c., 12 Jun 1968, *E. Nardi & R. Bavazzano* (FI) - **Basilicata** - Pormaro ? (Potenza), Jun 1898, s.c. (PAD sub *S. germanica*) - Potenza; riviere Basento, alt. 700 m, 2 Jun 1934, *O. Gavioli* (FI) - Potenza in pascuis montis Fai, alt. c. 1000 m, 13 Jun 1926, *O. Gavioli* (FI sub *S. italica* Mill.) - Potenza loco dicto M..., alt. 850 m, 29 Mai 1923, *O. Gavioli* (FI sub *S. italica* Mill.) - Potenza dintorni, 20 Jul 1918, *A. Fiori* (FI sub *S. italica* Mill.) - ... Macchia Orsini, alt. 300 m, 3 Jun 1924, *O. Gavioli* (FI) - Tolvee, Macchia Orsini, loco dicto Serra del Caprio, alt. c. 350 m, 3 Jun 1924, *O. Gavioli* (FI) - Presso Rio Nero, 9 Jul 1880, s.c. (FI sub *S. italica* Mill.) - Melfi sui colli, Jun 1860, *Terracciano* (FI) - Masseria Tarantino, Difesa Melodia (Matera), 16 Mai 1950, *Negri et Messeri* (FI) - Strada

Gravina-Altamura, Contraa Montedoro, 16 Mai 1950, *Negri et Messeri* (FI) - Lucignano (Selva di Vernusio) Matera, 22 Mai 1951, *R. Corti, E. Francini & G. Negri* (FI) - Ponte di Picerno, Potenza, m 487, 30 Jun 1994, *L. Falciani & U. Miniati* (FI) - Calabria - Prope pagum "Palizzi" in Calabria, 6 Jun 1877, *Arcangeli* (FI sub *S. germanica* L.) - La Sila, Quaresima presso il Lago Arvo m 1350, 27 Jun 1950, *G. Scarfatti & R. Corradi* (FI) - Carmignatello, pendii sottostanti verso la piana, 1200 m, 11 Jul 1951, *G. Scarfatti & R. Contardo* (FI)

***Stachys germanica* L. subsp. *dasyanthes* (Rafin.) Arcangeli, *Comp. Fl. Ital.* ed. 2: 437 (1894).**

*Stachys dasyanthes* Rafin., *Précis Découv. Somiol.*: 39 (1814) (basion)

*Stachys germanica* var. *dasyanthes* (Rafin.) Fiori, *Nuov. Fl. Anal. Ital.* 2: 429 (1926)

*Stachys germanica* f. *dasyanthes* (Rafin.) Béguinot in Fiori e Paoletti, *Fl. Anal. Ital.* 2: 43 (1903)

Stem woolly with D and sporadic A hairs. Leaves ovate-lanceolate, crenate-dentate, apex rounded, base cordate, dark green above, white tomentose below, A hairs present on lower surface. Bract equal or smaller than correspondent verticillaster with sporadic C1 hairs on the margins. Verticillasters distant, with fewer than 10 flowers in each, bracteole with sporadic Cx on the margins. Calyx 7-8 mmm, covered by few D hairs, Cx hairs are present; teeth as long as 1/4 of the calyx. Corolla pale rose.

*Typus.* not seen, probably lost.

Material was requested from the herbaria accordig to STAFLEU & COWAN (1983) and VEGTER (1983) where are deposited original specimens from Rafinesque's collections. In none of these herbaria are there any type specimens or any other original specimens of Rafinesque for this species.

*Iconographia selecta.* Fig. 9

*Flowering period.* June - July

*Chromosome number.*  $2n = 30$ , according to authors cited in GOLDBLATT (1984).

*Ecology.* Uncultivated, ruderal areas.

*Distribution.* Sicily

*Local distribution.* Sicily. Fig. 6.

*Voucher specimens*

Sicilia-Sicilia, s.d., *Gasparr.* (PAD) - In pascuis montosis et submontosis, Palermo, Ficuzza, Jun 1894, *H. Ross* (PAD, PAL) - In Pizzuta, s.d., *Todaro* (PI sub *S. germanica*) - In silvaticis

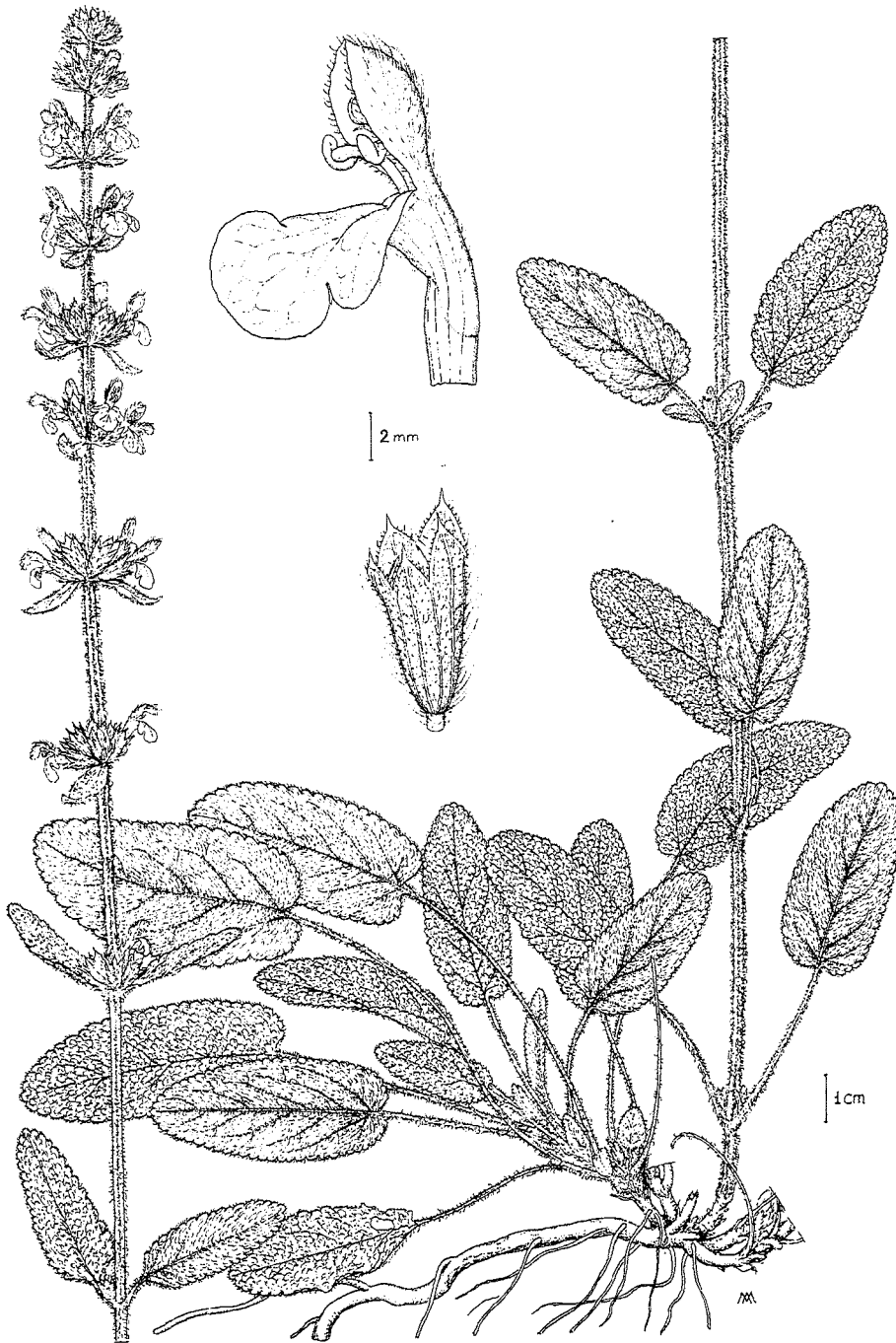


Fig. 9. *Stachys germanica* L. subsp. *dasyanthes* (Rafin.) Arcangeli.

montis Pizzuta, s. d., *Todaro* (PI sub *S. germanica*) - N. 1184, in sylvaticis montis Palermo alla Pizzuta, Jun, *Todaro* (PI) - Palermo alla Pizzuta, s. d., s. c. (PI) - Strada per Piano Zucchi, sopra il bivio per Minciarrati, formazioni a roverella, 29 Jun 1994, L. Falciani, S. Fici & U. Miniati (FI).

*Observations.* In FIORI (1926), this taxon is indicated also for Gallipoli in the Province of Lecce (Apulia). Amongst the material consulted in various herbaria no specimen was found which had been collected in that area and identified as *S. dasyanthes*. In the Florence herbarium were found two specimens collected in other parts of Puglia and Calabria and erroneously identified as *S. dasyanthes*: specimen N. 368 collected by Porta e Rigo in the Gargano "in pascuis saxosis circa S. Nicandro, 100-400 m il 15 Jun 1875" referable to *S. heraclea* and the specimen collected by Zwiertein "in incultis et inter frutices apud Serra San Bruno il 15 Jun 1884", referable to *S. germanica*. For the lack of more reliable data or new findings we exclude the presence of *S. dasyanthes* in Apulia and Calabria.

***Stachys tymphaea*** Hausskn., *Mitt. Thur. Bot. Ver.* 11: 40 - 41 (1897)

*Stachys germanica* subsp. *tymphaea* (Hausskn.) Bhattacharjee, *Notes Roy. Bot. Gard. Edinburgh* 33: 276 (1974)

*Stachys reinertii* Heldr. ex Halacsy, *Consp. Fl. Graec.* 521 (1902)

*Stachys germanica* subsp. *reinertii* Murb., *Acta Univ. Lund.* 27 (5): 62 (1891)

"nom. invalid." (GREUTER & al. 1994, I.C.B.N. Art. 33.1)

*Stachys germanica* var. *reinertii* (Heldr.) Fiori, *Nuov. Fl. Italia* 2: 429 (1926)

*Stachys alpina* var. *neapolitana* Caruel in Parl., *Fl. It.* 6: 169 (1884)

*Stachys heraclea* var. *calabra* N. Terr. in *Syn. plant M. Pollini* (1891)

Herb perennial. Stems ascendent, woolly with long D and many B hairs, 20-70 cm. Leaves petiolate (petioles 10-60 mm) to subsessile, gradually passing from larger to smaller sizes in the bracts; blade woolly, upper surface presents more B hairs than lower surfaces, 30-60 (90)x20-40 (55) mm, ovate to ovate-lanceolate, crenate-crenate serrate, apex acute, base cordate. Bracts subsessile to sessile. Verticillasters, generally few (usually 5 or 6), at least the lower ones distant, 10-15 - flowered. Flowers with pedicels 2,5 - 3 mm long, bracteoles lanceolate-linear with Cx hairs present on the margin. Calyx 7-9 mm, campanulate, usually violet green, woolly with C1 e Cx glandular hairs; teeth triangular-lanceolate, 1/4 of calyx. Corolla bilabiate, 11-14 mm, rose, lips with long D hairs. Nutlets ovoid. Pollen grains spheroid, triculcate, tectate microreticulate. Achenes reticulate 2,6 x 1,9 mm.

*Typus.* "C. Haussknecht. Iter Graecum 1885. *Stachys tymphaea* m. sp. n. Pindus Tymphaeus: in jube alpino Zygos in scist. serpent. dieb. Jul 17 " (JE !, specimen on the right)

Lectotypus here designated from among several specimens kept in JE. On the herbarium sheet are pinned three specimens and a label showing all them as "holotype", and also the original collection label with a drawing by Haussknecht which shows the



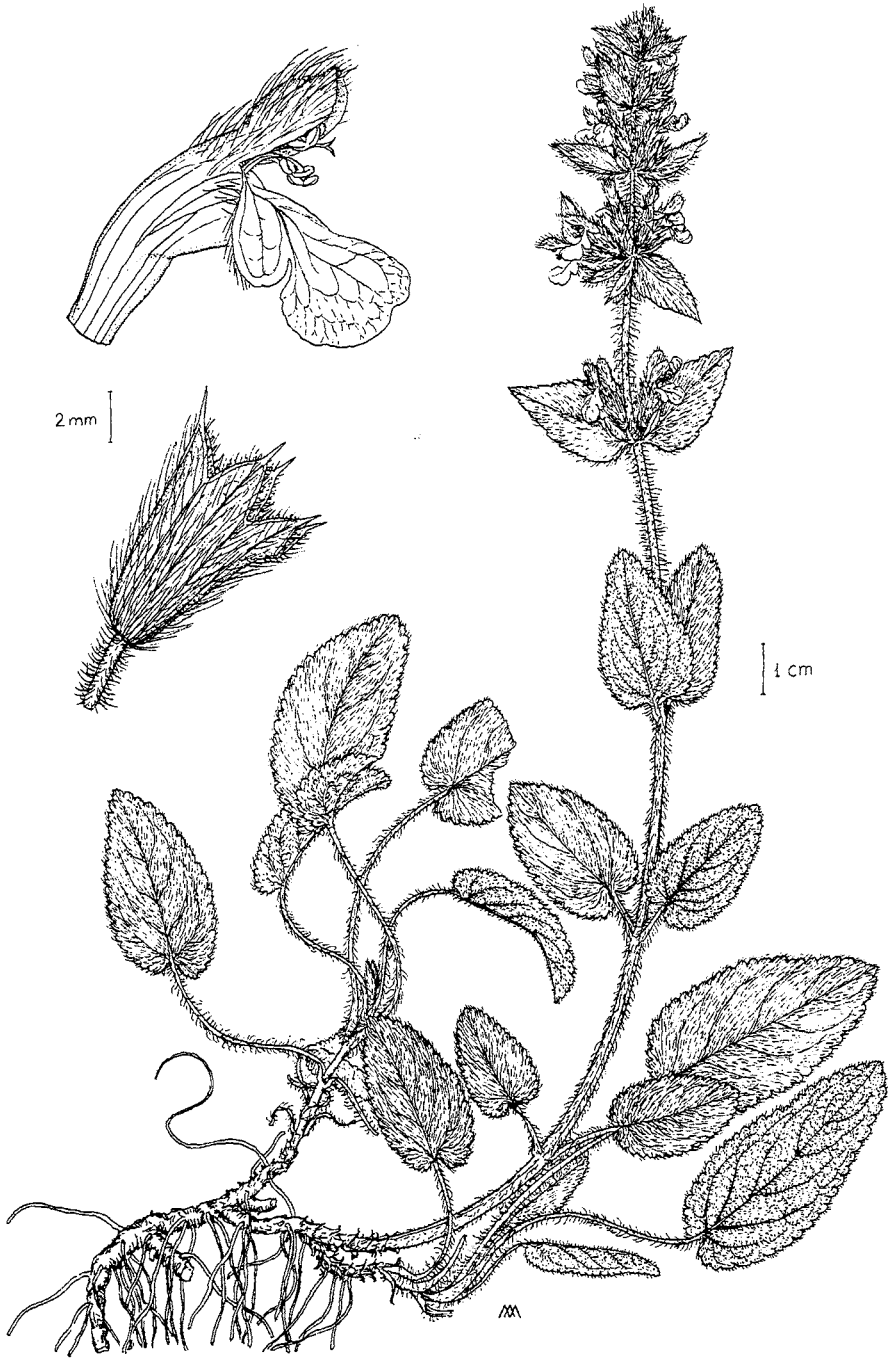


Fig. 10. *Stachys tymphaea* Hausskn.

difference in the form of the calyx between *S. tymphaea* and *S. graeca*. The three specimens all correspond to the protologue and the righthand one has been chosen as lectotypus.

*Iconographia selecta*. FIORI (1898, fig. 3111 sub *S. reinerti*). ZANGHERI (1976, tab. 113 fig. 4181: basal leaf). PIGNATTI (1982) uses the same iconography as Fiori. Fig. 10.

*Flowering period*. June - Aug.

*Chromosome number*.  $2n = 30$ , according to authors cited in BADEN (1991).

*Ecology*. Meadows and garigues, clearings in woods; calcareous sandy soil; humus scarce or absent; (700) 1100-1900 (2000) m.

*Distribution*. Albania, Greece, Italy, ex-Yugoslavian territories.

*Local distribution*. Central and S-Appennines from the south of Umbria and Marche to Pollino. Fig. 11.

#### *Voucher specimens*

**Marche** - Monti Sibillini: versante N del M. Sasso Tetto, c. 1475 m.s.m., 18 Jul 1975, A. Brilli Cattarini & L. Poggiani (PESA) - Monti Sibillini: versante N del M. Sasso Tetto, c. 1450 m.s.m., 18 Jul 1975, A. Brilli Cattarini & L. Poggiani (PESA) - Monti Sibillini: valle del Fiastrone a monte di Bolognola, c. 1075 m.s.m., 11 Jul 1975, A. Brilli Cattarini & L. Poggiani (PESA) - Monti Sibillini, versante S del M. Vettoreto, 1500-1750 m m.s.l., 24 Jul 1991 ... - Monti Sibillini, Tian Grande, Hang am Rand der Karstpolje, 1260 m, 27 Jun 1968, A. Gilli (W) - Piano del Castelluccio sul M.te Vettore, 6 Jul 1836, s.c. (FI sub *S. reinertii* Heldr.) - Tra S. Gemma e forca di presto, 10 Jul 1877, s. c. (FI sub *S. reinertii* Heldr.) - **Umbria** - Vettore (Monti Sibillini) circa 2000 m, 10 Aug 1895, S. Sommier (FI sub *S. germanica* L.) - **Lazio** - Monti della Laga, a Lago Nero, 1480-1500, 12 Jul 1991 e 22 Jul 1991 - Monti della Laga versante NO del Pizzo di Sivo, lungo il Fosso delle Sette Fonti, 1550-1600, 17 Jul 1991 - Gruppo del M. Utero (propaggine dei Sibillini) Pantani, c. 1590 m m.s.l., 1 Jul 1991 - Presso la stazione inferiore della funicolare del monte Terminillo, 31 Jul 1953, R. Corradi & A. Contardo (FI sub *S. germanica* L.) - **Abruzzo** - In pascuis Tavola rutunda, Monte Amaro, in Aprutiu, s. d., H. Groves (TO sub *S. heraclea*) - Monte Tranquillo, Abruzzo, 7 Aug 1914, E. Testa (TO sub *S. heraclea*) - Piano dei Cavalieri, sul Monte Vettore (Ascoli Piceno), 5 Jul 1886, Tranquilli (TO sub *S. germanica*) - Morrone, Aprutii, 21 Jul 1856, E. & A. Huet du Pavillon (TO sub *S. germanica*, W sub *S. italica* Benth var. *alpina* Boiss., E, JE, FI sub *S. reinertii* Heldr.) - Alle falde del Vettore, Jul 1887, A. Batelli (TO sub *S. alpina*) - M.te Vettore, s.d., A. Batelli (PI sub *S. alpina*) - Prov. d'Aquila: Gioia de' Marsi Vecchio, loco dicto Prato Alessi alt.1300, 29 Jun 1926, A. Fiori (TO, PI, PAD, FI sub *S. reinertii*) - Maiella, Buchen waldrander, 1750 m, Kalk, 25-26 Jul 1924, H. Handel & Mazzetti (W sub *S. salviifolia*) - Majella, Jul 1872, s.c. (PI sub *S. germanica*) - M. Morrone, 2000-2200 m, 7 Aug 1899, G. Rigo (W sub *S. reinertii*) - Monte Corno, s.d., s.c. (PI sub *S. alpina*) - Monte Corno, s.d., s.c. (PI sub *S. germanica*) - Monte Corno, s.d., s.c. (FI sub *S. reinertii*) - M.te dei Fiori, 5 Jul 1865, s.c.(PI sub *S. germanica*) - Monte dei Fiori sugli Abruzzi, 16 Jul 1856, s.c.

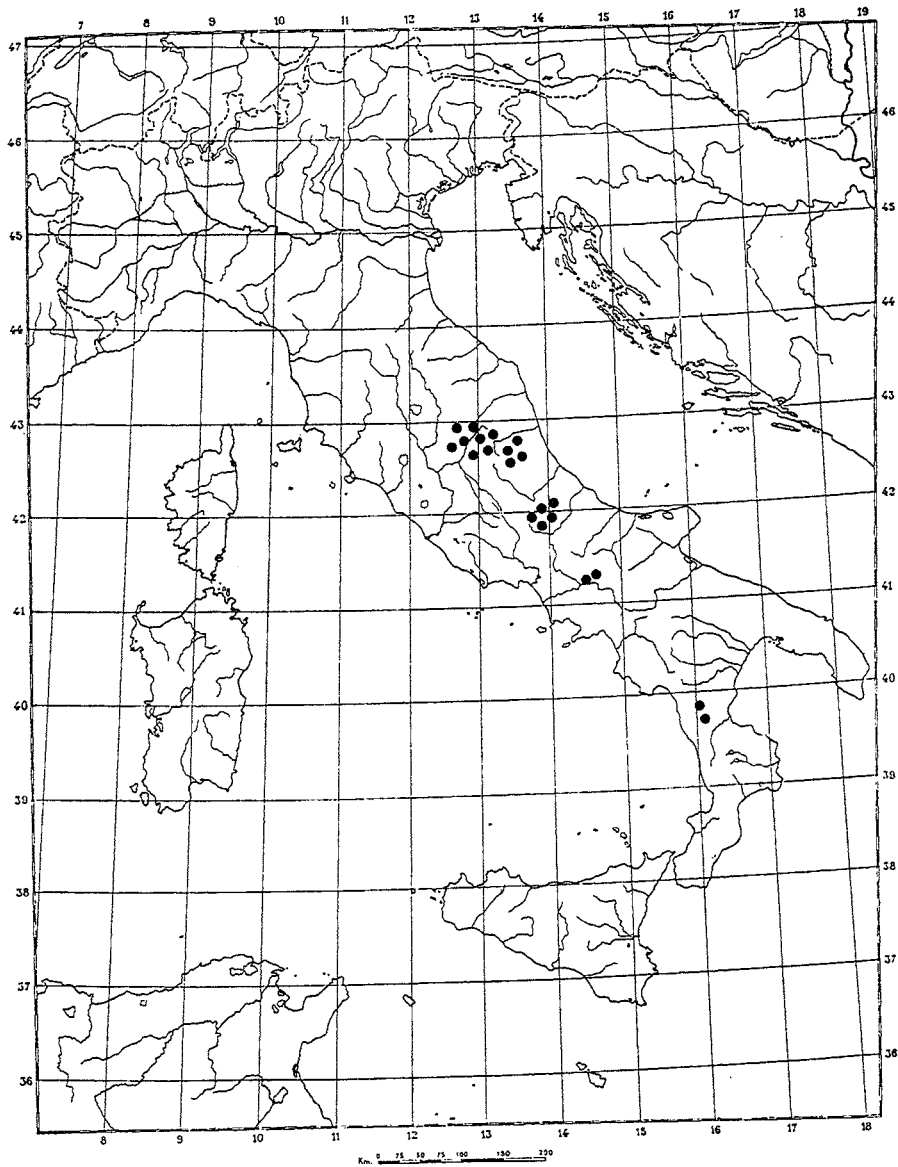


Fig. 11. Distribution of *Stachys tymphaea* Hausskn. in Italy.

(FI sub *S. reinertii*)- Monte dei Fiori, 14 Jul 1877, s.c. (FI sub *S. reinertii*) - Majella, Jul 1872, s.c. (FI sub *S. reinertii* Heldr.) - Gran Sasso d'Italia: Campo Imperiale, 22 Aug 1906, *U. Martelli* (FI sub *S. italica* Mill. var.) - Vulgaris in ... occidentali Montis Morrone, pr. Sulmona, 1 Jul 1873, *E. Levier* (FI sub *S. germanica* L.) - Majella, ad ... Montis Majellone supra Caramanico, 8 Jul 1872, *E. Levier* (FI sub *S. reinertii* Heldr.) - Reg. del faggio ... pizzo di ..., 12 Jul 1836, s.c. (FI

sub *S. reinertii* Heldr.) - Pizzo Cefalone Gran Sasso, 16 Aug 1893, *U. Martelli* (FI sub *S. reinertii*) - Parco Nazionale d'Abruzzo, valico e rifugio di Forca d'Acero m 1540, 2 Aug 1953, *A. Chiarugi* (FI sub *S. heldreichii*) - Monte Doladorne (Pollino) alt. c. 2200 m, 5 Aug 1929, *O. Gavioli* (FI sub *S. reinertii* Heldr.) - In valle alpina cacumis montis Morrone (V. di ...) (supra il passo dell'Orso), 12 Jul 1822, *E. Levier* (FI sub *S. germanica* L. var. *penicillata* Boiss.) - Val d'Aramo presso Ovisondoli, 1400 m, 29 Jun 1903, *L. Vaccari* (FI) - Monte Morrone ultra 1500 m, 4 Jul 1872, *S. Sommier* (FI sub *S. germanica* L.) - Majellone, circa 1200 m, 8 Jul 1872, *S. Sommier* (FI sub *S. germanica* L.) - Pendici del Monte Milletto (Matese) 1750 m, 4 Sep 1975, *F. Bianchini* (FI sub *S. germanica* L.) - Morrone, supra Sulmona, 1 Aug 1873, *E. Levier* (FI sub *S. germanica* L.) - Majellone supra Caramanico, 8 Jul 1872, *E. Levier* (FI sub *S. germanica* L.) - Monte S. Franco (Aquila) tra Valle dell'Inferno e casa Cappelli 1600-1700 m, 24 Jul 1906, *L. Vaccari* (FI sub *S. germanica* L. var. *dasyanthes* Raf. Schm.) - Monte Majella supra Caramanico (Prato delle Corte) abendi in regione montana, ad 100-1500 m, 29 Jul 1874, *E. Levier* (FI sub *S. germanica* L.) - Caramanico (Majella) salendo al convento di S. Michele, 600-700 m, 2 Jul 1906, *L. Vaccari* (FI) - Campo Imperatore, Jul 1991, *L. Falciani* (FI) - **Campania** - Matese a valle Cupa, Jul 1871, *Terracciano* (FI sub *S. reinertii* Heldr.) - Menta, Campaniae, supra Picinisisio, 9 Jul 1872, *E. Levier* (FI sub *S. alpina*) - **Basilicata** - Lucania Monte Pollino in pascuis Piano del Pollino vacatis alt. 1800 m, 4 Aug 1929, *O. Gavioli* (TO, FI sub *S. reinertii*) - Appennino Calabro-Lucano: gruppo del Monte Pollino: tra il M. te Pollino, Serra Dolcedorne e Serra delle Ciavole (Piano di Toscano, Piano di Pollino e Piana del Pollino) alt. 1800-2000 m ca., 25 Jul 1972, *E. Nardi* & al. (FI sub *S. germanica* var. *reinertii*) - Appennino Calabro-Lucano: gruppo del Monte Pollino, tra Piano Ruggio e il Belvedere, alt. 1575-1600 m ca., 22 Jul 1972, *E. Nardi* & al. (FI sub *S. germanica* var. *reinertii*) - Appennino Calabro-Lucano: gruppo del Monte Pollino, Piano Ruggio: 1520-1550 m ca., 23 Jul 1972, *E. Nardi*, *R. Bavazzano* & *V. Posca* (FI sub *S. germanica* var. *reinertii*) - Lucania, Monte Pollino Porticello del Pollino, alt. 1900 m, 4 Aug 1929, *O. Gavioli* (FI sub *S. reinertii* Heldr.) - Valle dei Moli Venti (tra Doladorne e Pollino), alt. 1800-2000 m, 23 Jul 1935, *O. Gavioli* (FI sub *S. reinertii* Heldr.) - Lucania Monte Papa, alt. c. 1850 m, Jul 1922, *O. Gavioli* (FI sub *S. reinertii* Heldr.) - Lucania, M. te Pollino, loco Porticella del Pollino, alt. c. 1900 m, 4 Aug 1929, *O. Gavioli* (FI sub *S. reinertii* Heldr.) - **Calabria** - Monte Pollino alle falde, s. d., s. c. (FI sub *S. italica*, *salviifolia*, *germanica*) - M.te Pollino, Rifugio De Gasperi, m 1600, 26 Jun 1994, *L. Falciani* & *U. Miniati* (FI) - M.te Pollino, Rifugio De Gasperi, m 1600, Jul 1995, *E. Nardi* & *L. Pignotti* (FI)

*Observations.* The indication of the protologue of this species generally cited in texts is Mitt. Geogr. Ges. (Thuringen) Jena 5/ Bot. Ver. Gesamtthuringen 70. 1886. In 1886 the name was published, but not validly because it lacked a description and a valid diagnosis of the species according to Art. 32.1 of ICBN (GREUTER & AL., 1994). The first valid publication accompanied by a description appears in 1897, although the taxon had been independently described, at varietal rank, for the first time by Caruel in 1884.

***Stachys thirkei*** C. Koch, *Linnaea* 21: 685 (1848)

*Stachys janiana* Ces. & al., *Comp. Fl. It.*: 318 (1874)

*Stachys italica* var. *janiana* (Ces., Pass. & Gibelli) Arcangeli, *Comp. Fl. Ital.* 553 (1882)

*Stachys germanica* var. *janiana* (Ces., Pass. & Gibelli) Fiori, *Nuov. Fl. Anal. Ital.* 2: 429 (1926)

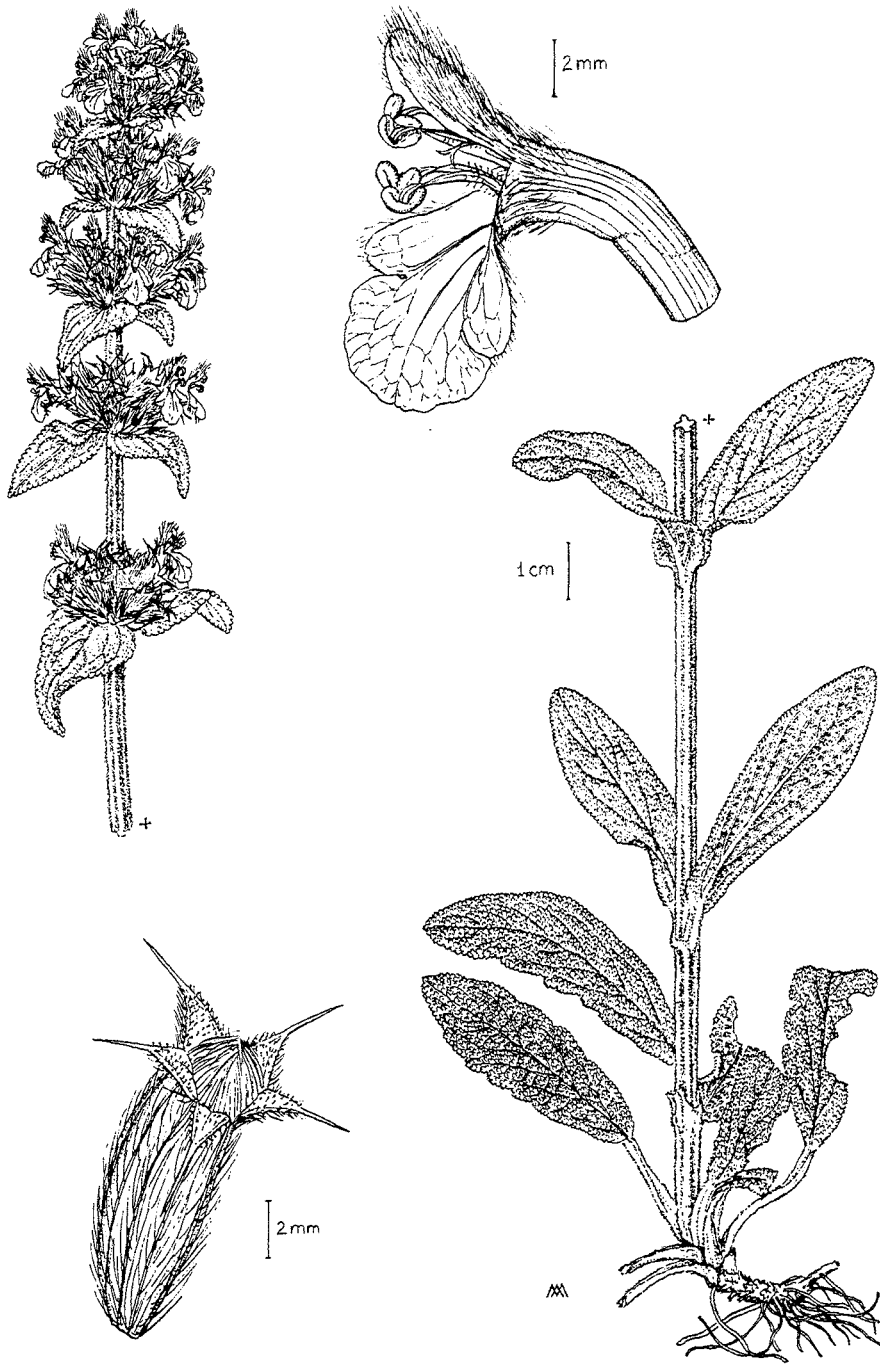


Fig. 12. *Stachys thirkei* C. Koch

*Stachys italica* Jan ex Ces., Pass. & Gibelli

*Stachys germanica* sensu Caruel (1884) p.p., non L. (1753)

Herb perennial, white tomentose with dense appressed D hairs and few B hairs. Stems erect, simple, 40-60 cm. Leaves short petiolate (petioles 20-30 mm) to sessile, blade densely white tomentose, with dense D hairs, obovate, 30-60 x 10-20 mm, indistinctly crenate, almost entire, apex rounded, base attenuate, cuneate. Bracts reddish, with very dense D hairs on the lower surface, lanceolate-triangular, base truncate. Verticillasters, at least the upper ones, very close together in a short thick spike. Flowers sessile; bracteoles reddish, with D hairs mainly on the margins and at the apex of the under sides, lanceolate-linear, as long as the calyx. Calyx tubular-urceolate, 8,5-12 mm, tomentose. A, B and D trichomes are present on the entire external surface of calyx (tube and teeth), B, Cx and D hairs on the internal surface of the teeth. Tube 7 mm, teeth unequal, 1,5-3 mm, triangular, divaricate-stellate, with mucro 2 mm long, usually reddish. Corolla bilabiate, rose, lips very woolly on the outside; under the dense coat of D hairs, A and C1 trichomes are present; upper lip concave, lower lip trilobate. Pollen grains spheroid, triculate, tectate, microreticulate. Nutlets ovoid. Achenes reticulate 2,5 x 1,8 mm.

*Typus.* "*Stachys lanata* Jacq. Turquie d'Europa. D. Thirkei. 1845". (G!, photo, specimen on left).

Lectotypus here designated from among the specimens conserved in the Boissier Herbarium (GE photo!) contained on two herbarium sheets: 1) "*Stachys lanata* Jacq. Turquie d'Europa D. Thirkei 1845" // "*S. Thirkeii*" // "*S. Thirkei* C. Koch 1936 rev. K. H. Rechinger (fil.). 2) *Stachys thirkei* C. Koch and the initials H.C.K. Specimen composed of only two verticillasters. We lectotypify the complete specimen pinned to sheet n. 1 on the left in that it agrees with the description in the protologue; furthermore, KOCH (1848) besides describing the new species, refers specifically to the differences between this specimen and *S. lanata* Jacq. as it had been first identified by Thirkei. Doctor Thirkei sent the specimen to Koch who identified it as a new species and dedicated it to his collector.

*Iconografia selecta.* BHATTACHARJEE (1982, fig. 8,1: leaf; fig. 9,4: calyx). Fig. 12

*Flowering period.* (Mai) June - July

*Chromosome number.*  $2n = 30$ , according to authors cited in GOLDBLATT (1981) and in GOLDBLATT & DALE (1994).

*Ecology.* Uncultivated places, roadsides; calcareous-clayey soil.

*Distribution.* Bulgaria, Greece, Italy, ex-Yugoslavian territories, Turkey and Anatolia

*Local distribution.* argillaceous-calcareous hills of Emilia (Fig. 13).

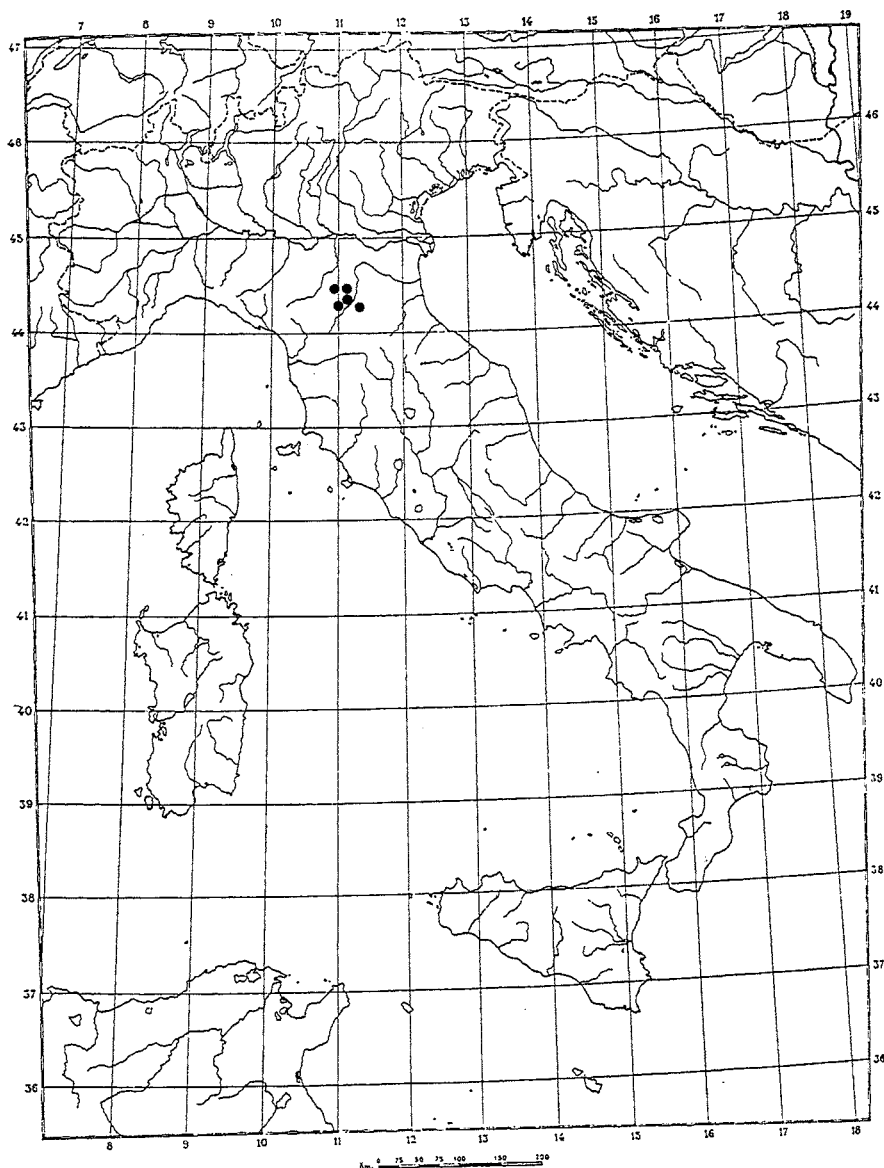


Fig. 13. Distribution of *Stachys thirkei* C. Koch in Italy.

*Voucher specimens*

**Emilia Romagna** - n 1945 loc. Aemilia Prov. di Reggio: Casalgrande, Poggio Casavecchia, alt. 370 m, 8 Jun 1912, A. Fiori (PAD sub *S. italica*, FI sub *S. italica* Mill. fo. *janiana* (Ces. et al.) Béguinot) - Reggio Emilia, Casalgrande, Jun 1912, s.c. (FI sub *S. italica* Mill. fo. *Janiana* Ces. et al.) - Lungo la strada per andare a Baiso, Jun 1909, s.c. (PAD) - Reggio Emilia, Baiso,

alt. 500 m, 23 Jun 1937, V. Mori (FI sub *S. germanica* L. v. *janiana* Ces. et al.) - Baiso 500 m, 29 Jun 1937, s.c. (FI sub *S. germanica* L. var. *janiana*) - Monte del Gesso a Scandiano (RE), 29 Aug 1882, A. Fiori (FI sub *S. italica* Mill.) - Canossa, 6 Aug 1935, Lunardi (FI sub *S. germanica* L. var. *janiana* Ces. et al.) - Pietra di Bismantova, Parma, 6 Jul 1919, M. Minio (FI sub *S. italica*) - Emilia, Reggio, Jun 1912, Fiori (FI sub *S. italica* Mill. fo. *janiana* Ces et al.) - Spezzano, 19 Jul 1882, s.c. (FI sub *S. italica* Mill.) - Prov. Mutinensis, Jun 1888, A. Mori (FI sub *S. italica* Mill.) - Colli rimpetto la Teggia (Sassuolo), 24 Jun 1883, s.c. (FI sub *S. italica* Mill.) - Colli tra la Teggia e S. Valentino prov. di Reggio Emilia, 24 Jun 1883, R. Pirotta (FI sub *S. italica* Mill.) - Colli del Reggiano, s.d., s.c. (FI sub *S. italica* Jan) - Ciano d'Enza (RE), 27 Jun 1991, L. Falciani & S. Turrini (FI) - Tra Scandiano e Viano (RE), 27 Jun 1991, L. Falciani & S. Turrini (FI) - Ciano d'Enza (RE), 6 Sep 1994, L. Falciani & U. Miniati (FI) - Tra Scandiano e Viano (RE), 6 Sep 1994, L. Falciani & U. Miniati (FI) - Canossa, 6 Sep 1994, L. Falciani & U. Miniati (FI)

*Observations.* This species has been understood in different ways by different authors which has produced diverse interpretations. In Italy the entity was known as *S. janiana* Cesati et al. This name is typified with the specimen in the Cesati Herbarium in Rome (RO) "S. italica Mihi a St. salviaefolia Ten. Toto coelo divergens" in Jan's handwriting, inserted in the folder of *S. salviifolia*, in that it corresponds with the description in the protologue (CESATI & al., 1874). Moreover it is significant in being a specimen which belonged to Jan (who was the first to notice the difference between this specimen and that of *S. salviifolia*, and made it a new specific name: *S. italica* Jan). He sent it to Cesati for observation. Cesati verified the characteristics of the specimen and confirmed it as belonging to a new species in his Compendio dedicating it to Jan. On the basis of a comparison of the types and other available material, it results that *S. janiana* is a synonym of *S. thirkei* as already supposed by RECHINGER (1937), BHATTACHARJEE (1982), GREUTER & al. (1986). *S. thirkei* had been indicated by BALL (1972) for southern Italy, in rocky dry zones while he considered *S. janiana* a synonym of *S. cretica* L. ssp. *salviifolia* (Ten.) Rech. fil. PIGNATTI (1982) cites the indication of *S. thirkei* given by Ball for southern Italy, noting that the area of distribution is yet to be defined, and considering *S. janiana* Cesati et al. within the variability of *S. salviifolia* Ten. without specifying its specific rank. The distribution area of this species in Italy is very limited and particular and it may be possible that its presence is due to an antique anthropic introduction confused with *S. byzantina*.

#### ***Stachys byzantina* C. Koch, *Linnaea* 21: 686 (1848)**

Herb perennial. Stems erect, 60-80 cm., simple, white woolly with dense D hairs. Leaves petiolate to subsessile, gradually passing from larger to smaller sizes in the bracts, young and basal leaves and densely white woolly; blade with A, B and D hairs, 40x30 mm, lanceolate, regularly crenate to entire, apex acute, base attenuate. Bracts subsessile to sessile. Verticillasters 15-20 flowered, all the verticillasters or only the upper ones close together. Flowers almost sessile, bracteoles lanceolate to linear, covered with D hairs. Calyx tubular, thickly covered with appressed D hairs, with few Cx hairs, teeth triangular-lanceolate. Corolla bilabiate, rose, upper lip concave, lower lip trilobate. Nutlets ovoid.



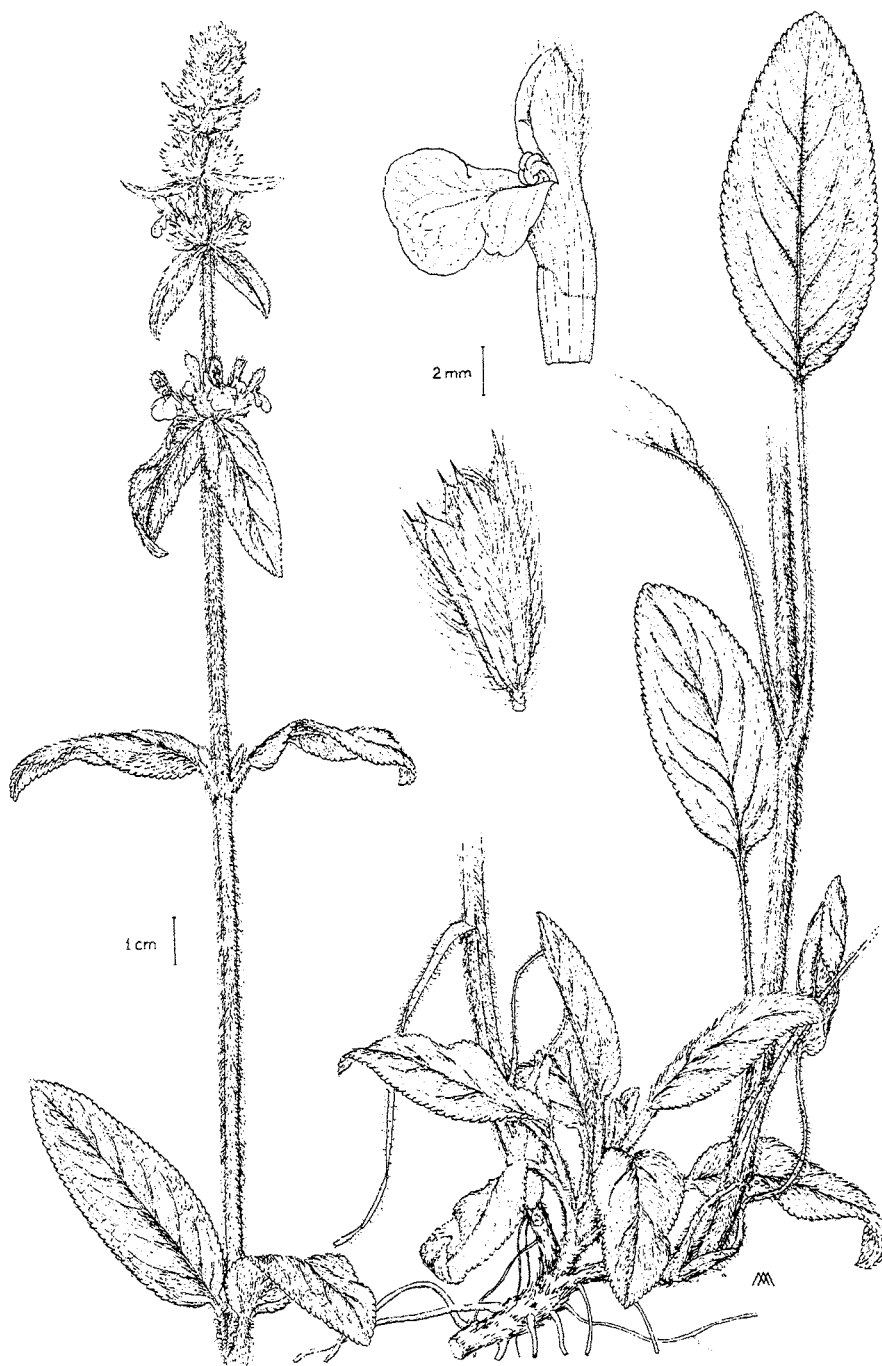


Fig. 14. *Stachys byzantina* C. Koch

*Typus.* Not seen, probably lost.

The C. Koch Herbarium was destroyed in the disastrous Berlin fire of 1944; recently some packs of Koch's duplicates were found (LACK, 1978), but unfortunately they contain no specimens of *S. byzantina* (HAKKI, 1990, in litteris). Material was requested from the herbaria according to EDMONSON & LACK (1977) and STAFLEU & COWAN (1979), where are deposited original specimens from Koch's collections. In none of these herbaria are there any type specimens or any other original specimens of Koch for this species.

*Iconographia selecta.* Fig. 14.

*Flowering period.* June - July

*Chromosome number.*  $2n = 30$ , according to Aavv cited in GOLDBLATT & DALE (1994).

*Ecology.* Cultivated as an ornamental (expecially in cemeteries) and often naturalized in fields near the areas of cultivation.

*Distribution.* Turkey and Anatolia, locally naturalized in France, Hungary, adventitious in Italy and Crimea.

*Local distribution.* *S. byzantina* generally cultivated as an ornamental plant, has occasionally escaped from gardens and tended to become naturalized. The observed specimens were all collected in gardens, botanical gardens or in meadows near the cemeteries, therefore, the native occurrence of the species in Sicily (RAIMONDO & OTTONELLO, 1979) is doubtful.

#### *Voucher specimens*

**Liguria** - Nei giardini a La Spezia, 2 Jun 1932, (PI) - Celle Ligure (orticola), 26 Jun 1929, G. Gresino (FI sub *S. lanata*) - **Piemonte** - Orto botanico di Torino (PI) - Sillaè, s.d., Vaccari (FI sub *S. lanata*) - Coltivata nel giardino Hunry a Courmayer, 26 Aug 1902, L. Vaccari (FI sub *S. lanata*) - Valle d'Aosta, Re Saint Subur, Mai 1891, S. Negri (FI) - **Veneto** - Presso il cimitero di Castelnuovo, Colli Euganei, Mai 1921, ... (PAD sub *S. germanica*) - Sfuggita nei gradoni N ma ... al Cimitero Maggiore, Padova, 15 Mai 1927, G. Zappa (PAD sub *S. lanata*) - **Toscana** - l.d. ai Quercioli Massa, Mai 1920, P. Pellegrini (PI) - Coltivata nei giardini a Massa, 29 Jul 1933, P. Pellegrini (PI) - Orto botanico di Pisa (PI) - Firenze, coltivata, Jul 1936, Vieri Vanni (FI sub *S. lanata*) - **Marche** - Coltivata a Ripe-Paniconi Viale, 4 Jun 1942, s.c. (FI sub *S. lanata*) - Coltivata alla Montagna di Castelnuovo, 1 Jul 1941, s.c. (FI sub *S. lanata*) - s.l., coltivata, 17 Jun 1939, s.c. (FI sub *S. lanata*) - **Sicilia** - Piano della Battaglia. Madonie m 1600, 29 Jun 1994, L. Falciani & U. Miniati (FI).

**Stachys heraclea** All., *Fl. Pedem.* 1: 31 (1785)

*Stachys heraclea* var. *typica* Fiori, *Nuov. Fl. Anal. Ital.* 2: 429 (1926)

*Stachys heraclea* var. *lucana* Lacaita, *Nuovo Giorn. Bot. Ital.* ser. 2, 29: 188 (1923)

Herb perennial. Stems ascendent, (20) 40-70 cm, simple, covered by only B and long white patent D hairs. Leaves petiolate (petioles 40-90 cm) to sessile; velutinous-rugose, with A, B and D trichomes; blade 30-90 x 10-30 mm, oblong-elliptic, regularly and finely crenate, rarely crenate-serrulate, apex obtuse, base asymmetrical. Bracts sessile, with only B and D hairs, ovate-lanceolate, 25-15 mm, margin ciliate, apex acute, 3-4 mm long, base rounded. Verticillasters 8-10 flowered, often distinct from one another as far as the apex. Flowers with pedicels 3 mm long; bracteoles sessile, lanceolate, ciliate, the abaxial surface differs from the adaxial only in that sporadic A hairs. Calyx 9-14 mm, tubular-campanulate, glandular, with Cx hairs only on the inner surface of the teeth, externally on the tube and teeth of calyx A, B and D trichomes are plentiful while Cx are rare. Teeth equal, ovate-triangular, as long as 1/2 of the tube, short mucronate. Corolla bilabiate, rose-purple, twice the length of the calyx, upper lip woolly, with A hairs on the inner surface, lower lip trilobe, with the middle lobe entire or crenulate. Achenes reticulate, 3 x 2,9 mm. Pollen grains elliptic in equatorial view, trizonoculcate, tectate, microreticulate. Nutlets ovoid.

*Typus.* "*Stachys heraclea*" (Allioni's handwriting) (Herb. Allioni, TO !, specimen on the right!).

Lectotypus here designated among the original material present in the Allioni Herbarium (TO). The specimen chosen of *S. heraclea* is pinned to the right side of an authentic sheet from Allioni's period. Although there is no reference to or indication of the locality which would permit us to connect this specimen with the protologue, it corresponds with the characteristics listed in the diagnosis and was surely part of the original material used by the author for his description of the species. Moreover this specimen is similar to that reproduced in plate 78 of volume XXVI of the *Iconographia Taurinensis*. Lastly, on the sheet in the lower right is written *Stachys heraclea* in the handwriting of Allioni in his youth (FORNERIS in verbis).

*Iconographia selecta.* *Iconographia Taurinensis*, XXVI tab. 78, ALLIONI (1785, tab. 84 fig. 1), FIORI (1898, fig. 3112), ZANGHERI (1976, tab. 113 fig. 4178: leaf), PIGNATTI (1982), uses the same iconography as Fiori. Fig. 15.

*Flowering period.* June - July (Aug.)

*Chromosome number.*  $2n = 30$ , according to authors cited in GOLDBLATT & DALE (1990).

*Ecology.* Dry grassy places, woods, bushy pastures, garigues; prevalently on calcareous-clayey soil; scarce humus; 200-800 m.



Fig. 15. *Stachys heraclea* All.

*Distribution.* France, Spain, Italy

*Local distribution.* from Liguria and Emilia Romagna, to Calabria, more frequent in Central and S- Italy (Fig. 16).

*Voucher specimens.*

**Liguria** - Presso Bordighera, 30 Jun 1900, *C. Bicknell* (FI) - Bianco Marina a Monte Tazze (Liguria occ.), 31 Jul 1888, *E. Ferrari* (FI, TO) - Diano-Capo Berta, 15 Jul, s.c. (FI) - Diano Marina a M.te Torre (Liguria occ.), 31 Jul 1888, *E. Ferrari* (FI) - Nei pascoli presso Cesio (Valle di Oneglia), Jul 1848, s.c. (TO) - Liguria occ. Van Benino (?) per la strada che dal Poggio porta a Ceviana, Jun, s.c. (FI) - Presso S. Bernardo di Conio, Aug 1936, *R. Corradi* (FI) - Supra Soldano, Vallecrosia Liguria, 455 m, 17 Jun 1902, *C. Bickel & L. Pollini* (TO) - In Monte di Portofino prope Genuam, s.d., s.c., (TO) - Montagna di Tende, Jun 1828, s.c. (TO) - In alpib. di Irinva, Liguria occidentale, s.d., s.c.(PI) - **Emilia** - Bologna M. Sabbione, 10 Jun 1873, *C. Marchesetti* (FI) - Monte Paderno, 1 Jun 1873, *C. Marchesetti* (FI) - Raccolta a Monte Paderno, presso Bologna, 28 Jun 1891, *A. Fiori* (FI) - Gorgognano, colline bolognesi, 24 Jun 1876, s.c. (PI sub *S. germanica*) - Repubblica di San Marino, lungo la strada da Borgo verso il M. Titano, 1 Jul 1924, *E. Barsali* (PI sub *S. germanica*) - M. Mauro (Romagna), 12 Jul 1905, *R. Pampanini* (FI) - **Toscana** - Dalla fattoria di Meleto in Val d'Elsa, 12 Jun, *N. Ridolfi* (TO) - Monte Morello lato NO a circa 900 m sm, 4 Jul 1880, *Micheletti* (TO) - Alla Tana presso Firenze, Jun 1834, *Ricasoli* (FI) - Monte Senario, 22 Aug 1867, s.c. (FI) - Di Monte Sinario, s.d., ... (FI) - Monte Senario (Firenze), 12 Jun 1946, *R. Corradi* (FI) - Prope Florentiam, verso Monte Senario, 25 Jul 1909, *S. Sommier* (FI) - Prope Florentiam all'Incontro, 8 Jul 1888, *S. Sommier* (FI) - Prope Florentiam fra Pratinus e Monte Morello, 24 Jun 1908, *S. Sommier* (FI) - Prope Florentiam Monte Morello verso la Fonte dei Seppi, 11 Jul 1866, *S. Sommier* (FI) - Prope Florentiam verso la Fonte dei Seppi sul Monte Morello, 11 Jul 1886, *S. Sommier* (FI) - Prope Florentiam scendendo da M. Morello a Paterno (Mugello), 31 Jul 1904, *S. Sommier* (FI) - Monte Morello, lato NW a circa 900 m, 4 Jul 1880, *L. Micheletti* (FI) - Fontana dei Seppi, Tenuta Ginori, Sesto Fiorentino, 1945, *R. Corradi* (FI) - Monte Morello, Firenze, 26 Jul 1891, s.c. (FI) - Entre Monte Acuto et M.te Morello, Florence, 17 Jul 1848, *T. Caruel* (PI) - Prov. di Firenze Mulin del Piano a Masseto, 27 Jun 1927, *A. Fiori* (FI) - Monte Morello, Firenze, 29 Aug 1872, *U. Martelli* (FI) - Monte Morello, 4 Jul 1886, *P. Baroni* (FI) - Firenze all'Impruneta, 24 Jun 1865, s.c. (FI) - Firenze all'Impruneta, 14 Jun 1868, s.c. (FI) - Chianti, 1830, *Ricasoli* (FI) - Colle, habui a Prof. Targioni, s.d., s.c.(FI) - Chianti presso la Castellina, 24 Jun 1862, s.c. (FI) - In agro volterrano et comunicavit by a ... Amidei, 1841, *Savi* (FI) - Gabbri di Larderello Volterra, 5 Jul 1891, *U. Martelli* (FI) - Delle colline volterrane, s.d., s.c. (PI) - Fra Larderello e Serrazzano (Pisa) nel Cerreto, 500 m, 29 Jun 1953, *A. Chiarugi & al.* (FI) - Prov. di Pisa, tra Pomarance e Libiano, 200-300 m, 7 Jun 1916, *A. Fiori* (FI) - Prov. di Pisa, Pomarance verso M. Gabbri, 300-350 m, 6 Jun 1916, *A. Fiori* (FI) - Crete del Volterrano, 10 Mai 1934, *Chiarugi* (FI) - Monte Oliveto M. presso chiusura prov. di Siena, 5 Jul 1946, *R. Corradi & A. Contardo* (FI) - Monservoli (Taverne di Arbia) Siena, 6 Jul 1946, *R. Corradi & A. Contardo* (FI) - Etruria, prov. di Grosseto: Roccastrada, 23 Jun 1919, *A. Fiori* (TO, PI) - Di Monte Sinario, s.d., s.c. (PI) - M. Labro, 14 Jun 1888, *J. Arcangeli* (PI) - Monte Morello, 23 Jun 1917, s.c. (PI) - Colline di Colle Salvetti, Aug 1889, *C. Rossetti* (PI) - Buonconvento, Siena, 20 Jun 1920, *P. Pellegrini* (PI) - Sarteano (Siena), Sep 1907, s.c.(FI) - Cetona a Belvedere, 14 Jun 1943, *G. Negri & R. Corradi* (FI) - A Chianciano in Val di Chiana, (Siena), Jun 1920, *P. Pellegrini* (PI) - Presso Chianciano (Val di Chiana), Jun 1920, *P. Pellegrini* (PI) - Monte Amiata presso Santa Fiora, Jun 1888, *A. Biondi*

(FI) - Presso la Banditella, Santa Fiora, 13 Jun 1888, s.c. (FI) - San Casciano dei Bagni, 22 Jun 1886, s.c.(FI) - Cetona, inter urbium, Chiusi di San Casciano di Bagni (Eu.mer.or.), 22 Jun 1886, *E. Levier* & *S. Sommier* (FI) - Bagni di Casciana, 13 Jul 1871, *S. Sommier* (FI, PI) - Bagni di Casciana, Jul 1887, *Poggi* (PI) - Pescia fiorentina presso Capalbio Maremma, 31 Mai 1892, *S. Sommier* (FI) - Montepulciano, Val d'Orcia, 300-600 m, 5 Sep 1958, *F. Fabbri* (FI) - Montepulciano, Val d'Orcia, 300-700 m, 14 Jun 1963, *A.M. Antoni* (FI) - Val d'Orcia 300-600 m, 4 Jul 1961, *A.M. Antoni* (FI) - Prov. di Grosseto, Roccastrada presso il paese, 500 m, 23 Jun 1919, *A. Fiori* (FI, PAD, PI) - Monte Morello, sul prato al Cippo dei Partigiani, Jul 1991, *L. Falciani* & *R. Falciani* (FI) - **Marche** - Gruppo del Monte Carpegna: versante NE del M. Tagiura presso S. Sisto, c.725 m, 11 Jul 1973, *A.Brilli Cattarini* & al. (PESA) - Gruppo del M.Carpegna: versante NE del M. Carpegna, 700-725 m; 11 Jul 1973, *A. Brilli Cattarini* & al. (PESA) - Gruppo del M.Carpegna: versante NE del M. Tagiura presso S.Sisto, 700-725 m, 11 Jul 1973, *A. Brilli Cattarini* & al. (PESA) - Gruppo del M. Carpegna: valle del Fosso della Macchia presso S. Sisto, 825-850 m, 30 Jun 1973, *A. Brilli Cattarini* & al. (PESA) - Gruppo del M.Carpegna: valle del Fosso della Macchia presso S.Sisto, 775-800 m, 30 Jun 1973, *A.Brilli Cattarini* & al. (PESA) - Gruppo del M.Carpegna: versante W del M. Cassinelle, 825-850 m, 23 Jul 1975, *A. Brilli Cattarini* (PESA) - Gruppo del M. Carpegna: versante E del M. della Faggiola, 675-725 m, 4 Mai 1966, *A. Brilli Cattarini* (PESA) - Gruppo del M. del Gioco del Pallone: Valle del Fosso della Macchia presso S. Sisto, c.875 m, 30 Jun 1973, *A. Brilli Cattarini* & al. (PESA) - Ancarani, 1842, *A. Orsini* (FI) - Dintorni di Urbino: Valle del torrente Apsa in loc. Cà di Terra tra il Gallo e Trazanni, 125-150 m, 26 Mai 1969, *A. Brilli Cattarini* & al. (PESA) - Urbino, 26 Jun 1929, *A. Bernardini* (PI) - In collibus siccis argillosis (Fl. Picena), s.d., *Orsini* (PAD) - **Umbria** - M. Malbe (Perugia), Julio 1890, s.c. (FI) - Monte Malbe, Mai 1894, s.c. (JE) - **Lazio** - Tivoli nella Valle Anese, 5 Jun 1904, *L. Vaccari* (FI) - Monti Sabini a Narola, 17 Jul 1857, s.c.(FI) - Civitavecchia, 8 Jul 1863, s.c. (FI) - Civitavecchia, 20 Jun 1866, *E. Rolli* (FI) - **Abruzzo** - s.l., s.d., s.c. habui all Tenore (FI) - Monte Sirente, prati della Defenza su Ajelli 1000-1600 m, 29 Jun 1904, *L. Vaccari* (FI) - In Mont. Morrone, lat. orient. supra Salli, estate 1875, *D. Profeta* (FI) - In Sanni, s.d., *Giulio Avellino* (FI) - Prope Salle in Aprutio (Morrone), Jun 1875, *Profeta* (FI) - Villa Bozza, presso Castilente (Teramo), Jun 1905, *P. Pellegrini* (PI) - **Campania** - Campania, Itri a San Nicola, Jun 1871, *Terracciano* (FI) - **Basilicata** - In Lucania, s.d., *Tenore* (FI) - Potenza, M. Foi, 13 Jun 1926, *O. Gavioli* (PAD) - N 2741. Prov. di Potenza: in saltibus apricis silvae Gallipoli - Cognato dictae, alt. 600 m circ., 28 Jul 1921, *C. Lacaïta* (FI, PAD, BM) - Muro Lucano, Montagna Grande, "vacato" alt. c. 1000 m, Mai 1929, *Gavioli* (FI) - Potenza, S. Sofia alt. 850 m, 3 Jun 1923, *O. Gavioli* (FI) - Potenza M. "Montocchio" alt. 1100 m, 29 Jun 1933, *O. Gavioli* (Fi) - Potenza in dumetis loco "La Caira" vocato alt. 800-900 m, 10 Jun 1928, *O. Gavioli* (FI) - Potenza, ad pedices montis Montocchio, alt. 800-1100 m, 21 Jun 1937, *O. Gavioli* (FI) - Potenza in pascuis montis Poggio Cavallo, alt. 900 m, 8 Jun 1924, *O. Gavioli* (FI sub *S. heraclea* var. *lucana* Lacaïta) - Potenza S. Sofia, 6 Jun 1923, *O. Gavioli* (FI) - Potenza Serra di Riofreddo, alt. 1100 m, 16 Jun 1929, *O. Gavioli* (FI) - Presso Matera, 400-500 m, 7 Jun 1913, *A. Fiori* (FI) - Potenza ad pedices montis Montocchio, alt. 800-1100 m, 21 Jun 1937, *O. Gavioli* (FI) - Difesa Melodia (Matera), 22 Mai 1951, *R. Corti* & al. (FI) - Masseria Tarantino, Difesa Melodia (Matera), 16 Mai 1950, *Negri* & *Messeri* (FI) - Picciano (Matera), querceto, 23 Mai 1951, *R. Corti* & al. (FI) - Miglionico, Monte Acuto (Matera), 15 Mai 1960, *Negri* & *Messeri* (FI) - Valle del Basento sopra la stazione di Salandra, c. 200 m, 20 Mai 1920, *C. Lacaïta* (FI) - In argilloso calcareis Melfi sui colli, Jun 1859, *Terracciano* (FI) - **Puglie** - N. 368, Gargano, circa S. Nicandro, 100-400 m, 15 Jun 1875, *Porta* & *Rigo* (FI sub *S. dasyanthes* Raf.) - Le Murgie, presso la Masseria Rinaldi, lungo la SS 170 a SO di Minervino Murge, c. 500 m, 11 Jun 1968, *E. Nardi* & *R. Bavazzano* (FI) - Tra Monte Leone di Puglia e Accadia (Foggia), c. 800 m, 9 Jun 1968, *E. Nardi* & *R. Bavazzano* (FI) - Murgie di Noci, 9 Mai 1897, ... (FI) - Taranto, Gravina di Castellaneta, 19 Mai 1924, *C. Lacaïta*

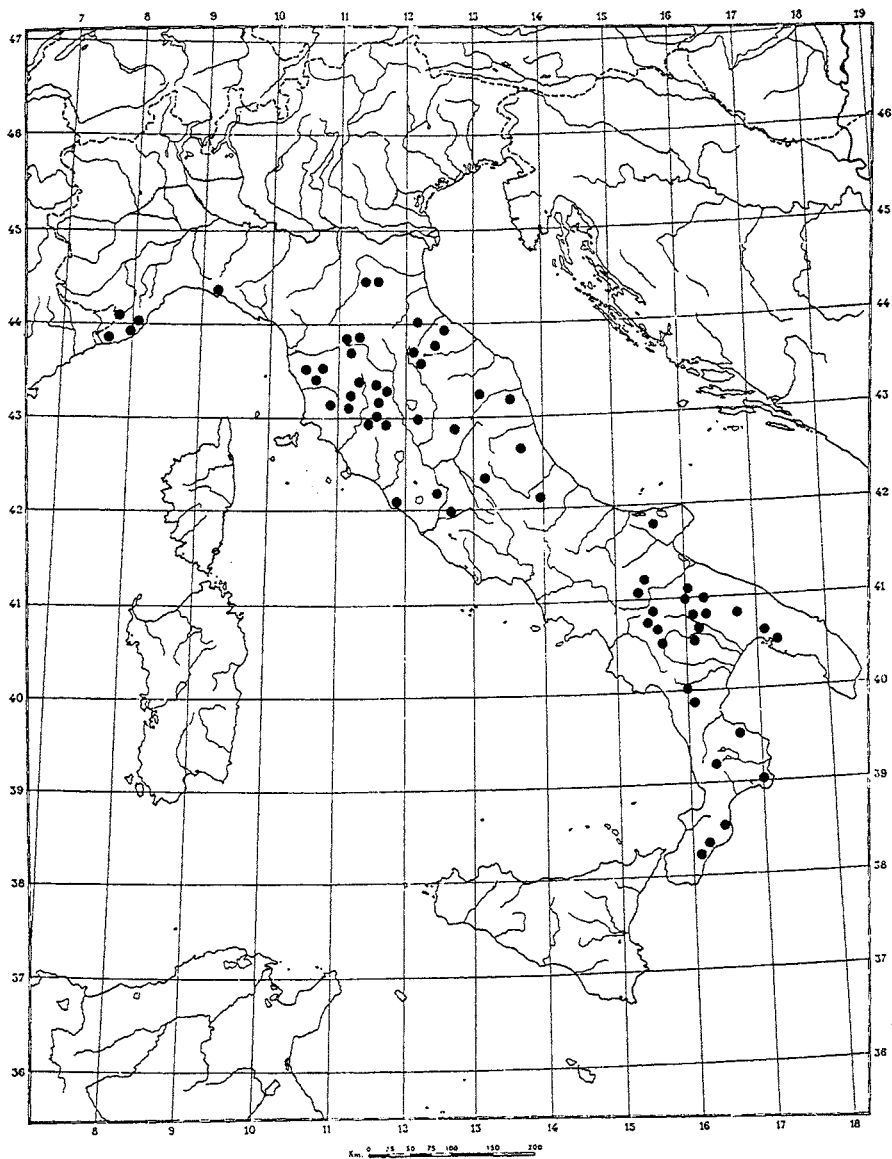


Fig. 16. Distribution of *Stachys heraclea* All. in Italy.

(FI) - Presso Spinazzola, 8 Jun 1898, *A. Fiori* (FI, PAD) - Monti Li Foi, 25 Jun 1994, *L. Falciani* et *U. Miniati* (FI) - Strada per Rifreddo, 25 Jun 1994, *L. Falciani* & *U. Miniati* (FI) - Gallipoli Cognato (Accettura), 25 Jun 1994, *L. Falciani* & *U. Miniati* (FI) - Calabria - N 251, Calabria Orientale, prope Bagni di Gerace, et vers. Cimino 100-200 m, 25 Mai 1877, *Huter* & al. (FI, TO, JE) - Roccella Jonica, 2-300 m, 6 Jun 1907, *G. Rigo* (JE) - Roccella et Gerace, m 200-500, 6-15 Jun 1907, *G. Rigo* (PAD) - Calabria: falde del Monte Pollino, 20 Jun 1899, *A. Fiori* (PAD),

FI) - Marina di Crotona a Scarzo, 21 Jun 1911, *G. Lopez* (FI) - La Sila, ai piedi di Valle Grande (Lagobucco) m 700, 16 Jun 1950, *G. Scarfatti & R. Corradi* (FI) - Valle dello Stillaro tra Stilo e Monaslerace (Calabria), 31 Mai 1921, *C. Lacaita* (FI) - Colli al di là della Fiumarella (Catanzaro), 14 Jun 1883, *A. Fiori* (FI)

*Observations.* TENORE (1824) first called to the attention of botanists a specimen of *S. heraclea* collected in Lucania and conserved in his herbarium (!). Later in the 19th century LACAITA (1923) observed some specimens of *S. heraclea* collected in Gallipoli Cognato and in the "valle del Basiento" with bracts especially rich in glandulosity and "corolla sulphureo lateritia plus minus punctis striisque ferrugineo purpureis maculata". He identified them as *S. heraclea* var. *lucana*. I have personally verified the localities reported on the sheets of Lacaita. Field investigations show that together in the same population live *S. heraclea* with rose-purple flowers and *S. heraclea* with white yellow flowers and there are also specimens with both rose-purple and white-yellow flowers. It is quite obvious that this character is not sufficient to separate *S. heraclea* var. *lucana* from *S. heraclea* var. *heraclea*. However all the specimens of *S. heraclea* in Basilicata and in Calabria show a greater glandulosity. This is probably due to a progressive differentiation of the southern populations. For a similar problem, the absence of pigment in the corolla, in other genera, such as *Anthirrinum* L., authors (CRONQUIST, 1979) speak of modifying genes.

### Species excludendae

*Stachys acutifolia* Bory & Chaub. in Bory & Chaub., *Exp. Sci. Morée, Bot.*: 168 (1832)

*Stachys germanica* subsp. *cordigera* Briq., *Lab. Alpes Marit.*: 232 (1893)

The report of the probable presence of this species in Italy appears for the first time in BALL (1972). Later this information was repeated, also as doubtful, by ZANGHERI (1976) and PIGNATTI (1982). GREUTER & al. (1986) state that the name is illegitimate and indicate it as a heterotypic synonym of *Stachys germanica* L. subsp. *cordigera* Briq. In any case, during the revision of material present in several Italian and foreign herbaria we observed no specimens of this taxon collected in Italian territory. For lack of more reliable data or new discoveries *Stachys acutifolia* Bory & Chaub. must be excluded from the Italian flora.

### Acknowledgements

My deepest gratitude to Proff. G. Moggi and E. Nardi for their critical reading of the manuscript, for frequent discussions and for their interesting suggestions for reflection. I would also like to thank all the Directors and personnel of the Botanical Museums and Herbaria which I visited and which sent me material on loan. The support of a CNR grant (coordinator Prof. E. Nardi, University of Florence) is gratefully acknowledged.



## References

- ABU-ASAB M. S. & P. D. CANTINO (1987). Phylogenetic implications of the leaf anatomy in subtribe Melittidinae (Labiatae) and related taxa, *J. Arnold Arbor.* **68**: 11-34.
- ALLIONI, C. (1785). *Flora pedemontana*, I: 30-31. Torino.
- (1785). *Flora pedemontana*, Tavole. Torino.
- ARCANGELI, G. (1882). *Compendio della Flora italiana*. Torino.
- (1894). *Compendio della Flora italiana*, Ed. 2. Torino, Roma.
- BADEN, C. (1991). *Stachys L.* in A. STRID & K. TAN (ed.) *Mountain flora of Greece 2*: 97-81 Edinburgh University Press.
- BALL, P. W. (1972). *Stachys L.* in T. G. TUTIN, V. H. HEYWOOD, N. A. BURGESS, D. M. MOORE, D. H. VALENTINE, S. M. WALTERS & D. A. WEBB. (eds.) *Flora Europaea*, **3**: 151-157. University Press Cambridge.
- BARTHOLOTT, W. (1980). Morphogenese und Mikromorphologie komplexer Cuticular Faltungsmuster an Blüten-Trichomen von *Antirrhinum L.* (Scrophulariaceae). *Ber. Deutsch. Bot. Ges.* **93**: 379-390.
- BÉGUINOT, A. (1903). *Stachys L.* in FIORI A. & G. PAOLETTI *Flora analitica d'Italia*. Padova.
- BENTHAM, G. (1834). *Labiatarum genera et species*. London.
- (1848). *Stachys L.* in A. P. DE CANDOLLE, *Prodromus Systematis Naturalis Regni Vegetabilis*, **12**. Paris.
- BERTOLONI, A. (1844). *Flora italica*. **6**. Bologna.
- BHATTACHARJEE, R. (1974). Taxonomic studies in *Stachys I*: new species and infra-specific taxa from Turkey. *Notes Royal Bot. Garden Edinb.* **33(2)**: 275-292.
- (1980). Taxonomic studies in *Stachys II* a new infrageneric classification of *Stachys L.*, *Notes Royal Bot. Garden Edinb.* **38(1)**: 65-96.
- (1982). *Stachys L.* in: P. H. DAVIS (ed.), *Flora of Turkey*, **8**. The University Press, Edinburgh.
- BINI MALECI, L. & O. SERVETTAZ (1991). Morphology and distribution of trichomes in Italian species of *Teucrium* sect. *Chamaedrys* (Labiatae) - a taxonomical evaluation. *Pl. Syst. Evol.* **174**: 83-91.
- BOISSIER, P. E. (1879). *Flora orientalis* **4**. Genevae & Basileae.
- BRIQUET, J. (1893). *Les Labiées des Alpes Maritimes* **2**. Geneve & Bale.
- (1897). *Stachys L.* in: A. ENGLER & A. PRANTL, *Die Natürlichen Pflanzenfamilien*, **4(3a)**. Labiatae. Leipzig.
- BRITTON, N. L. & A. B. BROWN (1913). *An Illustrated Flora of the United States and Canada*, ed. 2. New York.
- CANTINO, P. D. (1990). The phylogenetic significance of stomata and trichomes in the Labiatae and Verbenaceae. *J. Arnold Arbor.* **71**: 323- 370.
- CARUEL, T. (1884). *Stachys L.* in: F. PARLATORE. *Flora Italiana*. Firenze.
- CESATI, V., G. PASSERINI & E. G. GIBELLI (1874). *Compendio della Flora Italiana*, Milano.
- CRONQUIST, A. (1979). *Botanica*, Zanichelli.
- DUDAI, N., E. WERKER, E. PUTIEVSKY, U. RAVID, D. PALETVICH, A. & H. HALEVY (1988). Glandular hairs and essential oils in the leaves and flowers of *Majorana syriaca*. *Israel J. of Botany* **37**: 11-18.
- DUMORTIER, B. C. (1827). *Florula Belgica*. *Staminacia. Tornaci Nerviorum*: J. Custerman.
- DYER, A. F. (1979). *Investigating chromosomes*, Edward Arnold
- EDMONDSON, J. R. & H. W. LACK (1977). The Turkish and Caucasian collections of C. Koch I: Turkey. *Notes Royal Bot. Garden Edinb* **35(3)**: 321-344.
- EL GAZZAR, A. & L. WATSON (1970) A taxonomic study of Labiatae and related genera. *New Phytol.* **69**: 451-486.

- ENDLICHER, S.L. (1836-1840). *Genera plantarum secundum ordines naturales disposita*, Vindobonae.
- FALCIANI, L., L. BINI MALECI & M. MARIOTTI (1995). Morphology and distribution of trichomes in Italian species of *Stachys germanica* group (Labiatae): a taxonomical evaluation. *Bot. J. Linn. Soc.* **119**: 245-256.
- FALCIANI, L. & G. FIORINI (1996). Mediterranean Chromosome Number Reports, 6: *Stachys*, *Fl. Medit.* **6** (in press).
- FARR, E. R., J. A. LEUSSINK & F. A. STAFLEU (1979) *Index nominum genericorum (Plantarum)*, **3**. Utrecht.
- FIORI, A. (1898). *Iconographia florum italicarum, ossia flora italiana illustrata*, ed. 3, Edagricole Padova.
- FIORI, A. (1926). *Nuova flora analitica d'Italia*. **2**. Firenze.
- FUCHS, L. (1542). *De Historia Stirpium*. Basel
- GAMS, H. (1927). Labiatae in G. HEGI (ed.), *Illustrierte flora von Mittel-Europa*, **5,4**: 2255-2548, Hanser - Verlag, Munchen.
- GOLDBLATT, P. (ed.) (1981). *Index to Plant chromosome numbers 1975-1978*. Missouri Botanical Garden.
- (1984). *Index to Plant chromosome numbers 1979-1981*. Missouri Botanical Garden.
- (1985). *Index to Plant chromosome numbers 1982-1983*. Missouri Botanical Garden.
- (1988). *Index to Plant chromosome numbers 1984-1985*. Missouri Botanical Garden.
- & E. J. DALE (ed.) (1990). *Index to Plant chromosome numbers 1986-1987*. Missouri Botanical Garden.
- & E. J. DALE (ed.) (1994). *Index to Plant chromosome numbers 1990-1991*. Missouri Botanical Garden.
- GREEN, M. L. (1929). Genera 501-end. A. S. In HITCHCOCK & M. L. GREEN, Standard species of Linnean genera of Phanerogame (1753-54): 155-195, in International Botanical Congress, Cambridge (England), 1930. Nomenclature. Proposals by British botanists. His Majesty's Stationery Office, London.
- GREUTER, W., H. M. BURDET & G. LONG (eds.) (1986). *Med-Checklist 3*: 346-353. Geneve: Conservatoire et Jardin Botanique
- , F. R. BARRIE, H. M. BURDET, W. G. CHALONER, V. DEMOULIN, D. L. HAWKSWORTH, P. M. JORGENSEN, D. H. NICOLSON, P. C. SILVA, P. TREHANE & J. MCNEILL. (eds.) (1994). *International Code of Botanical Nomenclature*. Konigstein.
- HEGI, G. (ed.) (1927) *Illustrierte flora von Mittel-Europa*. **5,4**: 2255-2548. Monaco.
- HOFFMANNSEGG, J. C. & H. F. LINK (1809). *Flore portugaise*, **1**: 106. Berlino.
- JACKSON, B. D. (1912). *Index to the Linnean herbarium*, 67 Proc. Linn. Soc. London sess. 124 Suppl.
- JARVIS, C. E., F. R. BARRIE, D.M. ALLAN & J. L. REVEAL. (1993). *A list of linnean generic names and their types*. Konigstein.
- KAROUSOU R., A. M. BOSBALIDIS & S. KOKKINI. (1992). *Sideritis syriaca* ssp. *syriaca*: Glandular trichome structure and development in relation to systematic. *Nordic Jo. Bot.* **12**: 31-37.
- KOCH, K. H. (1848). 160. *S. thirkei*; 165 *S. byzantina*. *Linnaea* **21**: 686.
- LACAITA, C. (1923). Piante critiche o rare LXXX - LXXXI. *Nuovo Giorn. Bot. Ital.* ser. 2, **29**: 188 -192.
- LACK H. W. (1978). Das Herbar C. Koch, De Herbario Berolinensi Notulae No. 5, *Willdenowia* **8**: 431-438.
- LINNAEUS, C. (1737). *Hortus Cliffortianum*. Amstelaedami.

- MCNEIL, J., E. A. ODELL, L. L. CONSAUL & D. S. KATZ (1987). American code and later lectotypifications of linnaean generic names dating from 1753: a case study of discrepancies. *Taxon* **36**: 350-401.
- MILLER, P. (1768). *The Gardeners dictionary*, ed. 8. London
- MORI, B. & G. TANI (1988). Soft dehydration in the embedding method for transmission electron microscopy. *Caryologia* **41(2)**: 181-189.
- MURBECK, S. (1891). Beitrage zur Flora von Sudbosnien und der Hercegovina. *Acta Univ. Lund.* **27(5)**: 61-63.
- PIGNATTI, S. (1982). *Flora d'Italia* **2**. Bologna.
- PLUKENETT, L. (1696). *Almagestum botanicum*. Londini.
- PRESS, J. R. (1992). In: D. H. NICOLSON (ed.), Seventy-two proposals for the conservation of types of selected Linnean generic names, the report of Subcommittee 3C on the lectotypification of Linnean generic names. *Taxon* **41**: 570.
- RAIMONDO, F. M. & D. OTTONELLO (1979). Entità nuove per la flora siciliana. *Atti Accad. Sc. Lett. Arti Palermo* **38**: 3 - 12.
- RECHINGHER, K.H. FIL. (1937). Revision des Formenkreises der *Stachys cretica*. *Ann. Naturhist. Mus. Wien* **48**: 167-178.
- REICHENBACH, L. (1830). *Flora Germanica*. Lipsiae.
- RENDLE A. B. (1952). *The classification of flowering plants 2, Dicotyledons*, Cambridge at the University Press
- SABATO, S. (1990). Remarks on the publication dates of Tenore's Flora Napolitana. *Taxon* **39**: 409-416.
- SAVAGE, S. (1945). *A catalogue of the Linnean Herbarium*. London.
- STAFLEU, F. A. & R. S. COWAN (1979). *Taxonomic literature* **2**. Bohn, Scheltema e Holkma, Utrecht/Antwerpen dr. W. Junk b. v., Publischers, The Hague/ Boston.
- & R. S. COWAN (1983). *Taxonomic literature* **4**. Bohn, Scheltema e Holkma, Utrecht/Antwerpen dr. W. Junk b. v., Publischers, The Hague/ Boston.
- SPURR, A. R. (1969). A low viscosity epoxy resin embedding medium for electron microscopy. *J. Ultrastruct. Res.* **26**: 31-34
- STEARNS, W. T. (1973). *Botanical Latin*, ed. 2. Newton Abbot London, Edinburgh.
- TENORE, M. (1811-1838). *Flora neapolitana Atlante*. **1**: LIII-LIV. Napoli.
- TENORE, M. (1824). *Flora neapolitana*. Napoli.
- TERRACCIANO, N. (1891). *Synopsis palntarum Montis Pollino*.
- VALSECCHI, F. (1974). Ad Floram italicam notulae taxonomicae et geobotanicae 13. *Stachys cretica* L. ssp. *salviifolia* (Ten.) Reich. e *Salvia virgata* Jacq. in Sardegna. *Webbia* **29(1)**: 303-307.
- VEGTER, I. H. (1983). Index Herbariorum part II (5). Collectors, N-R. *Regnum Veg.* **109**: 577-803.
- WERKER, E., U. RAVID & E. PUTIEVSKY (1985). Structure of glandular hairs and identification of the main components of their secreted material in some species of the Labiatae. *Israel J. Bot.* **34**: 31-45.
- WETTSTEIN, R. (1935). *Handbuch der Systematischen Botanik*, Leipzig.
- ZANGHERI, P. (1976). *Flora italica* **1**, Testa **2**, Tavole. Padova.

**Address of the author:**

Dr. L. Falciani, Dipartimento di Biologia Vegetale dell'Università, Via La Pira 4, 50121 Firenze, Italy.