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New data about Vicia loiseleurii (M. Bieb.) Litw., correct binomial for Vicia meyeri Boiss.

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RÉSUMÉ

ROTI-MICHELOZZI, G., L. CAFFARO & L. BEVILACQUA (1989). Nouvelles données sur Vicia loiseleurii (M. Bieb.) Litw., binome correct pour Vicia meyeri Boiss. *Candollea* 44: 103-117. En anglais, résumés français et anglais.

Des échantillons naturels italiens de *Vicia loiseleurii* (M. Bieb.) Litw. et de *Vicia hirsuta* (L.) S. F. Gray ont été étudiés du point de vue morphologique, micromorphologique, anatomique et caryologique afin de démontrer la validité de leur séparation au niveau spécifique. L'observation des spécimens types de *V. loiseleurii* et de *Vicia meyeri* a permis de constater qu'ils sont conspécifiques et que le nom correct pour *V. meyeri* est *V. loiseleurii.* On a essayé de déterminer l'aire de distribution de cette dernière entité.

ABSTRACT

ROTI-MICHELOZZI, G., L. CAFFARO & L. BEVILACQUA (1989). New data about Vicia loiseleurii (M. Bieb.) Litw., correct binomial for Vicia meyeri Boiss. *Candollea* 44: 103-117. In English, French and English abstracts.

Wild Italian specimens of *Vicia loiseleurii* (M. Bieb.) Litw. and *Vicia hirsuta* (L.) S. F. Gray have been investigated from the morphological, micromorphological, anatomical and karyological points of view in order to demonstrate the validity of separating these two entities at specific level. The study of the type specimens of *V. loiseleurii* and *Vicia meyeri* showed that the correct name for *V. meyeri* is *V. loiseleurii.* An attempt has been made to trace the distribution area of this last entity.

Recent Flora authors (BALL, 1968; PLITMANN, 1970) describe, at specific level, the entity *Vicia meyeri* Boiss., typified (BOISSIER, 1872) on specimens collected in the Caucasus by Meyer and Hohenacker. Previously, apparently for the same entity, MARSCHALL VON BIEBERSTEIN (1819) described, with the name *Ervum loiseleurii,* a specimen he had collected in Crimea and TENORE (1826) quoted, under the name *E. terronii,* another specimen collected by Terrone near Naples. Later these binomials were changed in *V. loiseleurii* (M. Bieb.) Litw. by LITWINOV (1932) and *V. terronii* (Ten.) Lindb. by LINDBERG (1906). Ball and Plitmann have rejected these two binomials, the first because M. Bieberstein's original description pointed out four-seeded instead of two-seeded legumes, and the second because TENORE himself (1831), in a later work, discarded his formerly described species.

Other authors have considered this entity at infraspecific level: BURNAT (1896) and FIORI (1923-1925) quoted it as *V. hirsuta* (L.) S. F. Gray var. *terronii* Burn., ZANGHERI (1976) as *V. hirsuta* (L.) S. F. Gray var. *lejocarpa* Vis. Later PIGNATTI (1982) reported the binomial *V. terronii* (Ten.) Burn., but at specific level. Finally ALLKIN & al. (1986) stated that *V. hirsuta* (L.) S. F. Gray must be the accepted name for *V. meyeri.*

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There has evidently been a great controversy about taxonomy and nomenclature (other less known binomials have been omitted) of some specimens which showed about the same differential characters with the common *V. hirsuta.* The most used binomial is *V. meyeri* Boiss., of which many type-specimens are available; this entity, however, is recorded from a rather small area (Crimea, BALL, 1968; Crimea, Caucasus and some Anatolian localities, PLITMANN, 1970), though more recently it has also been recorded in Bulgaria (TERSIJSKI & DELIPAVLOV, 1985) or in Slovenia (WRABER, 1981). In Italy the presence of this entity is uncertain (PIGNATTI, 1982) or it is considered a variety of *V. hirsuta* (FIORI, 1923-1925; ZANGHERI, 1976).

The aim of the present study was to inquire into wether: a) a specimen, showing the features of *V. meyeri,* found in the Circeo National Park (Lazio, Italy, in 1984), is separate at specific level from *V. hirsuta;* b) which is its correct name; c) what is, to the best of our knowledge, the distribution area of this entity. For these purposes we have seen several type-specimens of the above mentioned entities and other exsiccata from NA, FI, G, HE, UPPS. At the same time we have made a detailed investigation on morphology, micromorphology, anatomy and karyology of various wild Italian specimens of *V. hirsuta* and of the specimen found in the Circeo National Park of this other controversial entity.

Taxonomy and nomenclature

As said above, a specimen collected by one of the authors in the Circeo National Park, the seeds of which, during four years of cultivation, produced the same identical plants (Fig. 2), according to BALL's analytical key (1968), resulted as *V. meyeri.* Isosyntypes of this entity are deposited in several herbaria, among which G and FI (Fig. 3A, B), but this plant, according to this last author, does not exist in Italy. Since some specimens similar to these isosyntypes, collected near Naples (Italy) by Terrone have been described by TENORE (1826) as *E. terronii,* the type-specimen of this taxon, deposited in G, was also viewed (Fig. 4A). Recently WRABER (1981) stated that the correct nomenclature for *V. meyeri* is *V. loiseleurii* (M. Bieb.) Litw. but, though this author has viewed many specimens, he did not see M. Bieberstein's holotype and trusted Litwinov for the identification. Therefore the holotype of *E. loiseleurii* was requested by us on loan from LE; unfortunately only a photograph of an incomplete specimen was obtained (Fig. 4B, C), but another specimen of *E. loiseleurii,* collected by M. Bieberstein in the Caucasus, was found in FI (Fig. 5A, B). By comparison of these specimens it seems clear that, though the holotype of *E. loiseleurii* does not show all its diagnostic characters well, the other specimen collected in the Caucasus by the same author (as demonstrated by the same handwriting on the labels), clearly shows all the diagnostic features exactly as the isosyntypes of *V. meyeri* (Fig. 3A, B), and therefore is cospecific with this entity. Thus the opinion of LITWINOV (1932), who stated that the material of M. Bieberstein's original description of *E. loiseleurii* is cospecific with the specimens named subsequently *V. meyeri* by Boissier, may be confirmed, as well as the statement of LEDEBOUR'S (1842) according to whom the material described with the name *E. loiseleurii* M. Bieb. includes both the material of M. Bieberstein's original description and the specimens which later were quoted by Boissier for *V. meyeri.* From these observations it is also clear that M. BIEBERSTEIN's (1819) original description contains a printing mistake, and that the Protologue of *E. loiseleurii:* "E. pedunculis subbifloris..., leguminibus glabris tetraspermis, ...", must be corrected to "glabris dispermis" (sphalm. "tetraspermis"). Obviously, the epithet "loiseleurii", having been published earlier than the epithets "terronii" and "meyeri", deserves priority over these last two epithets. The holotype of *E. terronii,* found in G (Fig. 4A), furthermore, does not bear ripe legumes and shows longer peduncles than the type-specimens of *E. loiseleurii (= V. loiseleurii)* or *V. meyeri;* it is not, therefore, perfectly cospecific with them.

Consequently we believe, concurring with WRABER (1981), that the right name for all the material described with the binomial *V. meyeri* ought to be *V. loiseleurii* (M. Bieb.) Litw.

The holotype of *V. hirsuta* var. *terronii* Burn. (described by BURNAT, 1896), on the contrary, shows a plant with only a few differential characters from *V. hirsuta;* we believe, therefore, that it may be separate from *V. hirsuta* only at infraspecific level, and accept Burnat's nomenclature; in this case we do not agree with WRABER (1981), who records *V. hirsuta* var. *terronii* in synonymy with *V. loiseleurii.*

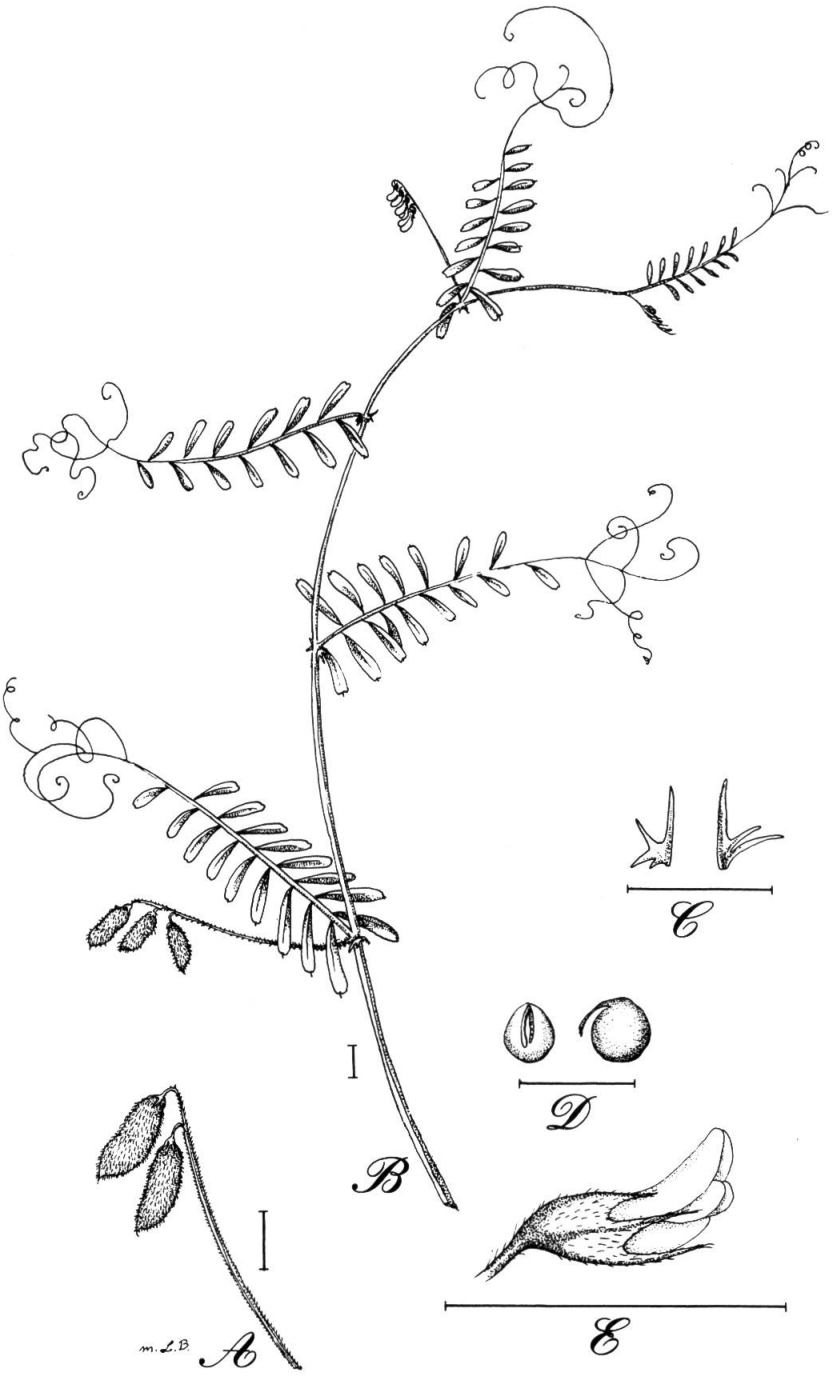


Fig. 1. — *Vicia hirsuta* (L.) S. F. Gray
A, ripe inflorescence with two legumes; **B,** branch; **C,** stipules; **D,** seeds; **E,** flower. Scale = 5 mm.

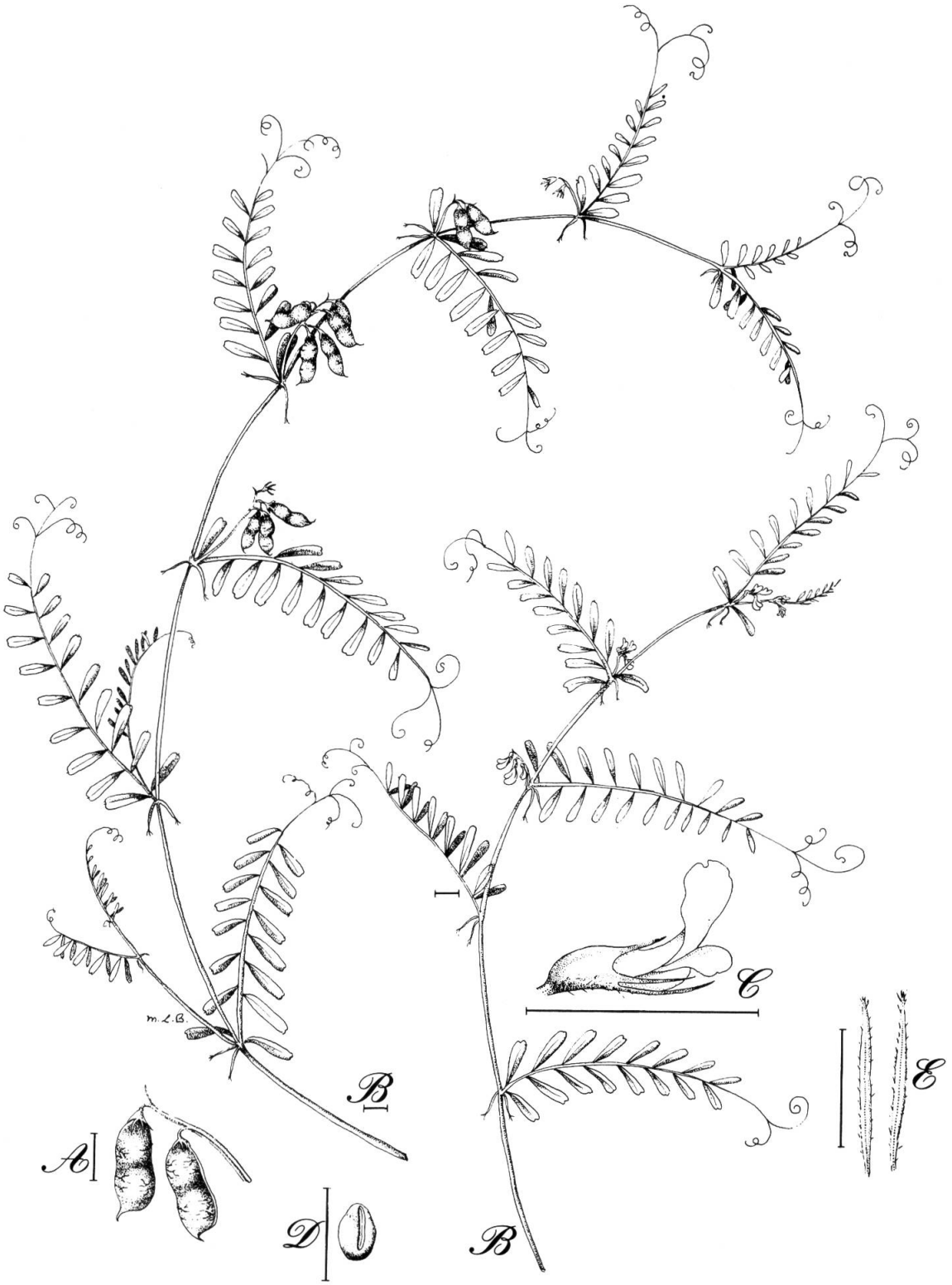


Fig. 2. — *Vicia loiseleurii* (M. Bieb.) Litw.
A, ripe inflorescence with two legumes; **B,** branches; **C,** flower; **D,** seed; **E,** stipules. Scale = 5 mm.

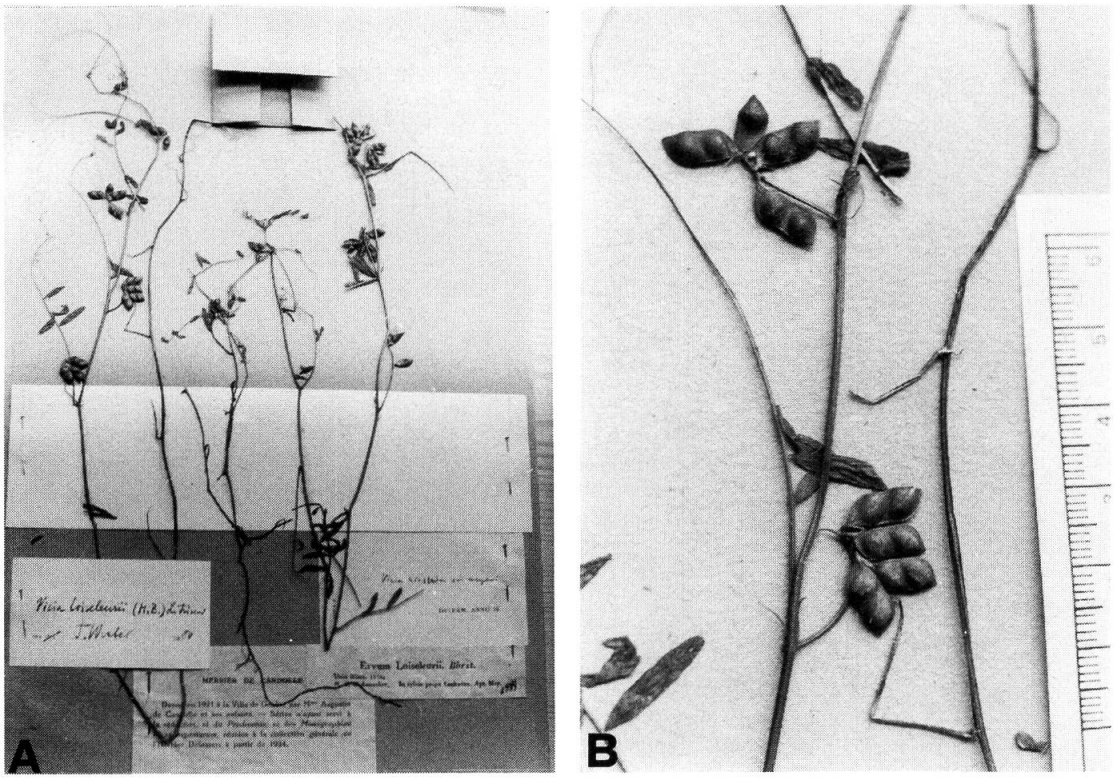
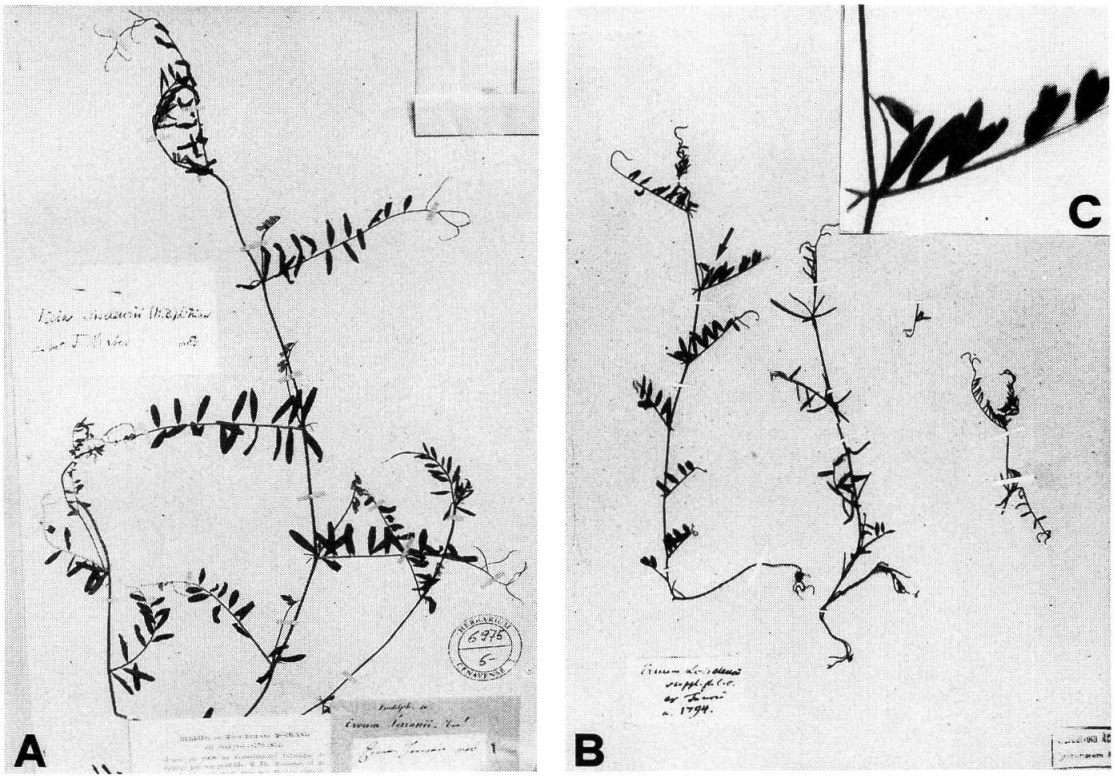


Fig. 3. — **A,** *Vicia meyeri* Boiss. (lectotypus); **B,** detail of A.

Fig. 4. — **A,** *Vicia terronii* (Ten.) Lindb. (= *Ervum terronii* Ten.) (holotypus); **B,** *Vicia loiseleurii* (M. Bieb.) Litw. (= *Ervum loiseleurii* M. Bieb.) (holotypus); **C,** detail of B.



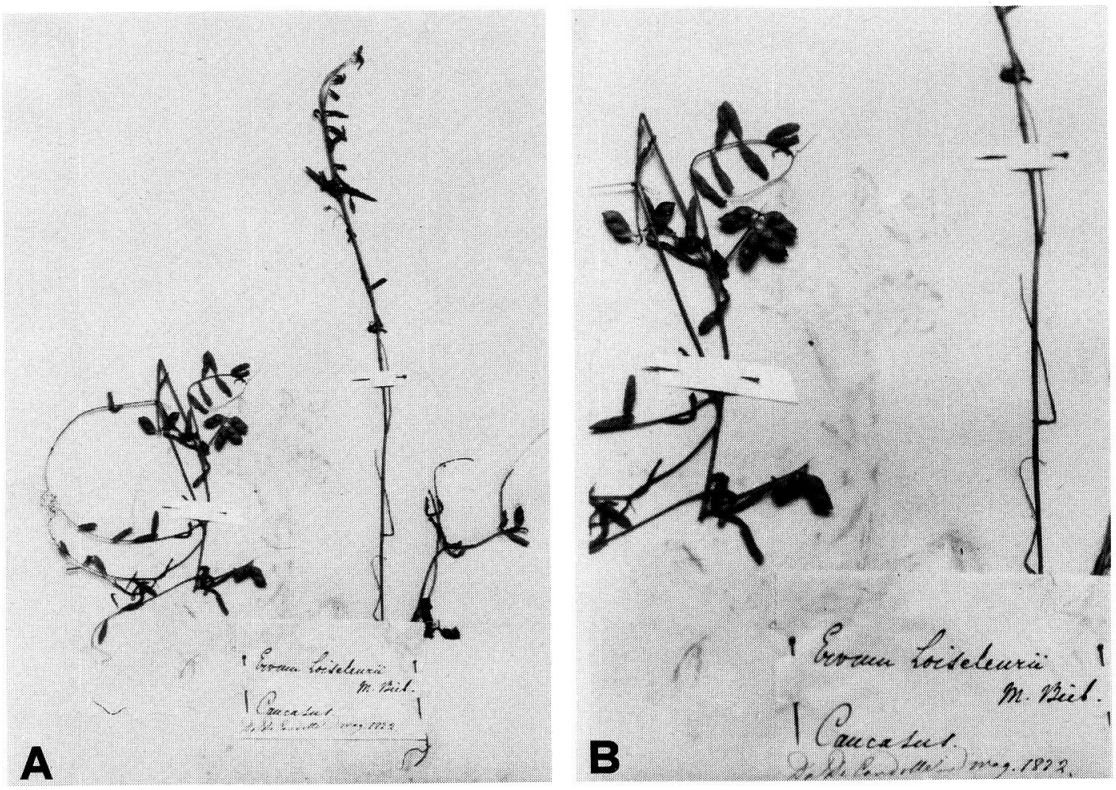


Fig. 5. — **A,** specimen of *Vicia loiseleurii* (M. Bieb.) Litw. collected by M. Bieberstein in the Caucasus; **B,** detail of A.

Material and methods

The material consisted of exsiccata viewed in various herbaria and of specimens collected in the wild; only in one case it consisted of seeds, also collected in the wild. The exsiccata observed and the specimens collected are listed in Table 1. When the material studied in detail consisted of seeds, and also in the case of the Italian specimen of *V. loiseleurii,* some of these were sown in pots in order to obtain plants, that could produce dry voucher specimens, and, at the same time, account for their correct taxonomy and nomenclature. Morphological observations were made on the whole plants, while anatomical and micromorphological analyses were made on the seeds: for anatomical study the seeds were fixed overnight in FAA or 50% ethanol, then dehydrated in an ethanol graded series and embedded in JB4 resin (BRINN & PICKETT, 1979) in BEEM capsules and then sectioned at ± 10 μm with a Reichert Om U2 ultramicrotome equipped with a glass knife. The sections were then stained with periodic acid-Schiff (PAS) (PEARSE, 1985). For micromorphological observations using SEM, the seeds were dipped in an ethanol graded series until absolute alcohol, coated with a layer of gold and photographed with a JSM-V3 SEM at 25 KeV in the central part, far from the hilum.

Autofluorescence was examined on the whole seeds, under a Leitz fluorescence microscope equipped with H2 filter block (390-490 nm excitation and 510-515 nm barrier filters).

For karyotype analysis root tips from germinated seeds were pretreated either with a 0.2-0.4% aqueous solution of colchicine or a saturated aqueous solution of α-bromonaphtalene, fixed in aceto-alcohol (1/3), hydrolised with HCl 1N at 60° for 6-10', then stained with Gomori's hematoxylin (MELANDER & WINGSTRAND, 1953), and squashed on to permanent slides, vouchers of which are kept in the Genova Botanic Institute. About 120 metaphase plates were observed for each population, about 30 of these were suitable for chromosome counts and about eight of the more uniformly contracted plates were photographed for chromosome study. Idiograms were drawn from the mean value of the total, short and long arm lengths, the length of satellites, when present, being

Entity	*Locality*	*Voucher specimen*	*Herbarium*
Vicia hirsuta	Norway, Hardanger, Granvin	Selland s.n.	GE
	Great Britain, near Bristol	Bucknall s.n.	GE
	France, Corsica, Ghisonaccia	Bicknell s.n.	GE
	Italy, Liguria, near Savona	Roti-Michelozzi & Aita 800422	** GE
	Italy, Liguria, Stella S. Martino	Roti-Michelozzi 870702	* GE
	Italy, Liguria, Varazze	Aita 800515	GE
	Italy, Liguria, near S. Stefano d'Aveto	Gentile 830625	* GE
	Italy, Liguria, Riva Trigoso	Roti-Michelozzi 870526	* GE
	Italy, Liguria, Levanto	Roti-Michelozzi 840614, 850523	** GE
	Italy, Lazio, S. Felice Circeo	Roti-Michelozzi 840530	** GE
	Italy, Lazio, Lago di Paola	Roti-Michelozzi 840530	GE
	Italy, Sicilia, Catania, S. Agata	Roti-Michelozzi 870521	* GE
	Rumania, near Hermannstadt (Sibiu)	Barth s.n.	GE
Vicia loiseleurii	Spain, Guipuzcoa Region	Gandoger s.n.	G
	France, Charente Inf., near S. Agnant	Foucaud s.n.	G
	France, Isles Hyères	Schuth s.n.	G
	Italy, Sardegna, Arizzo	Moris s.n.	G, FI
	Italy, Emilia, Faenza	Caldesi 238 bis	G
	Italy, Lazio, Circeo National Park	Roti-Michelozzi 840531, 870602	** GE
	Jugoslavia, Istria, near Pola	Pichler s.n.	G
	Jugoslavia, Dalmatia, Meleda Island	Lindberg s.n.	HE
	URSS, Crimea, near Jalta	Golde s.n.	G
	URSS, Azerbajdzan, Caucasus	Hohenacker s.n.	G
	URSS, Azerbajdzan, Caucasus	Marschall von Bieberstein s.n.	FI
	URSS, Azerbajdzan, Talys Mounts	Hohenacker s.n.	G
	URSS, Azerbajdzan, near Lenkoran	Hohenacker s.n.	G, FI

Table 1. — Source localities, voucher specimens and herbaria of the material studied. Specimens studied in detail from the karyological point of view are marked with two asterisks; only for chromosome number marked with one asterisk.

included within the measurements. The karyotypic formula (following LEVAN & al., 1964), mean value of the complement length and the karyotype index of symmetry (IS according to LADIZINSKY, 1978) were provided for each Italian karyologically investigated population.

Morphology, anatomy and micromorphology

The main differences observed by us between the related entities *V. hirsuta* and *V. loiseleurii* may be pointed out as follows:

V. hirsuta	*V. loiseleurii*
— Stipules semihastate, often dentate, 1-3 mm long, glabrescent (Fig. 1C).	— Stipules linear, 4-7 mm long, ciliate at margins but mostly at the apex (Fig. 2E).
— Ripe inflorescence peduncles 1/3-2/3 of the length of the subtending leaf, generally awnless at the end (Fig. 1B).	— Ripe inflorescence peduncles 1/10-1/4 of the length of the subtending leaf, ending in a ± long awn (Fig. 2B).
— Calyx tube about the same length of the calyx teeth (Fig. 1E).	— Calyx tube generally much shorter than the calyx teeth (Fig. 2C).
— Ripe legumes about 7-9 mm long, about 1/3 of their length wide, veinless and hardly swollen above the seeds, generally pubescent-hirsute, gray to blackish (Fig. 1A).	— Ripe legumes about 10 mm long, about 1/2 of their length wide, veined and very swollen above the seeds, absolutely glabrous, hazel or brown coloured (Fig. 2A).
— Seeds sphaeroidal, about 2 mm in diameter, provided with a persistent indurate funiculus, straw or pale gray speckled (Fig. 1D), autofluorescent (Fig. 7A, B).	— Seeds ovoidal, about 2.5 × 2.8 mm, deprived of a persistent indurate funiculus, dark brown or black (Fig. 2D), not autofluorescent (Fig. 7A, B).
— Seeds showing a "lophate" exotesta ornamentation (LERSTEN, 1981) by SEM observation (Fig. 6A).	— Seeds showing a "papillose" exotesta ornamentation (LERSTEN, 1981) by SEM observation (Fig. 6B).
— Height and width of far from hilum palisade cells (mean value of 50 cells) 37.62 × 8.51 μm (Fig. 7C).	— Height and width of far from hilum palisade cells (mean value of 50 cells) 54.87 × 9.70 μm (Fig. 7D).

Karyology

Vicia hirsuta (L.) S. F. Gray (Fig. 8A-A', B-B', C-C')

The chromosome number was $2n = 2x = 14$ in all the specimens studied, confirming previous records (ROHWEDER, 1938; SENN, 1938; SRIVASTAVA, 1963; CHOOI, 1971; FERNANDES & SANTOS, 1971; KOZUHAROV & al., 1972; YAMAMOTO, 1973; KUTA, 1980; KIRSCHNER & al., 1982; TERZIISKI & DIMITROV, 1983). Only TATUNO & KODAMA (1965) reported $2n = 28$ for material from root nodules and SAREEN & TREHAN (1976) quoted $2n = 12$ for material from India.

In contrast to what has been noted in Bulgaria (TERZIISKI & DIMITROV, 1983), where no variation was found in the karyotype of the specimens collected from five populations, Italian specimens displayed variable karyotypical morphology. Therefore, while for the Bulgarian populations a single idiogram was shown, three different idiograms (Fig. 8 A', B', C') and karyotypic formulae were obtainable for the Italian populations. Also the complement lengths and the indexes of symmetry varied, as follows:

Collection locality	*Karyotypic formula (LEVAN & al., 1964)*	*Complement length* (μm)	*IS (index of sym.)*
Near Savona	6m + 2sm + $2m^{s}$ + 2m + 2sm	67.04	0.67
Levanto	6m + 2sm + 2m + 4sm	49.04	0.59
S. Felice Circeo	8m + 2st + 2m + $2sm^{s}$	62.44	0.59

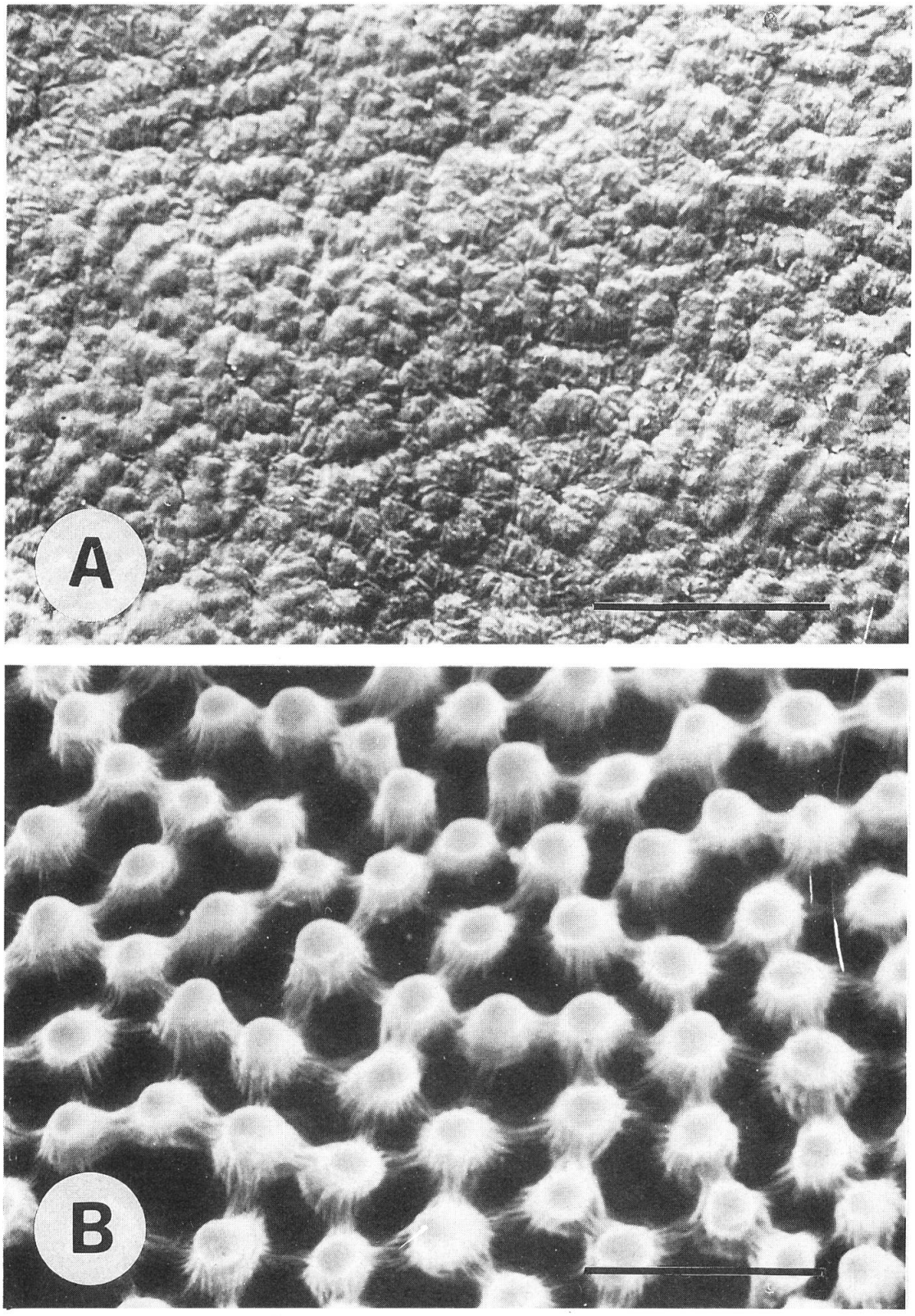


Fig. 6. — SEM photographs of seed surfaces: **A,** *Vicia hirsuta;* **B,** *Vicia loiseleurii.* Scale = 10 µm.

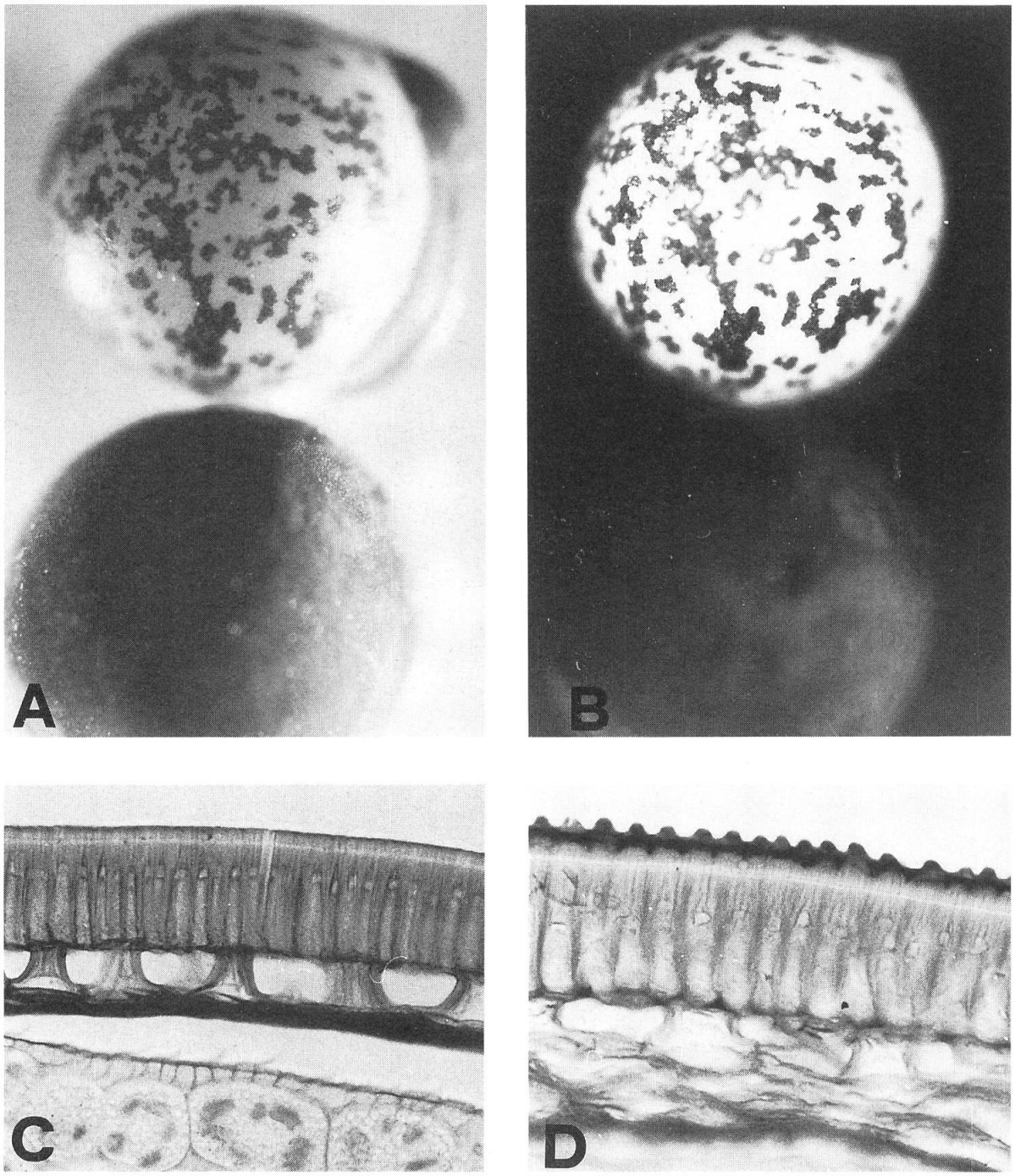


Fig. 7. — **A, B,** whole seeds of *Vicia hirsuta* (upper seed) and *Vicia loiseleurii* (lower seed); **A,** light microscopy; **B,** fluorescent microscopy (× 25); **C, D,** anticlinal seed testa transections; **C,** *Vicia hirsuta;* **D,** *Vicia loiseleurii* (× 300).

The karyotype of the specimens from central Italy was provided with one pair of subtelocentric chromosomes ("st" chromosomes, according to LEVAN & al., 1964, in fifth position), a rather rare feature in the whole section *Ervum.* Another differential character in the karyotypes of the three Italian populations of *V. hirsuta* concerned the SAT-chromosome pair. In fact only the specimens collected in central Italy were provided with satellited chromosomes in seventh position, and very small satellites attached to the short arm, consistent with the findings of SRIVASTAVA (1963) for *V. hirsuta.* The other specimens from northern Italy showed a different position of the nucleolar constrictions or even lacked satellites (Fig. 8A-A', B-B'). Actually also the idiograms from several previous accounts on *V. hirsuta* karyotypes (SRIVASTAVA, 1963; CHOOI, 1971; YAMAMOTO, 1973; KUTA, 1980; TERZIISKI & DIMITROV, 1983) differed from each other mostly because of the position of the nucleolar organizing chromosomes: the idiogram drawn by Chooi lacked satellites, Kuta's idiogram showed only one satellited chromosome in sixth position, in Srivastava's idiogram the satellited chromosomes were the shortest while in Yamamoto's these were the longest.

The constant traits in the chromosome morphology of the *V. hirsuta* Italian specimens were the arm ratio of the three longest chromosome couples (with "r" value between 1.25 and 1.50, "m" chromosomes following LEVAN & al., 1964) and of the smallest couple of chromosomes (with "r" value between 2.50 and 2.60, chromosomes "sm", always according to LEVAN & al., 1964). The variability in morphology of the chromosomes noticed in the Italian populations, as well as in specimens found elsewhere, is often recorded in species with a wide geographical distribution, such as *Allium moschatum* and *Allium cupanii* (TZANOUDAKIS, 1983). With respect to the absence of satellites in the karyotype of some populations, such as the *V. hirsuta* population from Levanto, this fact could be due to mobile NORs like those present in *Allium cepa* and *Allium fistulosum* hybrids (SCHUBERT, 1984). Many chromosomes without secondary constrictions, in fact, due to the parallel occurrence of corresponding nucleoli at interphase, may contain RNA genes.

Vicia loiseleuri (M. Bieb.) Litwinov (Fig. 8D-D').

Also for *V. loiseleurii* the chromosome number was $2n = 2x = 14$. The karyotype of the Italian specimen of *V. loiseleurii* showed these differences from the karyotypes of the Italian specimens of *V. hirsuta:* it was provided with large satellites attached to the short arm of the fourth pair of chromosomes, it displayed heterozygosity in the longest couple of chromosomes because (in all the metaphase plates) the short arms were one shorter than the other and because the arm ratio of the smallest couple of chromosomes was equal (or very near) to 1 (chromosomes "M" following LEVAN & al., 1964). The karyotypic formula was: 4m + 2sm + 2m^s + 2sm + 2M; the complement length was 55.30 μm and the total index of symmetry (IS) was 0.63.

This species has been previously studied (sub *V. meyeri*), from the karyological point of view, by METTIN & HANELT (1968), CHOOI (1971) and TERZIISKI & DIMITROV (1983). Mettin and Hanelt did not provide an idiogram; the idiograms shown by the other authors differ from the one obtained by us mainly regarding the position of the satellited chromosomes, in third position according to Chooi and in second position according to the Bulgarian authors. However, on the whole, the karyotype of this entity, as described by the above mentioned authors, shows similar traits to the karyotype studied in the Italian specimen. In fact their idiograms exhibit four pairs of long metacentric chromosomes, the shortest couple of chromosomes with arm ratio equal or very near to 1 ("M" chromosomes) and large satellites on the short arm of a long pair of chromosomes; the long metacentric chromosomes are about the same length and therefore there can easily be a "reversal of order" in the satellited chromosomes, such as has been noted by MATÈRN & SIMAK (1968) in the karyotype of *Larix,* and also by ROTI-MICHELOZZI (1986) in the karyotypes of the *Vicia villosa* complex.

Discussion and concluding remarks

From the results obtained by our investigation it is clear that the taxonomic rank deserved by the specimen collected by us in the Circeo National Park is at specific level. The characters by which it may be separated from *V. hirsuta* are in fact several, and concern morphology, micromorphology, anatomy and karyology, and were constantly observed during four years cultivation. From the mor-

phological and micromorphological points of view, the most prominent differences were found in the legumes and particularly in the seeds. Seed morphology and exotesta microsculpturing have often been overlooked in the original descriptions, while they may provide useful tools in taxonomic studies. In the tribe *Vicieae* LERSTEN (1981) and LERSTEN & GUNN (1982) pointed out the importance of seed characters (including external seed coat pattern under SEM observation) in the systematics of various *Vicia* species; in the genus *Vicia* the morphology and anatomy of seeds, together with their testa external microtopography, have been recently used (ROTI-MICHELOZZI & SERRATO-VALENTI, 1986) for taxonomical purposes in Italian entities of the section *Ervum.* In the case of *V. loiseleurii,* MARSCHALL VON BIEBERSTEIN (1819) and the recent Flora authors (BALL, 1968; PLITMANN, 1970) did not mention the seeds at all; both TENORE (1826) and BOISSIER (1872) merely observed that the seeds are rather flattened, or their colour, or even the ratio between hilum and circumference length, but not that they are deprived of a persistent indurate funiculus, which is a typical seed character of the related species *V. hirsuta.* TERSIJSKI & DELIPAVLOV (1985), on the contrary, noticed this fact and even the presence of a different ornamentation pattern on the seed surface of *V. loiseleurii* (sub *V. meyeri*) and *V. hirsuta.* In agreement with these authors also we have noted in the observed dry specimens of *V. loiseleurii* seeds with a "papillose" ornamentation pattern (terminology according to LERSTEN, 1981), as has been noted in the seeds of the Circeo Nat. Park specimen (Fig. 6B). The specimens of *V. hirsuta* showed, on the contrary, seeds with a "lophate" ornamentation pattern (Fig. 6A). The displaying of a "papillose" seed testa pattern has been recorded by LERSTEN & GUNN (1982) in three species of the section *Cracca* of genus *Vicia* and by ROTI-MICHELOZZI (1984) in the *Vicia cracca* complex. This fact could support KUPICHA's classification (1976), according to which *V. loiseleurii* (sub *V. meyeri*) belongs to the section *Cracca,* instead of being included in the section *Ervum,* as has been stated by BALL (1968) or by PLITMANN (1970). Moreover the anatomical observation of seed transections pointed out the morphological difference between the palisade cells of the seeds of these two entities, namely the greater height and width of these cells in *V. loiseleurii* (Fig. 7C, D). Besides all the seeds of this entity were larger than those of *V. hirsuta* and weighed nearly double the latter (weight of 100 seeds, selected at random, of *V. hirsuta* = 0.578 g, and of the same amount of seeds, always selected at random, of *V. loiseleurii* = 0.991 g); again, the whole seeds of *V. hirsuta* were autofluorescent, while those of *V. loiseleurii* were not autofluorescent (Fig. 7A, B). These three last differential characters were noticed for the first time by us.

Some other differential morphological characters, such as long linear stipules in *V. loiseleurii* and short dentate or semihastate stipules in *V. hirsuta* were constantly noticed, while the ratio between inflorescence peduncle and the subtending leaf were more variable in some specimens of *V. loiseleurii.* Probably some transitional forms between the first and second entity exist, and this fact could account for the presence, sometimes, of specimens of *V. hirsuta* with glabrous pods, or of plants determined as the variety "terronii" of *V. hirsuta* described by BURNAT (1986).

From the karyological point of view our investigation brings other evidence to the differences noted in the morphology, anatomy and micromorphology of the studied specimens belonging to *V. loiseleurii* and *V. hirsuta,* and therefore confirms the validity of considering them separate at specific level. The karyotype of the Italian specimen of *V. loiseleurii* is very similar to the karyotypes found by former authors in specimens of *V. meyeri (= V. loiseleurii)* collected in countries of the Eastern European area, which could reveal a relatively stable genome in this entity.

To conclude, we believe that *Vicia loiseleurii* (M. Bieb.) Litw. is a rather rare entity, validly separate at specific level from *Vicia hirsuta* (L.) S. F. Gray; the correct name for the plant, found by us in the Circeo Nat. Park, that shows all the same diagnostic features of the specimens collected by Marschall von Bieberstein and by him named *Ervum loiseleurii* (since 1819), is *Vicia loiseleurii* (M. Bieb) Litwinov, and with this name the specimens, with all the characters described above, ought to be quoted; moreover the distribution area of *V. loiseleurii* is not only restricted to a small number of stations surrounding the Black Sea, but also includes isolated stations in Spain, France, Italy and Jugoslavia (Fig. 9). The fragmentation of its distribution area suggests that this species is of ancient origin.

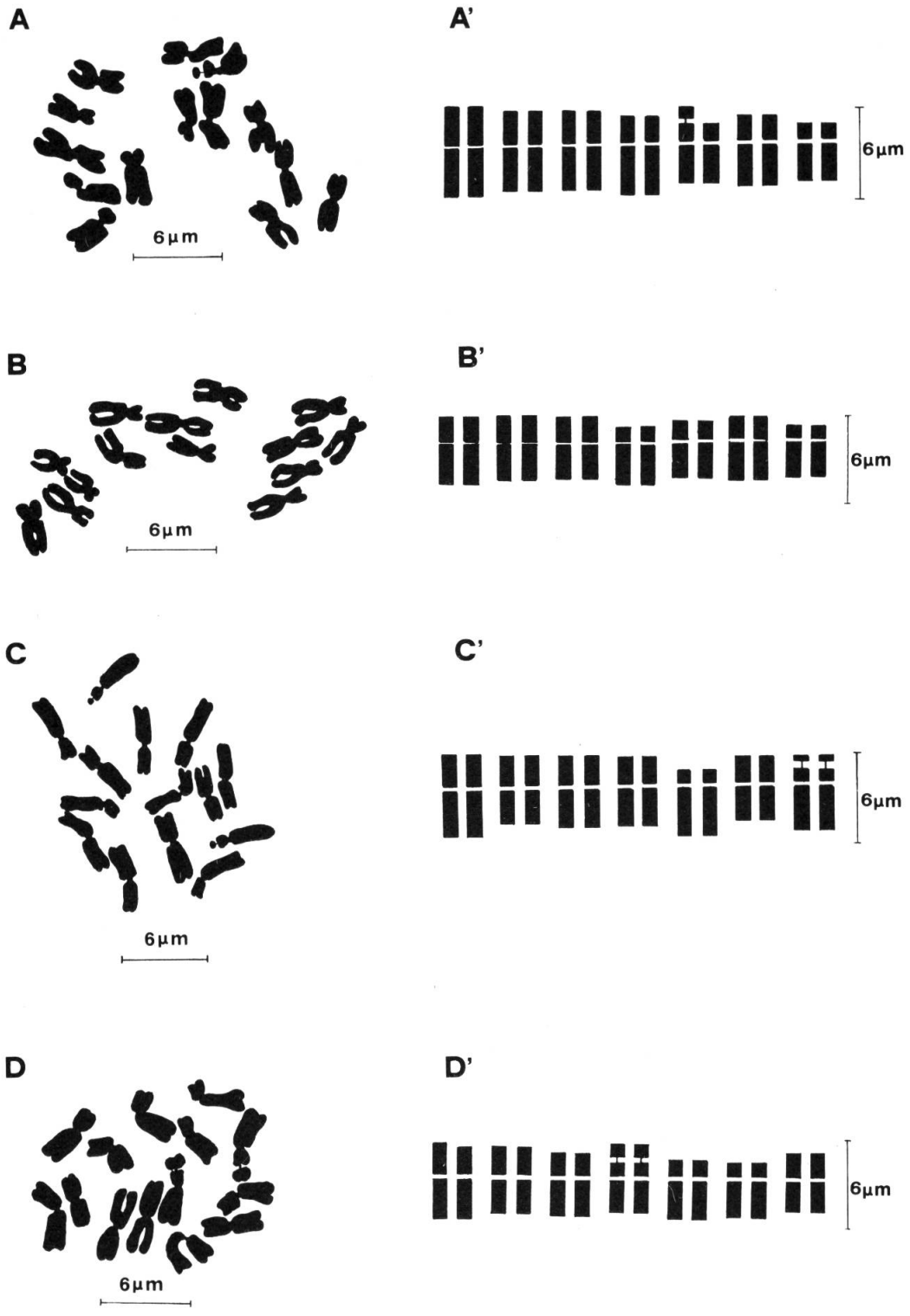


Fig. 8. — Metaphase plates and idiograms: **A-C,** *Vicia hirsuta;* **A-A',** Savona specimens; **B-B',** Levanto specimens; **C-C',** S. Felice Circeo specimens; **D-D',** Circeo National Park specimen of *Vicia loiseleurii.*

Fig. 9. — Distribution area of *Vicia loiseleurii,* based on specimens observed (stars) or on very detailed descriptions (from TERSIJSKI & DELIPAVLOV, 1985 and WRABER, 1981) (dots).

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