Chromosome numbers of plants collected during Iter Mediterraneum I in the SE of Spain

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The somatic chromosome numbers for 156 taxa of Angiosperms collected during the 1st OPTIMA expedition have been studied. 10 of these do not appear to have previously been studied karyologically, and 34 are studied for the first time on Spanish material. 11 counts differ from earlier records. Comments are made on some plants, particularly *Buglossoides arvensis* (L.) I. M. Johnston, *Camelina microcarpa* Andrz. ex DC., *Thlaspi perfoliatum* L., *Minuartia hybrida* (Vill.) Siskin, *Moehringia intricata* Willk., *Montia fontana* L. and *Viola kitaibeliana* Schultes.

Introduction

The 1st OPTIMA expedition, Iter Mediterraneum I, (SE Spain, June 1988), resulted in the collection of over 3.000 numbers of vascular plants. Upon advice of the organizers, the authors sampled a good number of seed portions from the duplicates now included in the Herbarium of the Department of Plant Biology and Ecology (formerly Department of Botany), University of Sevilla (SEV), and succeeded in studying karyologically 156 of the taxa collected, belonging to 28 families and 107 genera. The results are summerized here, and constitute an important contribution to the karyological study of the flora of Eastern Andalucia.

Material and methods

The collecting sites of the material are indicated in Appendix 1.

Chromosome numbers were counted on root tips from seeds germinated in Petri dishes. The root tips were treated with 0,002 M 8-hydroxyquinoline for 3-3,5 hours, fixed in Farmer's fluid (Löve & Löve 1975) for 24 hours and preserved in 70% ethanol at 4 ± 2° C.

The material was stained in cold alcoholic hydrochloric acid carmine solution (Snow 1963) for 24-48 h, then squashed and mounted in 45% acetic acid.

Voucher specimens are deposited in the Herbarium of the Department of Plant Biology and Ecology of Seville (SEV) under the Iter Mediterraneum collection numbers mentioned in Appendix 2.

Results

The results are summarized in Appendix 2, where the origin of the material is indicated for each specimen by means of the corresponding locality number (see Appendix 1). The chromosome numbers counted, as well as references to previous records for the same taxa, are included in Appendix 2. The presumably new counts are indicated by an asterisk in the references column.

Discussion

Some comments are included in the case of chromosome numbers differing from previous counts for the same taxa, in the case of taxa presumed to have been studied kariologically for the first time, and in the case of those for which apparently no Spanish material has been previously studied.

Apiaceae

* ***Daucus duriena*** Lange in Willk. & Lange, Prodr. Fl. Hisp., 3: 23 (1874).

The somatic number found, $2n = 22$, agrees with that indicated by Silvestre (1986) for plants from Barcelona and Cádiz. The number $2n = 20$ has also been indicated of this species (see App. 2), for populations from the western half of the Iberian Peninsula.

Asteraceae

* ***Centaurea sphaerocephala*** L. subsp. ***malacitana*** (Boiss.) I. Dostál Bot. I. Linn. Soc. 71: 204 (1976) (Fig. 6).

This is, apparently, the first chromosome count for this subspecies. The same number, $2n = 22$, was indicated for subsp. *polyacantha* (Willd.) Dostál by Fernandez & Queirós (1971), Valdés (1973) and Valdés-Bermejo (1979).

* ***Filago lutescens*** Jordan, Obs. Pl. Crit. 3: 201 (1846) (Fig. 8).

This is, presumably, the first chromosome count for this species based on Spanish plants.

* ***Hedypnois cretica*** (L.) Dum.-Courset, Bot. Cult. 2: 339 (1802) (Fig. 10).

As indicated by Luque (1983) and other authors, several chromosome numbers have been indicated for this species. The diploid number $2n = 14$ found in this study for plants from Málaga province agrees with that reported by Löve & Kjellqvist (1974b) for Spanish plants from Jaén; it differs, however, from the number $n = 8$ found by Luque (1983) for plants from Sevilla province.

* ***Hieracium loscosianum*** Scheele, Linaea 32: 668 (1863) (Fig. 4).

This species was previously univestigated.

* ***Hypochoeris radicata*** L., Sp. Pl. 811 (1753).

The chromosome number found agrees with that ($2n = 8$) indicated by several authors for this species (see Luque & al., 1984). A deviating number, $2n = 28$, was reported by Van Loon & De Jong (1978) for plants from Portugal.

* ***Lapsana communis*** L., Sp. Pl. 811 (1753) (Fig. 2).

For this widely distributed species, the chromosome numbers $2n = 12$, 14 and 16 have been given (see App. 2). The plants from Jaén studied have $2n = 16$, which does not agree with the numbers found by Fernandes & Queirós (1971) and Mejías (1986) in other populations from the Iberian Peninsula.

* ***Leontodon salzmannii*** (Schultz Bip.) Ball. Linn. Soc. London (Bot.) 16: 545 (1878) (Fig. 5).

As far as the authors are aware of, this is the first karyological study of this species.

* ***Leysera leyseroides*** (Desf.) Maire, Bull. Soc. Hist. Nat. Afr. Nord. 20: 186 (1929) (Fig. 7).

This is, presumably, the first chromosome count for this species.

* ***Phagnalon sordidum*** (L.) Reichenb., Fl. Germ. Excurs. 224 (1831) (Fig. 12).

The chromosome number found, $2n = 18$, agrees with that reported by Djerdjour & Guittonneau (1976) for material from Algeria. It seems to be the first karylogical study of this species based on Spanish material.

* ***Pichris echioides*** L., Sp. Pl. 792 (1753) (Fig. 11).

The chromosome number found, $2n = 10$, agrees with that indicated by several authors (see App. 2), but it appears to be the first karyological study for Spanish plants of this species.

* ***Pichris hispanica*** (Willd.) P.D. Sell., Bot. Linn. Soc. 71: 248 (1976).

This species seems not to have been investigated previously.

* ***Rhagadiolus edulis*** (L.) Gaertner, Fruct. Sem. Pl. 2: 354 (1971) (Fig. 9).

The diploid number found, $2n = 10$, agrees with that indicated by several authors (see App. 2). The species was studied from Portugal by Fernandes & Queirós (1971), as *R. stellatus* (L.) Gaertner var. *edulis* (Gaertner) DC., but this is the first karyological study on Spanish plants.

* ***Senecio minutus*** (Cav.) DC., Prodr. 6: 346 (1838) (Fig. 1).

This is, presumably, the first chromosome count for this endemic species of C and S Spain.

* ***Xeranthemum inapertum*** (L.) Miller, Gard. Dict. ed. 8, n. 2 (1768) (Fig. 3).

No reference has been found by us to previous chromosome counts for this species.

Boraginaceae

* ***Buglossoides arvensis*** (L.) I.M. Johnson subsp. ***permixta*** (Jordan & F.W. Schultz) R. Fernandes, Bot. Linn. Soc. 64: 379 (1971) (Fig. 16).

In *Buglossoides arvensis* several ploidy levels with the basic number $x = 7$ have been indicated (Luque & Valdés, 1984) the plants of this subspecies being tetraploid, with $2n = 28$. This chromosome number has been found also in *B. arvensis* s.l., and unless that the count by Löve & Kjellqvist (1974b) from Jaén turns out to belong to this subspecies, this is the first karyological study of it based on Spanish plants.

* ***Mysotis minutiflora*** Boiss. & Reuter, Pugillus 80 (1852).

This is a tetraploid species with a basic number $x = 12$. This number is very common, not only in *Mysotis* but in several members of the tribe *Eritrichieae* (Luque, ined.). The somatic number found agrees with that indicated by Grau (1968a) for plants from the Sierra Nevada (Granada).

* ***Mysotis stricta*** Link ex Roemer & Schultes, Syst. Veg. 4: 104 (1819).

The numbers $2n = 36, 48$ and $n = 11$ have been given for this species (see App. 2). The diploid number found, $2n = 48$ agrees with that indicated by Grau (1968a) and Blaise (1975). This is, presumably, the first karyological study of this species based on Spanish material.

Brassicaceae

* ***Aethionema saxatile*** (L.) R. Br. in Aiton, Hort. Kew. ed. 2,4: 80 (1812).

According to Anderson & al. (1983), the basic chromosome number of this species is $x = 6$. Consequently, it has three ploidy levels: tetraploid, with $2n = 24$, hexaploid, with $2n = 36$ and octoploid, with $2n = 48$ (see App. 2). The chromosome number found in this study, $2n = 48$, agrees with that reported by Küpfer (1972, 1974) for plants from Palencia and Huescan and confirms the presence of octoploid populations in Spain.

* ***Alyssum simplex*** Rudolphi, Bot. (Schrader) 2: 290 (1799).

The chromosome number found, $2n = 16$, agrees with that previously indicated by several authors (see App. 2) for this widely distributed Mediterranean and Irano-Turanian species. However, it differs from the number $2n = 24$ indicated by Ghaffari & Chariat-Panahi (1985, sub *A. minus* (L.) Rothm.) for Iranian plants.

* ***Arabidopsis thaliana*** (L.) Heynh. in Holl & Heynh., Fl. Sachs. 538 (1842).

This is, presumably, the first karyological study of Spanish plants of this species.

* ***Biscutella megacarpaea*** Boiss. & Reuter var. ***variegata*** (Boiss. & Reuter) Hernández Bermejo & Clemente Múñoz, Lagascalia 14: 200 (1986) (Fig. 18).

The chromosome number $2n = 54$ has been indicated for *B. megacarpaea* and for *B. variegata* var. *variegata* by Olowokudejo & Heywood (1984). Recently the last taxon has been transferred to *B. megacarpaea*. The number we found is the same, $2n = 54$.

* ***Camelina microcarpa*** (Andrz. ex DC.), Reg. Veg. Syst. Nat. 2: 517 (1821). [=*C. sativa* (L.) Crantz subsp. *microcarpa* (Andrz. ex DC.) Thell in Hegi, Ill. Fl. Mitteleur. 4: 370 (1916)]

The chromosome number found, $2n = 26$, does not agree with those indicated by several authors for this specie (see App. 2). Podlech & Dieterle (1969) stated that all *Camelina* species so far studied shared the same chromosome number, $2n = 40$. However, Ancev (1981) has indicated $2n = 26$ for Bulgarian plants of *C. sativa* (L.) Crantz., and this number has equally been found in *C. rumelica* Velen. by Strid & Franzen (1981). Consequently, within *Camelina* two different chromosome number occur, $2n = 26$ and $2n = 40$, and a more accurate study of the genus, both karyological and morphological, is needed to delimit more clearly the different taxa and to establish for each its correct chromosome number.

* ***Cardamine flexuosa*** With., Arr. Br. Pl. ed. 3: 578 (1796).

The somatic number found, $2n = 32$, agrees with that indicated previously by several

authors (see App. 2). The number $2n$ = c.50, as given by Lövkvist (1963, sec. Moore, 1982), must be considered as erroneous. This is, presumably, the first karyological study of Spanish plants of this species.

* ***Clypeola jonthlaspi*** L. subsp. ***microcarpa*** (Moris) .. .ngeli, Comp. Fl. Ital. 63 (1882).

The somatic number found, $2n$ = 16, corresponds to a diploid level of a basic chromosome number x = 8. The number $2n$ = 32 was reported by Aryavand (1975) for this species, which has, consequently, two diploid levels. This is, presumably, the first karyological study of Spanish plants of this species.

* ***Erysimum incanum*** G. Kunze, Flora Regensb. 29: 753 (1846).

Polatschek (1979) indicated $2n$ = 16 for plants for Ternel province, and $2n$ = 32 for plants from Granada province.

* ***Ionopsidium prolongoi*** (Boiss.) Batt., Bull. Soc. Bot. France 43: 259 (1896) (Fig. 14).

The chromosome number found, $2n$ = 36, does not agree with the previous counts for this clearly delimitated species.

* ***Lepidium hirtum*** (L.) Sm. subsp. ***calycotrichum*** (G. Kunze) Thell., Vierteljahrsschr. Naturf. Ges. Zürich 51: 156 (1906).

The chromosome number found, $2n$ = 16, agrees with that previously indicated by several authors (see App. 2). It differs, however, from $2n$ = 8, as given by Quézel (1957), which was considered a doubtful count by Favarger & al. (1979). It also differs from $2n$ = 14 reported by Napoli & Zizza (1984) for subsp. *nebrodense* (Rafin.) Thell., although for this latter subspecies Colombo & al. (1983) found $2n$ = 16 for Sicilian plants, and the same number was indicated by Franzén & Gustafsson (1983) for plants from Greece.

* ***Notoceras bicorne*** (Aiton) Amo, Fl. Iber. 6: 536 (1876).

The chromosome number found agrees with that indicated by other authors (see App. 2), although it appears to be the first count based on Spanish material of this species.

* ***Sisymbrium austriacum*** Jacq., Fl. Austr. 3: 35 (1775), subsp. ***hispanicum*** (Jacq.) P.W. Ball & Heywood, Feddes Repert. 64: 17.

This is, presumably, the first karyological study for this taxon. The chromosome number $2n$ = 16 was indicated by Baez, Mayor (1934, sub *S. contortum* Cav.) for subsp. *contortum* (Cav.) Rouy & Fouc., and the number $2n$ = 14 was found by Manton (1932,

sec. Bolkhovskikh & al. 1969, sub *S. pyrenaicum*) in subsp. *chrysanthum* (Jordan) Rouy & Fouc.

* ***Thalspi perfoliatum*** L., Sp. Pl. 646 (1753).

According to Favarger & al. (1979), the basic chromosome number for this species is $x = 7$, which has, consequently, diploid ($2n = 14$), hexaploid ($2n = 42$) and decaploid ($2n = 70$) populations (see App. 2).

The tetraploid level was found by Hill (1982), who counted $2n = 14$ on plants from USA, and by Galland & Favarger (1988) who, in a detailed study of the *T. perfoliatum* complex, found $2n = 28$ for a population from S France.

As indicated in App. 2, in this study two chromosome numbers have been found for this species, $2n = 42$ (Sierra de Baza, Granada), which corresponds to the widespread hexaploid, and $2n = 28$ (Sierra de la Sagra, Granada), which corresponds to the rarer tetraploid, which is, consequently, indicated for Spain for the first time.

Caryophyllaceae

* ***Arenaria gradiflora*** L., Syst. Nat. ed. 10, 2: 1034 (1759), subsp. ***grandiflora*** (Fig.21).

The chromosome number found, $2n = 20$, deviates from the number ($2n = 22$) indicated for this species by several authors.

* ***Arenaria leptoclados*** (Reichenb.) Guss., Fl. Sic. Syn. 2: 824 (1845).

The chromosome number found, $2n = 20$, agrees with that reported for this species by several authors (see App. 2), but appears to be the first count on Spanish plants.

* ***Arenaria serpyllifolia*** L., Sp. Pl. 423 (1753) (Fig. 23).

Two different chromosome numbers have been indicated for this taxon, $2n = 20$ and $2n = 40$ (see App. 2). The tetraploid number $2n = 40$ has been confirmed by this study.

The diploid found, $2n = 30$, agrees with that reported by other authors (see App. 2) for this Ibero-Moroccan species which has also one locality in S France (Favarger & al. 1979). This is, presumably, the first karyological study of Spanish plants of this species.

* ***Minuartia geniculata*** (Poiret) Thell., Fl. Adv. Montpellier 232 (1912).

The chromosome number found agrees with that previously indicated by several authors (see App. 2) from several localities including the Canary Islands (Borgen 1974, sec. Favarger & al. 1979). This is, however, the first karyological study of plants of this species from the Iberian Peninsula.

* ***Minuartia hybrida*** (Vill.) Siskin in Komarov, Fl. SSSR 6: 488 (1936), subsp. ***hybrida***.

Two chromosome numbers have been found, $2n = 46$ and $2n = 70$, on plants from Granada and Jaén, respectively.

These same numbers were given for this species by Favarger (1962, sub *M. tenuifolia*), who also found $n = 23$ (Favarger 1967). Löve & Kjellqvist (1974a, sub *Sabulina hybrida* (Vill.) Fourr. subsp. *hybrida*) indicated $2n = 138$ for a plant from Jaén, and proposed for this species the basic number $x = 23$. There may be, however, two basic numbers, $x = 23$ and $x = 35$, as proposed by Favarger (1967), and two ploidy levels, the diploids ($2n = 46$ and $2n = 70$) and the hexaploid ($2n = 138$).

* ***Moehringia intricata*** Willk., Linnaea 25: 14 (1852).

The chromosome numbers $2n = 24$ and $2n = 26$ have been found on plants from Jaén and Albacete, respectively. The number $2n = 26$ agrees with that previously indicated by Merxmüller & Grau (1967); $2n = 24$ is new. The plants from Jaén differ slightly morphologically from those from Albacete, although they cannot be separated at any taxonomic level.

* ***Moehringia pentadra*** J. Gay, Ann. Sci. Nat. s. 1, 26: 230 (1832) (Fig. 20)

This is, presumably, the first karyological study of Spanish plants of this species.

* ***Saponaria ocymoides*** L., Sp. Pl. 409 (1753) (Fig. 22).

As far as the authors are aware of, this is the first karyological study of Spanish plants of this species.

* ***Spergula morisonii*** Boreau in Duchartre, Rev. Bot. 2: 424 (1847) (Fig. 25).

This is, presumably, the first karyological study of Spanish plants of this species.

Cistaceae

* ***Helianthemum papillare*** Boiss., Voy. Bot. Midi Esp. 2: 63 (1829) (Fig. 19).

This endemic species of S Spain had not been previously investigated karyologically.

Fabaceae

* ***Astragalus hamosus*** L., Sp. Pl. 758 (1753) (Fig. 28).

This species has been studied karyologically by several authors (see App. 2). The chromosome number found by us agrees with that indicated by Pretel (1974) and Pretel & Sañudo (1978) for Spanish plants. A deviating number, $2n = 48$, is given by Löve & Kjellqvist (1974b) for plants from Jaén (Spain).

* ***Astragalus monspessulanus*** L., Sp. Pl. 761 (1753) (Fig. 15).

This is, presumably, the first karyological study of Spanish plants of this species.

* ***Astragalus stella*** Gouan, Obs. Bot. 50 (1773) (Fig. 30).

No direct reference to an earlier count has been found, but Domínguez (1987) indicated $2n = 16$, which agrees with the number given in this paper.

* ***Coronilla scorpiodoies*** (L.) Koch, Syn. Fl. Germ. 188 (1838) (Fig. 33).

The diploid number found, $2n = 12$, agrees with that indicated by several authors for this species (see App. 2), which appears to have been studied karyologically for the first time on Spanish plants.

* ***Lathyrus hirsutus*** L., Sp. Pl. 732 (1753) (Fig. 27).

The chromosome number found agrees with that indicated by several authors, but this is apparently the first karyological study of Spanish plants of this species.

* ***Lens nigrans*** (MB.) Godron, Fl. Lorr. 1: 73 (1843) (Fig. 31).

The chromosome number found, $2n = 14$, agrees with that indicated by Cesmedjiev (1938) for Bulgarian plants. This is, apparently, the first karyological study of Spanish material of this species.

* ***Ononis minutissima*** L., Sp. Pl. 717 (1753) (Fig. 29).

The somatic number $2n = 30$ agrees with the number given by Dahlgren & al. (1971) for Balearic plants, but no count based on material from the Iberian Peninsula has been found.

* ***Trigonella monspeliaca*** L., Sp. Pl. 777 (1753) (Fig. 32).

This is, apparently, the first karyological study of Spanish plants of this species.

* ***Trigonella polyceratia*** L., Sp. Pl. 777 (1753) (Fig. 17).

The chromosome number found is the same as the number given for no Spanish plants by other authors (see App. 2).

Geraniaceae

* ***Geranium lucidum*** L., Sp. Pl. 682 (1753).

This species has been previously studied karyologically by several authors (see App. 2). The tetraploid number found in this study, $2n = 40$, does not agree with the diploid $2n = 20$ indicated by Löve & Kjellqvist (1974b) for Spanish plants from Jaén.

* ***Geranium purpureum*** Vill., Fl. Delph. 72 (1786).

The chromosome number found, $2n = 64$, deviates from that indicated by several authors for European plants (see App. 2).

Lamiaceae

* ***Marrubium supinum*** L., Sp. Pl. 583 (1753) (Fig. 26).

The chromosome number found, $2n = 30$, does not agree with the diploid $2n = 34$ indicated by Löve & Kjellqvist (1974b) for plants from Jaén. The karyotype of the population studied has two pairs of chromosomes bigger than all the others (Fig.26).

* ***Micromeria graeca*** (L.) Bentham & Reichenb. Fl. Germ. Excurs. 311 (1831).

The somatic number found, $2n = 60$, differs from $2n = 20$ indicated by Björkvist & al. (1969) for plants from Cádiz (SW Spain). However the number $2n = 60$ has been reported by Dahlgren & al. (1971), for *M. filiformis* (Aiton) Bentham.

* ***Sideritis montana*** L., Sp. Pl. 575 (1753), subsp. ***ebracteata*** (Asso) Murb., Lunds Univ. Arsskr. 34(7): 35 (1898) (Fig. 38).

This taxon seems not to have been previously investigated karyologically. Several authors have indicated, however, the same chromosome number for subsp. *montana* , or for *S. montana* without indication of subspecies. However, the latter counts belong,

presumably, to subsp. *montana*, since they have been made on different European plants, while subsp. *ebracteata* occurs only in Spain, Morocco, Algeria and Tunisia.

Papaveraceae

* ***Roemeria hybrida*** (L.) DC., Reg. Veg. Syst. Nat. 2: 92 (1821) (Fig. 37).

The chromosome number found, $2n = 22$, agrees with that indicated by several authors (see App. 2), but it seems that this is the first karyological study of Spanish plants of this species.

Poaceae

* ***Aegilops ventricosa*** Tausch, Flora 20: 108 (1837).

The chromosome number found in plants from the Iberian Peninsula confirms the number indicated by Dahlgren & al. (1971) for Balearic plants.

* ***Aira caryophillea*** L. subsp. ***multiculmis*** (Dumort.) Bonnier & Layens, Fl. Fr. 358 (1894).

The count given confirms the tetraploid level ($2n = 28$) for Spanish plants.

* ***Piptatherum miliaceum*** (L.) Cosson, Not. Pl. Crit. 129 (1851).

The chromosome number found agrees with that indicated by previous authors, but appears not to have been previously counted on Spanish material.

* ***Bromus sterilis*** L., Sp. Pl. 77, (1753) (Fig. 34).

For Portuguese plants, Queirós (1980) indicated $2n = 14$, and the same number was found by Devesa & Romero (1971) on plants from Cádiz. The tetraploid number $2n = 28$ found in this study appears not to have been previously indicated for plants from the Iberian Peninsula.

* ***Desmazeria rigida*** (L.) Tutin in Clapham & al., Fl. Brit. Isles 1434 (1952), subsp. ***rigida***.

The chromosome number found, $2n = 28$, differs from those previously indicated by several authors for this taxon (see App. 2).

As the basic number for the genus *Desmazeria* is $x = 7$, the chromosome number found represents the first reference to a tetraploid level for this species.

Polygonaceae

* ***Rumex scutatus*** L. subsp. ***induratus*** (Boiss. & Reuter) Maire & Weiller in Maire, Fl. Afr. Nord 7: 315 (1961).

The chromosome number found, $2n = 40$, agrees with the tetraploid level indicated by several authors for this taxon (see App. 2).

For *R. scutatus* s.l. the number $2n = 20$ has been given by Lessani & Chariat-Panahi (1979) for Iranian plants, by Pavone & al. (1981b) for plants from Sicily. The number $2n = 20$ has also been indicated for Spanish plants attributed to *Acetosa scutata* subsp. *indurata* by Löve (1967).

Portulacaceae

* ***Montia fontana*** L., Sp. Pl. 87 (1753) (Fig. 24).

The three subspecies represented in the Iberian Peninsula have been investigated in this study, and the same chromosome number, $2n = 20$, was found in all of them. Apparently, subsp. *variabilis* Walters had not been previously investigated. Nilsson (1966, sec. Bolkhovskikh & al. 1969) indicated $2n = 40$ for *Montia fontana*, which may corresponds to subsp. *fontana*.

Primulaceae

* ***Androsace maxima*** L., Sp. Pl. 141 (1753).

The chromosome number found, $2n = 20$, agrees with that indicated by Fernández Casas & al. (1980a) for Spanish plants. This number corresponds to the diploid level, since the other numbers given by several authors (see App. 2), $2n = 40$ and $2n = 60$, correspond to the tetraploid and hexaploid levels.

Rosaceae

* ***Sanguisorba minor*** Scop. subsp. ***magnolii*** (Spach) Briq., Prodr. Fl. Corse 2(1): 209 (1913).

The chromosome number found, $2n = 28$, agrees with that indicated by several authors (see App. 2), but it appears that this is the first karyological study of plants from the Iberian Peninsula.

Rubiaceae

* ***Crucianella patula*** L., Demonstr. Pl. 4 (1753) (Fig. 36).

This is, presumably, the first karyological study for this species.

* ***Valantia hispida*** L., Syst. Nat. ed. 10: 1307 (1759).

The chromosome number found, $2n = 18$, confirms the count by Dahlgren & al. (1971) on Balearic plants. This is, presumably, the first karyological study of plants from the Iberian Peninsula.

Scrophulariaceae

* ***Linaria verticillata*** Boiss., Voy. Bot. Midi Esp. 2: 462 (1841) (Fig. 40).

As far as the authors are aware of, this is the first karyological study for this species.

* ***Veronica praecox*** All., Auct. Fl. Pedem. 5 (1789) (Fig. 39).

The chromosome number found, $2n = 18$, agrees with that reported previously by several authors (see App. 2). This is, presumably, the first karyological study based on Spanish plants.

Solanaceae

* ***Hyoscyamus niger*** L., Sp. Pl. 983 (1753).

The count given in this paper confirms that indicated for non-Spanish plants by other authors (see App. 2).

Urticaceae

* ***Urtica pilulifera*** L., Sp. Pl. 983 (1753) (Fig. 13).

The chromosome numbers $2n = 24$ and $2n = 26$ have been reported previously for this species (see App. 2). The number found in this study, $2n = 26$, agrees with that given by Basset & Crompton (1972) for plants from Germany.

Valerianaceae

* ***Centranthus calcitrapae*** (L.) Dufresne, Hist. Nat. Méd. Fam. Valér. 39 (1981).

The chromosome number found, $2n = 32$, agrees with that given by several authors for this species (see App. 2), but as was mentioned by Fanlo (1986), there were no previous counts based on Spanish populations.

* ***Valerianella carinata*** Loisel., Not. Pl. Fr. 149 (1810).

The chromosome numbers found in different populations of this species, $2n = 16$ and $2n = 18$, agree with previous records (see App. 2). The number $2n = 18$ is indicated here for the first time for Spanish plants.

Violaceae

****Viola kitabeliana*** Schultes in Roemer & Schultes, Syst. Veg. 5: 383 (1819) (Fig. 35).

Two different chromosome numbers have been found in two populations of this species: $2n = 18$ and $2n = 48$. Previous records include the numbers $2n = 14$, 16, 24, 36 and 48 (see App. 2).

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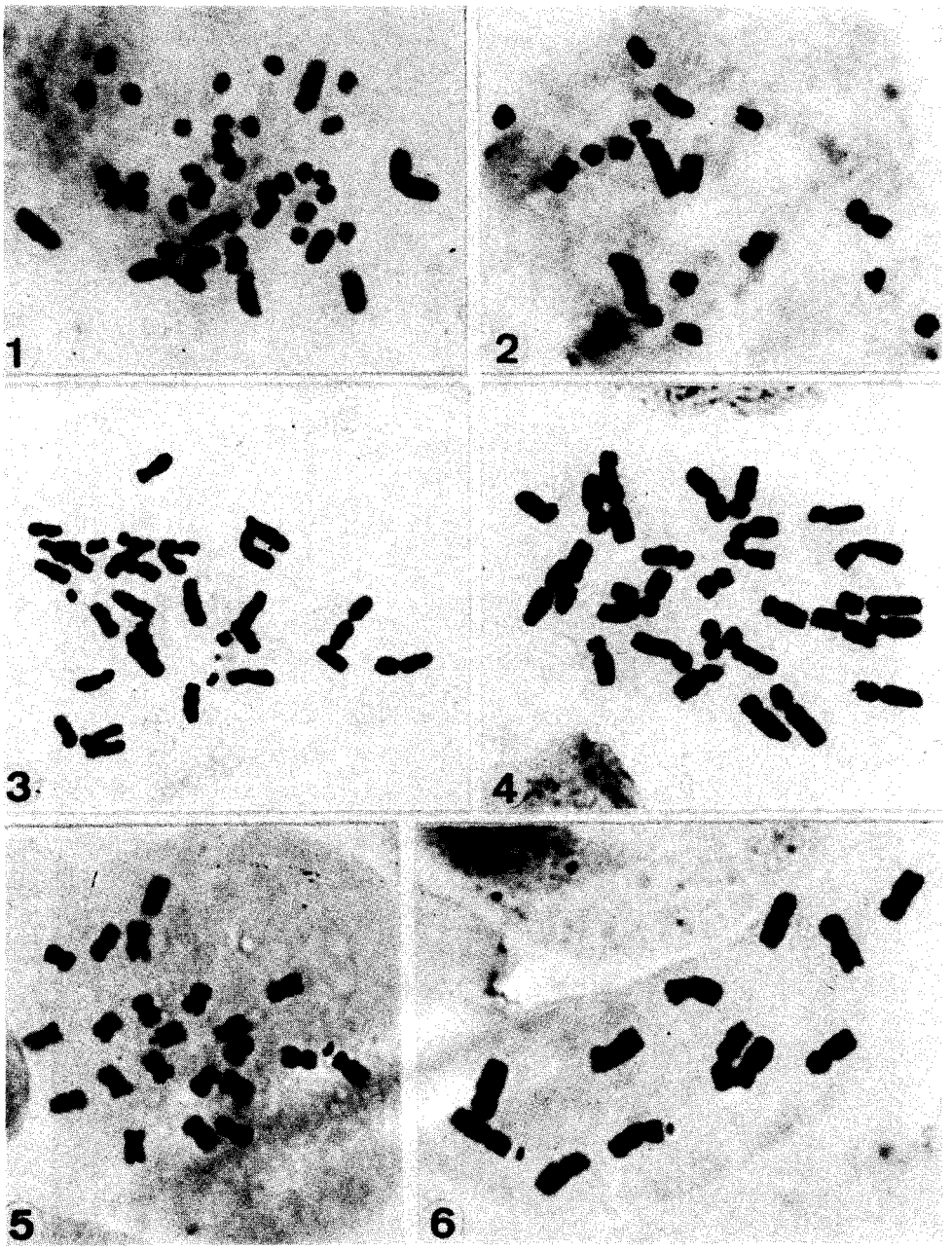

Fig. 1-6. Somatic metaphases. **1**: *Senecio minutus* (Cav.) DC. (1679), $2n = 40$. **2**: *Lapsana communis* L. (2151), $2n = 16$. **3**: *Xeranthemum inapertum* (L.) Miller 91082), $2n = 28$. **4**: *Hieracium loscosianum* Scheele (91681), $2n = 27$. **5**: *Leontodon salzamnii* (Schultz Bip.) Ball. (136), $2n = 12$. **6**: *Centaurea sphaerocephala* L. subsp. *malacitana* (Boiss.) Dostál (128), $2n = 22$.

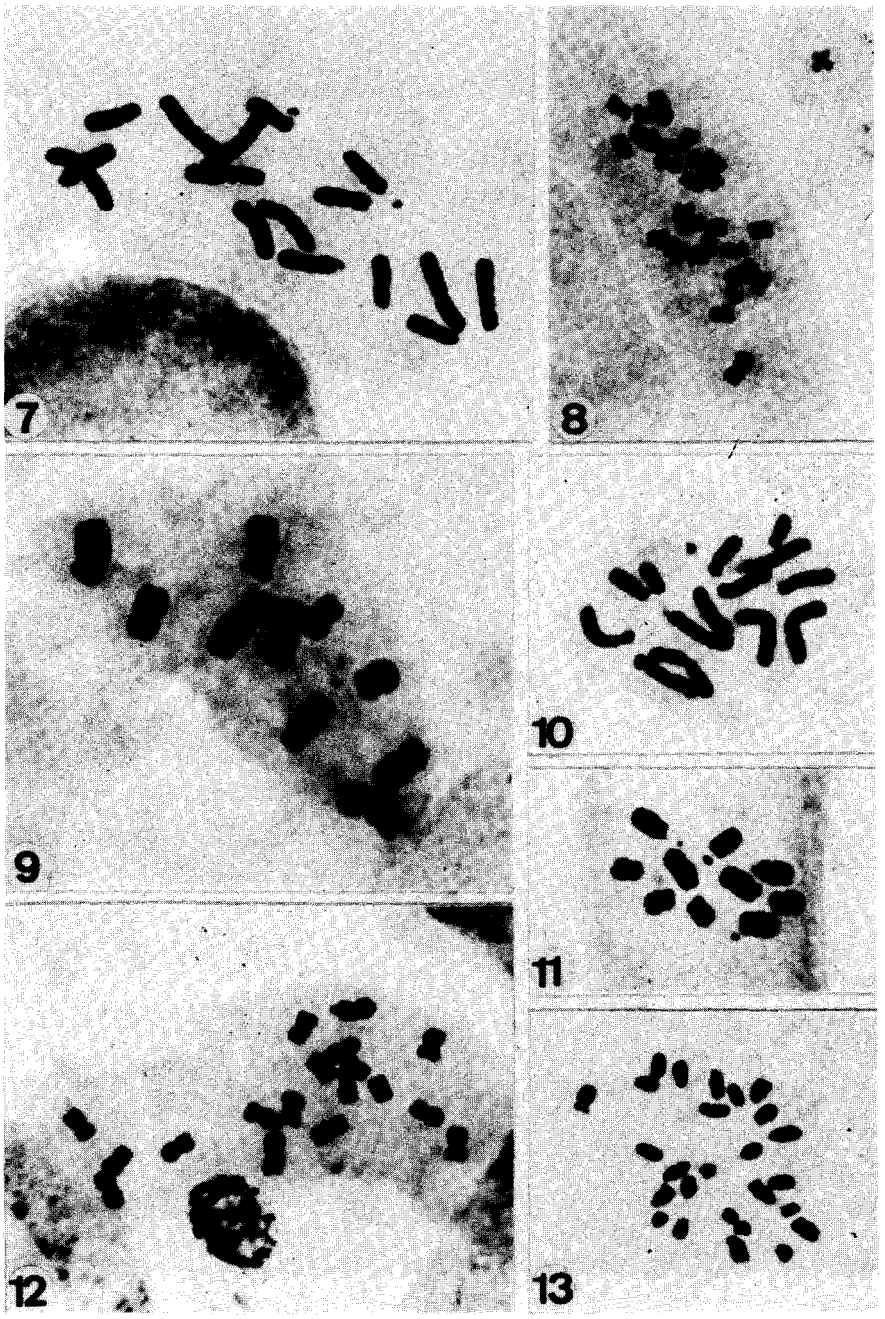

Fig. 7-13. Somatic metaphases. **7**: *Leysera leyseroides* (Desf.) Maire (1128), $2n = 16$. **8**: *Filago lutescens* Jordan (1199), $2n = 28$. **9**: *Rhagadiolus edulis* Gaertner (2892), $2n = 10$. **10**: *Hedypnois cretica* (L.) Dum.-Courset (32), $2n = 14$. **11**: *Picris echioides* L. (2990), $2n = 10$. **12**: *Phagnalon sordidum* (L.) Rechenb. (1079), $2n = 18$. **13**: *Urtica pilulifera* L. (2634), $2n = 26$.

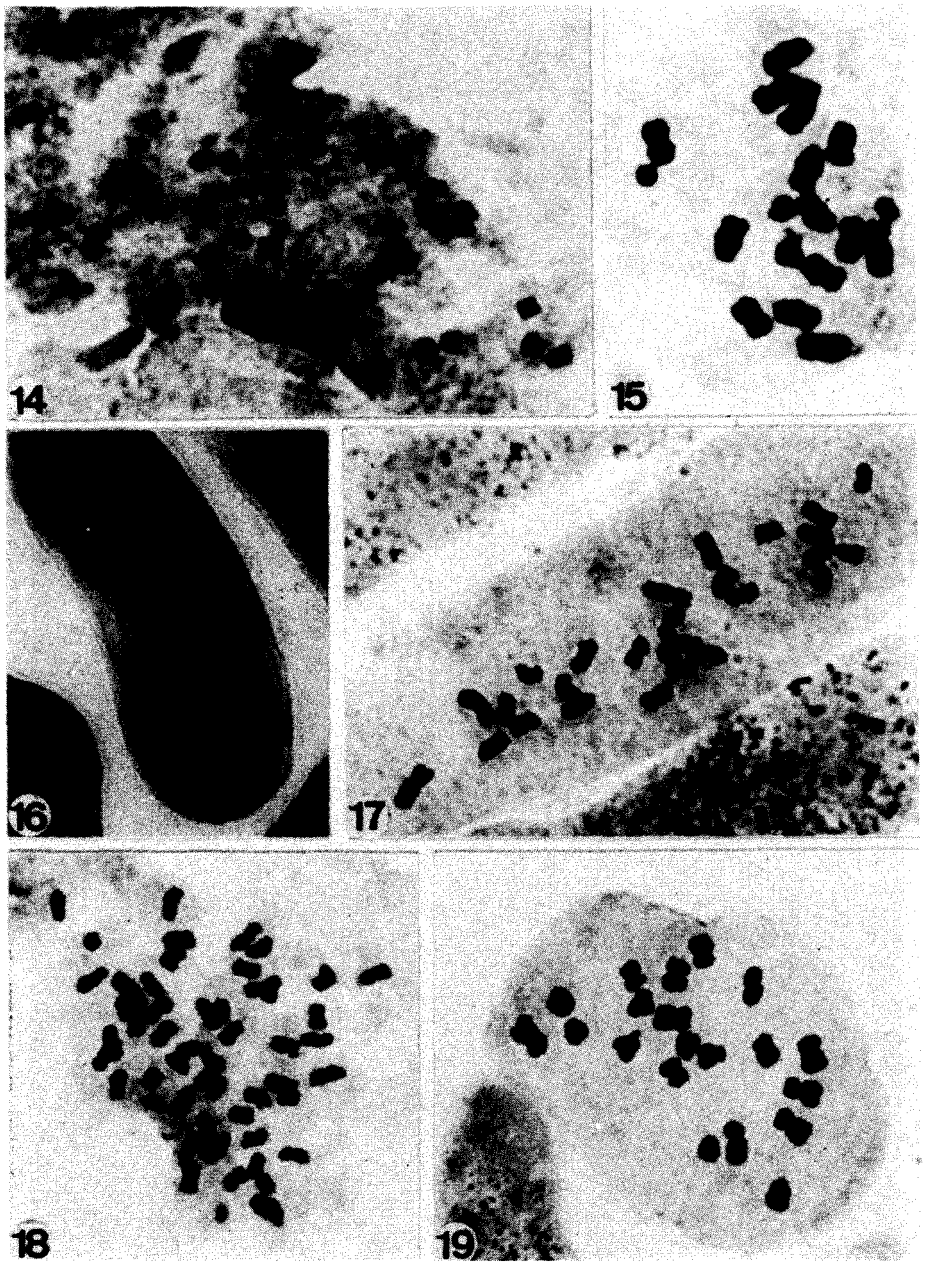

Fig. 14-19. Somatic metaphases. **14**: *Ionopsidium prolongoi* (Boiss.) Batt. (2056), $2n = 36$. **15**: *Astragalus monspessulanus* L. (1626), $2n = 16$. **16**: *Buglossoides arvensis* (L.) I. M. Johnston subsp. *permixta* (Jordan ex F.W. Schultz) R. Fernandes (1961 bis), $2n = 28$. **17**: *Trigonella plycerata* L. (1258), $2n = 28$. **18**: *Biscutella megacarpaea* Boiss. & Reuter subsp. *variegata* (Boiss. & Reuter) Hernández-Bermejo & Clemente Múñoz (7), $2n = 54$. **19**: *Helianthemum papillare* Boiss. (2566), $2n = 20$.

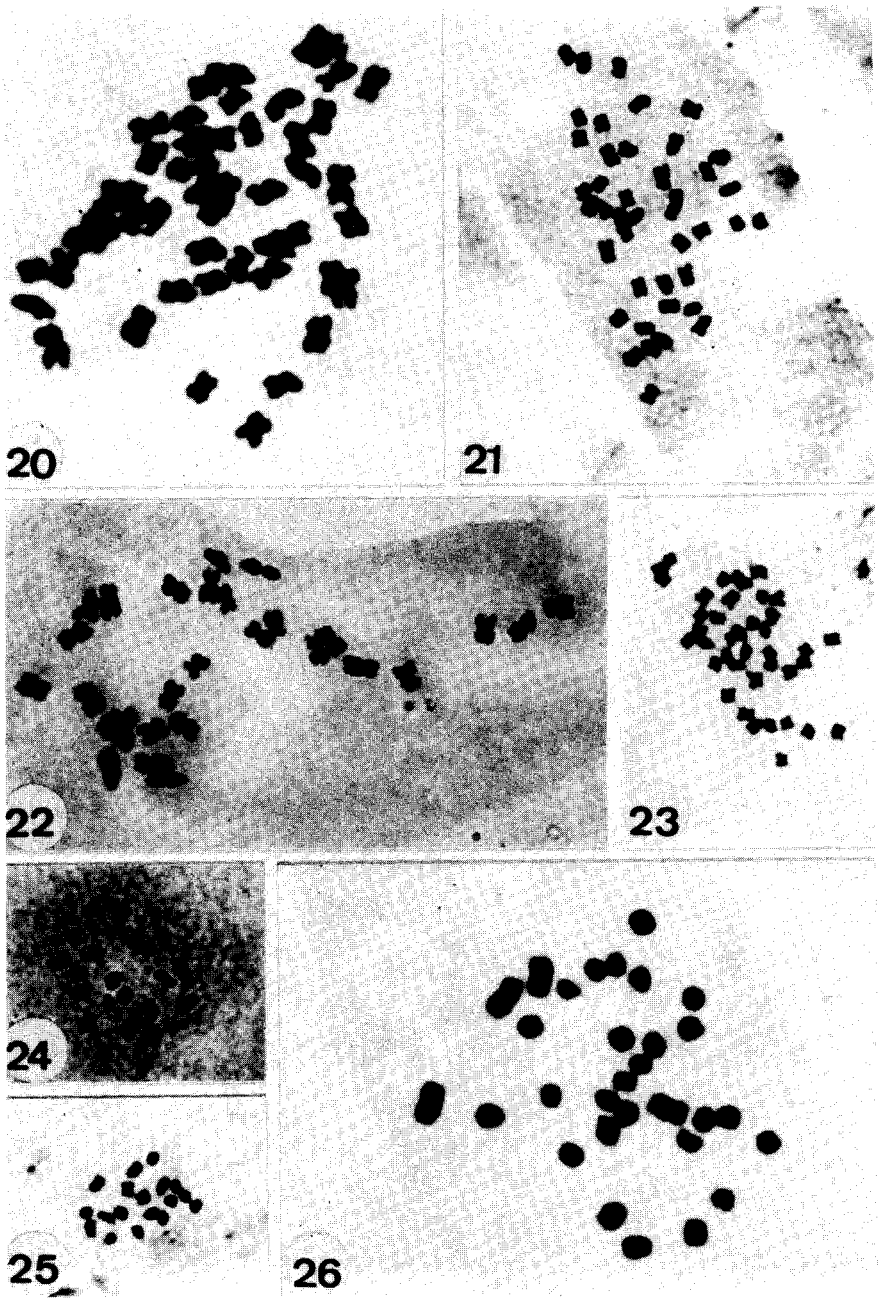

Fig. 20-26. Somatic metaphases. **20**: *Moehringia pentadra* J. Gay (453), $2n = 48$. **21**: *Arenaria grandiflora* L. subsp. *grandiflora* (1359), $2n = 40$. **22**: *Saponaria ocmymoides* L. (1768), $2n = 28$. **23**: *Arenaria serpyllifolia* L. (2037), $2n = 40$. **24**: *Montia fontana* L. subsp. *chondrosperma* (Fenzl) Walters (1017), $2n = 20$. **25**: *Spergula morisonii* Boreau (898), $2n = 18$. **26**: *Marrubium supinum* L. (1600), $2n = 30$.

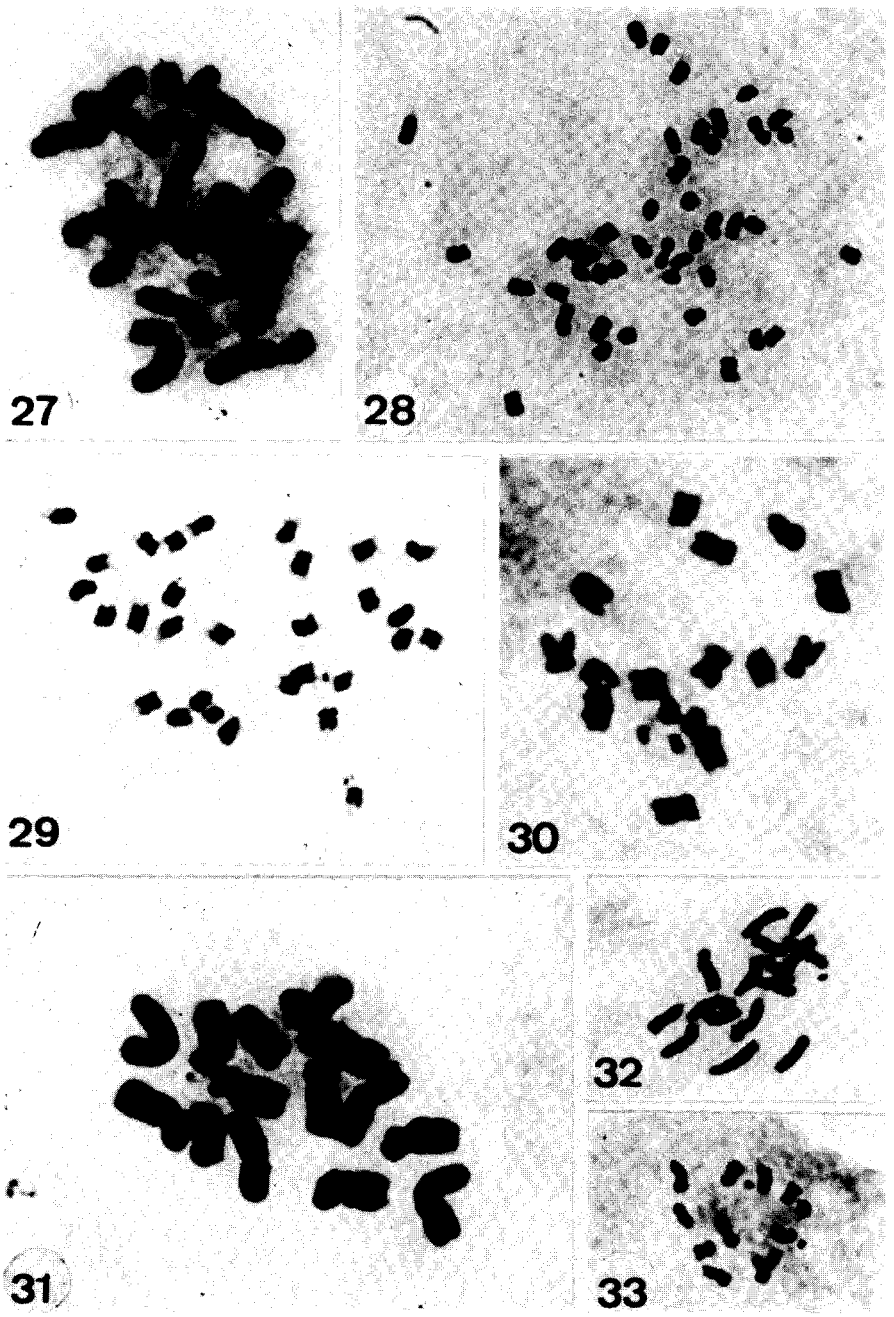

Fig. 27-33. Somatic metaphases. **27**: *Lathyrus hirsutus* L. (2192), $2n = 14$. **28**: *Astragalus hamosus* L. (1262), $2n = 44$. **29**: *Ononis minutissima* L. (1631), $2n = 30$. **30**: *Astragalus stella* Guoan (1259), $2n = 16$. **31**: *Lens nigricans* (MB.) Godron (1023), $2n = 14$. **32**: *Trigonella monspeliaca* L. (1260), $2n = 16$. **33**: *Coronilla scorpioides* (L.) Koch (1252), $2n = 12$.

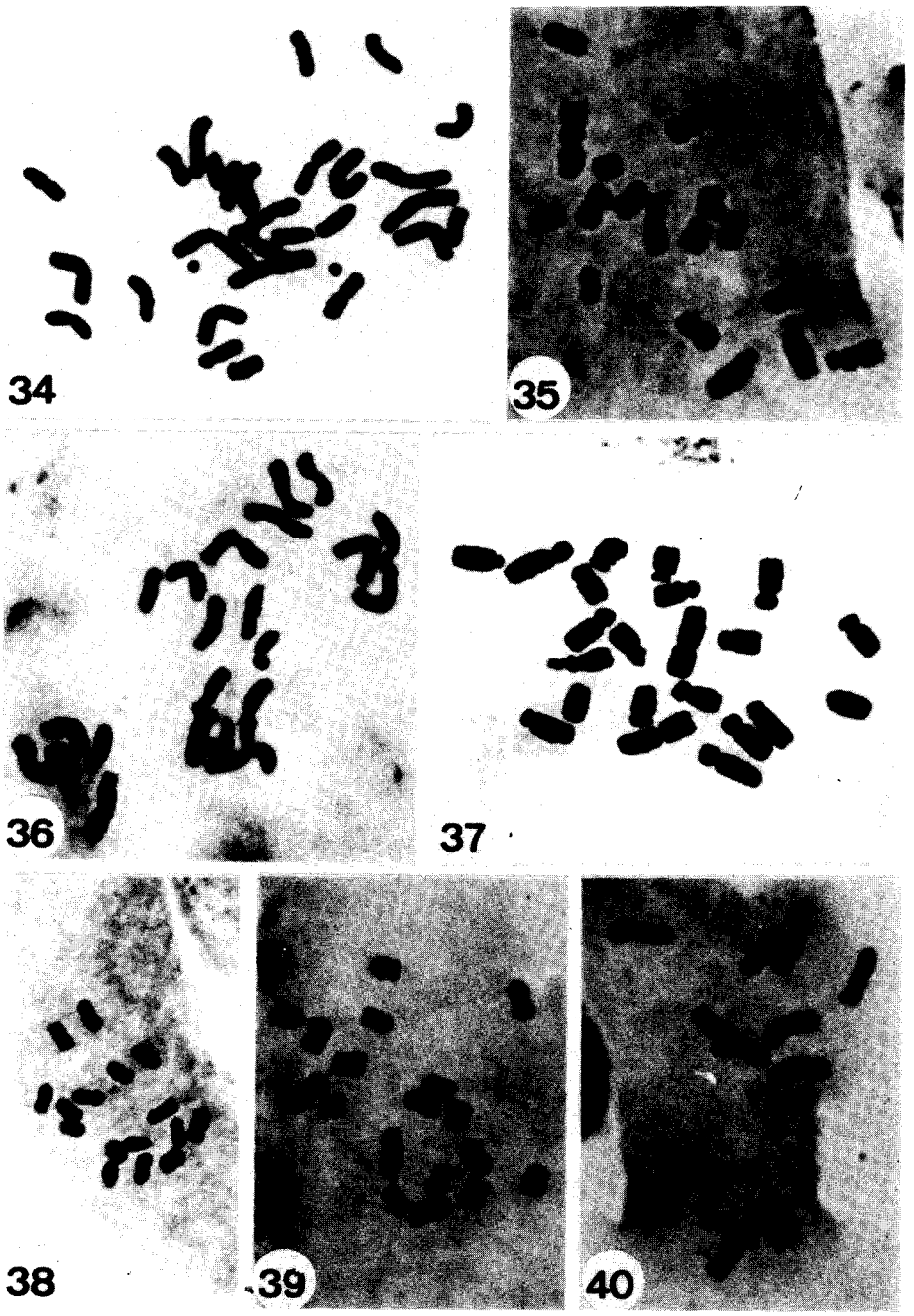

Fig. 34-40. Somatic metaphases. **34**: *Bromus sterilis* L. (827), $2n = 28$. **35**: *Viola kitabeliana* Schultes (2012), $2n = 18$. **36**: *Crucianella patula* L. (2469), $2n = 22$. **37**: *Roemeria hybrida* (L.) DC. (1208), $2n = 22$. **38**: *Sideritis montana* L. subsp. *ebracteata* (Asso) Murb. (2583), $2n = 16$. **39**: *Veronica praecox* All. (876), $2n = 18$. **40**: *Linaria verticillata* Boiss. (799), $2n = 12$.

APPENDIX 1 Localities of the material investigated

Number	Locality
1	**Málaga**: Antequera, Torcal, amongst calcareous rocks and stones, 1150-1300 m, 14.06.1988
2	**Granada**: Granada, gardens of the Alhambra, on walls of calcareous stone, 14.06.1988
3	**Almería**: Gergal, WG 3908, roadside, 15.06.1988
4	**Almería**: between Tabernas and Venta de los Yesos, WG6104, hillside, gypsum soil, 500 m, 15.06.1988
5	**Almería**: Cabo de Gata, WF7265, volcanic soils, 50 m, 15.06.1988.
6	**Almería**: between Benahadux and Rioja, WF8847, roadsides, 15.06.1988
7	**Almería**: between Gergal and Venta de cañicas, WG4102, roadside escarpement of shale, 420 m, 15.06.1988
8	**Granada**: Jerez del Marquesado. La Dehesa. VG8415, under *Pinus pinaster*, on shales, 1300 m 16.06.1988
9	**Granada**: Jerez del Marquesado, La Dehesa, VG8415, under *Pinus pinaster*, on willside of shales, 1300 m, 16.06.1988
10	**Granada**: Jerez del Marquesado, Arroyo de Alcázar, VG8310, hillside and banks of stream on shale.
11	**Granada**: Jerez del Marquesado, Arroyo de Alcázar, VG8310, hillside and banks of stream, 16.06.1988
12	**Granada**: between El Marquesado y Alquite, VG 9011, hillsides with pines, on shales, 1700 m, 16.06.1988
13	**Granada**: Aldeira. Gorge of Gallego, VG9009, banks and sides of gorge, 1650-1700 m, 16.06.1988
14	**Almería**: Abrucena, Las Rozas, WG1607, on shale, 1400 m, 17.06.1988
15	**Almería**: Abrucena, gorge of the Mina, WG1506, damp area, on shale, 1540-1560 m, 17.06.1988

16 **Almería**: Abrucena, Cerro de Pinates, WG1208, on shale, 1720 m, 17.06.1988

17 **Almería**: Abrucena, gorge of the Campana, to the north of Cerro del Almirez, WG1006, on shale, 1900-1980 m, 17.06.1988

18 **Almería**: Sierra de Gádor, Fuente Victoria, Cerro Alto, WF0990, calcareous soil, 900-1100 m, 18.06.1988

19 **Almería**: Fondón, Cortijo de Chapina, WF1089, on shale, 1250-1350 m, 18.06.1988

20 **Almería**: Sierra de Gádor, Fondón, Cortijo de Boliches, c.P. Horodada, WF1489, calcareous soils, 1450-1600 m, 18.06.1988

21 **Almería**: Fondón, Lanos de Boliches, WF1786, calcareous soils, 1659 m, 18.VI.1988

22 **Almería**: Sierra de Gádor, above the Lote de Bordagi, WF1784, calcareous soils, 1700-1900 m, 18.06.1988

23 **Almería**: Sierra Nevada, El Chullo, VG9905, damp area in shale soils, 2050 m, 18.06.1988

24 **Almería**: Sierra Nevada, Cerro del Almirez, WG0804, shale soils, 2240-2280 m, 19.06.1988

25 **Granada**: Puerto de la Ragua, between the crossroads of Canjayar, VG9803, 19.06.1988

26 **Granada**: crossroads with the road to Alpujarra, VG9998, schist soils, 1400 m, 19.06.1988

27 **Granada**: La Calahorra, Cerro Juan Canal, VG9515, calcareous and schist soils, 1250-1350 m, 20.06.1988

28 **Granada**: Gor, Venta de Castín, Arroyo de Gor, WG0034, willsides and stream banks, 1160 m, 20.06.1988

29 **Granada**: between Benalua de Guadix and Fonellar, tributary of the river Fardas, VG8938, sandy river bed, 20.06.1988

30 **Granada**: Sierra de Baza, slopes near Cortijo del Bardín, WG1044, calcareous soils, 1120 m 21.06.1988

31 **Granada**: Sierra de Baza, on the ascent to Santa Bárbara, WG1340, calcareous soils, 1400-1600 m, 21.06.1988

32 **Granada**: Sierra de Baza, on the ascent to Santa Bárbara, WG1437, calcareous soils, 2000-2200 m, 21.06.1988

33 **Granada**: Cullar Baza, WG3865, saltmarsh, 22.06.1988

34 **Granada**: Galera, above the village, WG3976, on hillside of gypseum soil, 1100 m, 22.06.1988

35 **Granada**: Huéscar, Sierra de Moncayo, WG3395, calcareous soils, 22.06.1988

36 **Granada**: Sierra de Guillimona, Gorge fo Torilla, WH3812, calcareous soils, 1400-1500 m, 23.06.1988

37 **Granada**: Sierra de Guillimona, Cuerda de los Mirabeles, WH3709, north-facing slopes, calcareous soils, c. 1800 m, 23.06.1988

38 **Jaén**: Santiago de la Espada, WH3816, cultivated ground, basic soil, 1200 m, 23.06.1988

39 **Granada**: Sierra de la Sagra, WG3699, amongst rocks and stones, calcareous soil and screes, 1850-2300 m, 24.06.1988

40 **Granada**: Sierra de la Sagra, WG3699, calcareous screes,1700-2300 m, 24.06.1988

41 **Granada**: Sierra de la Sagra, WG3597, calcareous soils,1400-1700 m, 24.06.1988

42 **Granada**: La Losa, WH3502, basic soils, c. 1400 m, 24.06.1988

43 **Jaén**: between Tobos and Vites, bed of the river Zumeta, WH4523, 950 m, 25.06.1988

44 **Jaén**: Vites, gorge of Rio Zumeta, WH4827, 950 m, 25.06.1988

45 **Albacete**: gorge of Rio Zumeta, WH4926, calcareous soil, 1000-1100 m, 25.06.1988

46 **Jaén** : Marchena, Sierra de la Grana, WH4327, calcareous soil, c. 1350 m, 25.06.1988

47 **Jaén**: Poyotello, Sierra de Segura, gorge of Rio Segura, WH3222, rocky and stoney ground, calcareous soil, 1400-1450 m, 26.06.1988

48 **Jaén**: Sierra de Segura, Covacha de la Cañada. WH3118, calcareous soils. 1530 m, 26.06.1988

49 **Granada**: Almaciles, Campos de Bugejar, WH6104, gypsophilous soil, 1100 m, 27.06.1988

50 **Murcia**: between Caravanca and Lorca, 23 km from Colonia de Santa Teresa, WG9897, gypsum soils, 800 m, 27.06.1988

51 **Albacete**: Sierra de las Huebras, around El Pozo, WH4618, rocks and stony areas, calcareous soil, c. 1400 m, 28.06.1988

52 **Albacete**: Rio Taivilla Valley, Pedro Andrés, WH5522, stony areas, 26.06.1988

53 **Albacete**: Sierra de Lagos, Graya, WH5737, rocky area, calcareous soil, 1150 m, 28.06.1988

54 **Jaén**: Sierra Seca, El Chaparral, 2800 m, calcareous soils, 1800 m, 29.06.1988

55 **Jaén**: Caserío de D. Domingo, above the bed of the river Los Quartos, WH3107, calcareous soils, 1600 m, 29.06.1988

56 **Jaén**: Santiago de la Espada, La Matea, WH3505, cultivated land, basic soils, 1350 m, 29.06.1988

57 **Jaén**: Santiago de la Espada, WH3816, cultivated fields, basic soil. 1350 m, 29.06.1988

58 **Jaén**: Sierra de Cazorla, Embalse del Tranco, WH1920, calcareous soils, 600-700 m, 30.06.1988

59 **Jaén**: Sierra del Pozo, Nava de San Pablo, WG0997, calcareous soils, c. 1450 m, 30.06.1988

60 **Jaén**: Sierra del Pozo, WG1498, damp areas in basic soils, 1580 m, 30.06.1988

61 **Jaén**: Sierra de Segura, descending to Hornos, WH2629, pine woodland, basic soils, 1100 m, 29.06.1988

62 **Jaén**: Bailén, in roadside ditches, basic soil, 1.07.1988

63 **Sevilla**: between Ecija and La Luisiana, cultivated fields of *Helianthus annuus*, 1.06.1988

APPENDIX 2: Somatic chromosome numbers of the studied taxa. The localities, chromosome numbers found, and previous records, together with their references, are indicated. The presumed new counts are marked by an asterisk (*) in the reference column. (C.N.I.M.= Collection Number Iter Mediterraneum I, L.N°= Localities Number).

TAXA	C.N.I.M.	L.N°	2 n	PREVIOUS COUNTS n/2n	REFERENCES
Apiaceae					
Anthriscus caucalis MB. var. ***caucalis***	762	19	$2n = 14$	$2n = 14$	Lovkvist 1963 (sec. Moore 1982)
				$n = 7$	Silvestre 1978
Bupleurum semicompositum L.	1058	27	$2n = 16$	$2n = 16$	Gardé & Malheiros-Gardé (1954 sec. Bolkhauskikh & al. 1969)
	1520	33	$2n = 16$		Dahlgreen & al. 1971
					Cauwet-Marc 1978
Daucus durieua Lange	256	8	$2n = 22$	$2n = 20$	Kapoor & Löve 1969
					Queirós 1974b
				$2n = 22$	Humphries & al. 1978
				$n = 11$	Silvestre 1986
Scandix stellata Banks & Solander	2747	54	$2n = 20$	$2n = 20$	Silvestre 1978
				$n = 10$	Silvestre 1978
Asteraceae					
Anacyclus clavatus (Desf.) Pers.	132	4	$2n = 18$	$2n = 18$	Martínez Vázquez 1962
					Van Loon & al. 1971
					Pavone & al. 1981b
					Colombo & al. 1982
				$n = 9$	Ruíz de Clavijo & Ubera 1982

Centaurea pullata L. subsp. ***pullata***	72	1	$2n = 22$	$2n = 22$	Guinochet (1957, sec. Bolkhouskikh & al. 1969) Fernandez & Queirós 1971 Fernandes Morales 1974 Löve & Kjellqvist 1974b
				$n = 11$	Ubera 1979 Talavera & al. 1984
Centaurea sphaerocephala L. subsp. ***malacitana*** (Boiss.)Dostál	128	3	$2n = 22$		*
Crepis capillaris (L.) Wallr.	1540	33	$2n = 6$	$2n = 6$	Fernandes & Queirós 1971a Leute 1977 Van Loon & De Jong 1978
				$n = 3$	Kockx-Van Roon & Wieffering 1982 Mejías 1986
Crepis foetida L. subsp. ***foetida***	3003	63	$2n = 10$	$2n = 10$	Kuzmanov & Kozuharov 1970 Fernandes & Queirós 1971a Kuzmanov & Nikolova 1980 Van Loon & Kieft 1980 Strid & Franzén 1981 Montmollin 1986
				$n = 5$	Mejías 1986
Crepis pulchra L.	2148	43	$2n = 8$	$2n = 8$	Májovsky & al. 1970 Aryavand 1977b Dvorák & al. 1979 Kuzmanov & al. 1981 Cueto Romero & Blanca López 1987 Aparicio 1987

Crupina crupinastrum (Moris) Vis.	2773	55	$2n = 28$	$2n = 28$	Larsen, 1956 Dahlgren & al. 1971 Couderc 1979 Van Loon 1980 Pavone & al. 1981a Strid & Franzén 1981
				$2n = 14$ II	Ghaffari & Chariat-Panahi 1985
Crupina vulgaris Pers. ex Cass.	2776	55	$2n = 30$	$2n = 30$	Larsen 1956 Fernandes & Queirós 1971a Löve & Kjellqvist 1974b Kuzmanov & Georgieva 1977b Couderc 1979 Van Loon & Kieft 1980
Filago lutescens Jordan	1199	30	$2n = 28$	$2n = 28$	Fernandes & Queirós 1971a
Hedypnois cretica (L.) Dum.-Courset	32	1	$2n = 14$	$2n = 8,11,12,13,14,15,16,18$ (see discussion)	
				$n = 8$	Luque 1983
Hieracium baeticum Arvet- Touvet & Reverchon	2581	52	$2n = 27$	$2n = 27$	Blanca López & Cueto Romero 1984
Hieracium loscosianum Scheele	1681	36	$2n = 27$		*
Hyoseris radiata L.	20	1	$2n = 16$	$2n = 16$	Martinoli 1953 Stebbins & al. 1953 Björkqvist & al. 1969 Borgen 1970 Dahlgren & al. 1971
				$2n = 12$	Negodi 1938

Hypochoeris achyrophorus L.	1006	26	$2n = 12$	$2n = 12$	Dahlgren & al. 1971 Brullo & al. 1977
				$n = 6$	Talavera & al. 1984
Hypochoeris radicata L.	2075	43	$2n = 8$	$2n = 8$	Fernandes & Queirós 1971a Luque & al. 1984 Adame & Talavera 1980
				$2n = 28$	Van Loon & Jong 1978 (see discussion)
Lapsana communis L.	2151	43	$2n = 16$	$2n = 12$	Marchal 1920 Tischler 1934
				$2n = 14$	Stebbins & al. 1953 Gadella & Kliphuis 1966 Fernandes & Queirós 1971a Edmonds & al. 1974 (sec. Moore 1982) Strid & Franzén 1981 (subsp. *adenophora* Boiss. Reich. fil.)
				$2n = 16$	Sorsa 1962, 1963 Kuzmanov & Georgieva 1977a
Launaea fragilis (Asso) Pau	1577	34	$2n = 16$	$2n = 16$	Stebbins & al. 1953 Nordernstam 1972 Cueto Romero & Blanca López 1987
				$2n = 18$	Valdés-Bermejo & Gómez-Garcia 1976
Leontodon longirostris (Finch & P. D. Sell)	25	1	$2n = 8$	$2n = 8$	Fernandes & Queirós 1971a
Talavera	344	11	$2n = 8$		Queirós 1973b

	2525	50	$2n = 8$		Löve & Kjellqvist 1974b (sub *L. saxatilis* Lam.) Van den Brand & al. 1979 Dalgaard 1987
				$n = 4$	Devesa, 1983 Luque & al. 1983
Leontodon salzmannii (Schultz Bip.) Ball	136	4	$2n = 12$		*
Leysera leyseroides (Desf.) Maire	1128	29	$2n = 16$	$2n = 14$	Humphries & al. 1978
Onopordum acaulon L.	575	16	$2n = 34$	$2n = 34$	Fernández Casas & Pueche 1978
Phagnalon saxatile (L.) Cass.	1013	26	$2n = 18$	$2n = 18$	Reese 1957 Larsen 1960 Björkqvist & al. 1969 Dahlgren & al. 1971 Fernandes & Queirós 1971a
				$n = 9$	Fernández Casas & Ruíz Rejón, 1974
Phagnalon sordidun (L.) Reichenb.	1079	27	$2n = 18$	$2n = 18$	Djerdjour & Guittonneau 1976
Picris echioides L.	2991	62	$2n = 10$	$2n = 10$	Kuzmanov & Kozuharov 1970 Fernandes & Queirós 1971a Van Loon & Kieft 1980 Natarajan 1981
Picris hispanica (Willd.) P.D. Sell	1187	30	$2n = 10$	$2n = 20$	Humphries & al. 1978
Prolongoa hispanica G. Lopez & Jarvis (= *P. pectinata* (L.) Boiss.)	1142	29	$2n = 18$	$n = 9$	Ruíz de Clavijo & Ubera 1982
Pulicaria paludosa Link	2992	62	$2n = 18$	$2n = 18$	Fernandes & Queirós 1971a
				$n = 9$	Silvestre 1986

				2*n* = 18+IB	Fernandes & Queirós 1971a
Rhagadiolus edulis Gaertner	2892	59	2*n* = 10	2*n* = 10	Stebbins & al. 1953 Fernandes & Queirós 1971a
Santolina viscosa Lag.	131	4	2*n* = 18	2*n* = 18	Valdés-Bermejo & Antúnez 1981
Scorzonera crispatula (Boiss.) Boiss.	847	21	2*n* = 14	2*n* = 14	Díaz de la Guardia & Blanca 1987
Senecio minutus (Cav.) DC.	28 1679	1 36	2*n* = 40 2*n* = 40		*
Taraxacum officinale group	886	23	2*n* = 24		(see discussion)
Tolpis umbellata Bertol.	2989	62	2*n* = 18	2*n* = 18	Fernandes & Queirós 1971a Queirós 1973b Bartolo & al. 1981
				n = 9	Gallego Cidoncha 1986
Tragopogon porrifolius L.	1111	28	2*n* = 12	2*n* = 12	Dahlgren & al. 1971 Labadie 1976 Van Loon & De Jong 1978 Pavone & al. 1981a Ubera 1981 Ruíz de Clavijo & Ubera 1982 Wilson 1983
				n = 6	Keil & al. 1988
Xeranthemum inapertum (L.) Miller	1082	28	2*n* = 28	2*n* = 28 2*n* = 30	Brullo & al. 1977 Humphries & al. 1978
Boraginaceae					
Buglossoides arvensis (L.) I. M.	1961 bis	39	2*n* = 28	2*n* = 28	Grau 1968b

Johnston subsp. ***permixta*** (Jordan ex F. M. Schultz) R. Fernandes					
Myosotis minutiflora Boiss. ex Reuter	925	24	$2n = 48$	$2n = 48$	Grau 1968a Blaise 1975 Blaise 1981
Myosotis stricta Link ex Roener & Schultes	935	24	$2n = 48$	$2n = 36$	Löve & Löve 1956 Vasudevan 1975
				$2n = 48$	Grau 1968a Blaise 1975
				$n = 11$	Geitler 1936 (sec. Britton 1951)
Brassicaceae					
Aethionema saxatile (L.) R. Br.	1396	32	$2n = 24$	$2n = 24$	Favarger 1969 Küpfer 1972, 1974 Ancev 1976 Van Loon & Kieft 1980 Franzén & Gustavsson 1983 Anderson & al. 1983
				$2n = c.\ 36$	Strid & Franzén 1981
				$2n = 36$	Anderson & al. 1983
				$2n = 48$	Larsen 1955 Lövka & al. 1971 Küpfer 1974 Anderson & al. 1983
				$n = 12$	Montmollin 1986
Alyssum granatense Boiss. & Reuter	422	12	$2n = 48$		*
Alyssum simplex Rudolphi (= *A. minus* Rothn.)	22	1	$2n = 16$	$2n = 16$	Böcher & Larsen 1958
	1719	36	$2n = 16$		Queirós 1973c Löve & Kjellqvist 1974a Ancev 1975

					Löve & Löve 1982
				$2n = 24$	Ghaffari & Chariat-Panahi 1985
				$n = 8$	Aryavand 1975
Arabidopsis thaliana (L.) Heynh.	470	13	$2n = 10$	$2n = 10$	Böcher & Larsen 1958
	941	24	$2n = 10$		Gadella & Kliphuis 1971, 1972 Leute 1974 Kirschner & al. 1982
Arabis auricuolata Lam.	474	13	$2n = 16$	$2n = 16$	Titz 1973
	2686	54	$2n = 16$		
Biscutella glacialis (Boiss. & Reuter) Jordan	1957	39	$2n = 18$	$2n = 18$	Olowokudejo & Heywood 1984
Biscutella megacarpaea Boiss. & Reuter subsp. ***variegata*** (Boiss. & Reuter) Hernández Bermejo & Clemente Muñoz	7	1	$2n = 54$	$2n = 54$ (53,56 (57,58)	Olowokudejo & Heywood 1984
Camelina microcarpa Andrz. ex DC.	1120	29	$2n = 26$	$2n = 28$	Baez Mayor 1934
	2463	49	$2n = 26$		
				$2n = 40$	Löve & Löve 1956
				$2n = 16$	Easterly (1963, sec. Bolkhouskikh & al. 1969)
Cardamine flexuosa With.	391	11	$2n = 32$	$2n = 32$	Gadella & Kliphuis 1963, 1966 Queirós 1973c
				$2n = c.50$	Lövkvist 1963 (sec. Moore, 1982)
Carrichtera annua (L.) DC.	207	7	$2n = 16$	$2n = 8$	Fernández Casas & Ruíz Rejón 1974 Al-Shehbaz 1982
				$2n = 16$	Valdés-Bermejo 1970 Kliphuis & Barkoudah 1977 Guittonneau 1978
Clypeola jonthlaspi L. subsp. ***microcarpa*** (Moris) Arcangeli	472	13	$2n = 16$	$2n = 32$	Jaretzky (1928, sec. Bolkhouskikh & al. 1969

				$2n = 16$	Bonnet (1963, sec. Bolkhouskikh & al. 1969
				$n = 16$	Aryavand 1975 1983a
Draba hispanica Boiss.	1460	32	$2n = 16$	$2n = 16$	Löve & Kjellqvist 1974a
	1866	37	$2n = 16$		
	2699	54	$2n = 16$		
Erysimum incanum G. Kunze	658	18	$2n = 16$	$2n = 16,32$	Polatschek, 1979
				$2n = 32$	Favarger & Galland 1979
Hornungia petraea (L.) Reichenb.	619	17	$2n = 12$	$2n = 12$	Dahlgren & al. 1971
					Löve & Kjellqvist 1974a
					Váchová 1980
					Strid & Franzén 1981
					Franzén & Gustavsson 1983
Iberis carnosa Willd.	1746	36	$2n = 14$	$2n = 14$	Franzén &
subsp. ***granatensis***	2580	51	$2n = 14$		Gustavsson 1983
(Boiss. & Reuter) Moreno					(sub *I. pruitii* Tineo)
					Moreno 1984, 1985 (sub *I. pruitii* Tineo)
Ionopsidium prolongoi (Boiss.) Batt.	2056	41	$2n = 36$	$2n = 22$	Chiarugi (1945, sec. Bolkhovskikh & al. 1969)
				$n = 11$	Fernández Casas 1975
Lepidium hirtum (L.)	339	11	$2n = 16$	$2n = 8$	Quézel 1957
Sm. subsp. ***calycotrichum***				$2n = 16$	Favarger & al. 1979
(G. Kunze) Thell.					Colombo & al. 1983 [subsp. *nebrodense* (Rafin.) Thell.]
					Franzén & Gustavsson 1983
				$2n = 14$	Aryavand 1983b

					(subsp. *oxyotum*) Napoli & Zizza 1984 (subsp. *nebrodense*) (Kunze) Thell.
				n = 8	Montmollin 1982, 1986 [subsp. *oxyotum* (DC.) Thell.]
Moricandia arvensis (L.) D.C.	194	6	2*n* = 28	2*n* = 18	Baez Mayor (1934, sub *Brassica arvensis* L.)
				2*n* = 28	Valdés-Bermejo 1970
					Sobrino Vesperinas 1978
Notoceras bicorne (Aiton) Amo	225	7	2*n* = 22	2*n* = 22	Reese 1957
					Larsen 1960
Sisymbrium austriacum Jacq. subsp. ***hispanicum*** (Jacq.) P.W. Ball & Heywood	2578b	51	2*n* = 14		*
Thlaspi perfoliatum L.	1959	39	2*n* = 28	2*n* = 14	Aryavand 1978
	1461	32	2*n* = 42		Favarger & al. 1979
					Galland & Favarger 1988
				2*n* = 28	Galland & Favarger 1988
				2*n* = 42	Podlech & Dieterle 1969
					Ancev 1978
					Strid & Franzén 1981
					Franzén & Gustavsson 1983
					Galland & Favarger 1988
				2*n* = 70	Jaretzky 1932 (sec. Moore 1982)
				n = 14	Hill 1982
Caryophyllaceae					
Arenaria grandiflora L. subsp. ***grandiflora***	1359	31	2*n* = 40	2*n* = 44	Favarger 1959
					Dvorák & al. 1980

					Cardona, 1983 (var. *bolosii*)
				$n = 22+3A$	Favarger & al. 1979
				$n = 11$	Küpfer 1972,1974
				$2n = 22$	Küpfer 1972,1974
Arenaria leptoclados (Reichenb.) Guss.	2890	59	$2n = 20$	$2n = 20$	Petrova 1975 Váchová & Májovsky 1976 Dvorák & Dadáková 1978 Strid & Franzén 1981
Arenaria modesta Dufour	1133	29	$2n = 26$	$2n = 26$	Favarger 1962 Pajarón Sotomayor 1981 Cardona & Montserrat Martí 1981
Arenaria serpyllifolia L.	329	11	$2n = 40$	$2n = 20$	Fernandes & Leitão 1971
	2037	40	$2n = 40$		Kliphuis 1979 Natarajan 1981
				$2n = 40$	Gadella & Kliphuis 1966, 1971, 1972 Fritsch 1973 Löve & Kjellqvist 1974a Petrova 1975 Hindáková & Májovsky 1977 Kieft & Van Loon 1978 Dvorák & al. 1979 Van Loon 1980 Strid & Franzén 1981 Montmollin 1986
				$2n = 44$	Blackburn & Morton (1957, sec. Bolkhovskikh & al. 1969)

				$n = 20$	Favarger & al. 1979
Cerastium ramosissimum Boiss.	897	23	$2n = 54$	$2n = 27$	Favarger 1969 Favarger & al. 1979
Gypsophila tomentosa L.	1552	33	$2n = 34$	$2n = c.34$	G. López (ined., sec. López González 1984)
Minuartia dichotoma L.	523	14	$2n = 60$	$2n = 60$	Díaz de la Guardia 1987
Minuartia funkii (Jordan) Graebner	2681	54	$2n = 30$	$n = 15$	Favarger 1962 Favarger & al. 1979
Minuartia geniculata (Poiret) Thell.	151bis	5	$2n = 18$	$2n = 18$	Findley & McNeill 1974
				$n = 9$	Favarger & al. 1979
Minuartia hybrida (Vill.) Schischkin	324	11	$2n = 46$	$2n = 46,70$	Favarger 1962
	2276	46	$2n = 70$		
subsp. ***hybrida***				$2n = 138$	Löve & Kjellqvist 1974a (sub *Sabulina hybrida*) (Vill.) Fourr.)
				$n = 23,35$	Favarger 1967
Moehringia intricata Willk.	2599	52	$2n = 26$	$2n = 26$	Grau (1964 sec. Merxmüller & Grau 1967)
	2182	44	$2n = 24$		
Moheringia pentandra J. Gay	453	13	$2n = 48$	$2n = 48$	Litardiére 1948
	1766	36	$2n = 48$		Blackburn & Morton 1957
Petrorhagia nanteuilii (Burnat) P. W. Ball	24	1	$2n = 60$	$2n = 60$	Björkqvist & al. 1969
& Heywood	735	19	$2n = 60$		Fernandes & Leitão 1971
Saponaria ocymoides L.	1768	36	$2n = 28$	$2n = 28$	Favarger 1946
Silene colorata Poiret	1742	36	$2n = 24$	$2n = 24$	Fernandes & Leitão 1971

					Löve & Kjellqvist 1974a Degraeve 1980 Aryavand 1983b Dalgaard 1987
				n= 12	Talavera & Bocquet 1976 Montmollin 1986
Silene conica L.	2700	54	2*n* = 20	2*n* = 20	Löve & Kjellqvist (1974a sub *Pleconax conica* [(L.) Löve & Kjellkv.] Váchová & Feráková 1978 (subsp. *conica*) Van Loon & Snelders 1979 Dvorák & al. 1980 Strid & Franzén 1981 (subsp. *subconica*) Van Loon & Van Setten 1982
Silene conoidea L.	2358	47	2*n* = 20	*n* = 10	Talavera & Bocquet 1976
				2*n* = 20	Degraeve 1980
Silene inaperta L. subsp. ***inaperta***	2988	62	2*n* = 24	2*n* = 24	Fernandes & Leitão 1971 Talavera & Bocquet 1976 Fernández Casas 1976
Silene muscipala L.	1087	28	2*n* = 24	2*n* = 24	Löve & Kjellqvist 1974a Degraeve 1980
Silene nocturna L.	5	1	2*n* = 24	2*n* = 24	Blackburn & Morton 1957 Reese 1957 Dahlgren & al. 1971 Fernandes & Leitão 1971

					Löve & Kjellqvist 1974a Degraeve 1980
				$2n = 36$	Natarajan 1978
				$n = 12$	Talavera & Bocquet 1975
Silene psamnitis Link ex Sprengel subsp. ***lasiostyla*** (Boiss.) Rivas Goday	2379	47	$2n = 24$	$2n = 24$	Löve & Kjellqvist 1974a
Silene saxifraga L.	1640	35	$2n = 24$	$2n = 24$	Degraeve 1980 Andreev 1981 Löve & Löve 1982
				$n = 12$	Talavera & Bocquet 1976
Silene secundiflora Otth in DC.	152bis	5	$2n = 24$	$2n = 24$	Dahlgren & al. 1971 Degraeve 1980 Fernández Casas & al. 1980
				$n = 12$	Talavera & Bocquet 1976
Silene tridentata Desf.	2457	49	$2n = 24$	$n = 12$	Talavera & Bocquet 1976
Spergula morisonii Boreau	898	23	$2n = 18$	$2n = 18$	Blackburn & Morton 1957 Fernandes & Leitão 1971 Dvorák & Dadáková 1978
Spergularia media (L.) C. Presl	1541	33	$2n = 18$	$2n = 18$	Björkqvist & al. 1969 Fernandes & Leitão 1971
				$2n = 36$	Fernandes & Leitão 1971
Spergularia nicaeensis Sarato ex Burnat	1020	26	$2n = 36$	$2n = 36$	Ratter, 1964
	1517	33	$2n = 36$		
				$2n = 18$	Monnier 1956
Spergularia rubra (L.) J. & C. Presl. subsp.	367	11	$2n = 36$	$2n = 36$	Ratter, 1964 Fernandes&

longipes (Lange) Briq.					Leitao 1971 [sub *S. purpurea* (Pers.) G. Don fil.]
					Fritsch 1973
					Löve & Kjellqvist 1974a
					Dvorák & al. 1979, 1980
					Strid & Franzén 1981
				$2n = 18$	Fernandes & Leitão, 1971
Stellaria alsine Grimm	418	11	$2n = 24$	$2n = 24$	Blackburn & Morton 1957
					Löve & Kjellqvist 1974a
					Gadella & Kliphuis 1971
Vaccaria hispanica (Miller) Rauschert	2609	52	$2n = 30$	$n = 15$	Talavera 1978b
Velezia rigida L.	1215	30	$2n = 28$	$2n = 28$	Favarger 1946
					Blackburn & Morton 1957
					Fernandes & Leitão 1971
					Petrova 1975
					Favarger & al. 1979
					Díaz de la Guardia 1987
Cistaceae					
Helianthemum croceum (Desf.) Pers.	56	1	$2n = 20$	$2n = 20$	Löve & Kjellqvist 1964
					Löve & Kjellqvist 1974b
					Valdés-Bermejo 1979
					Colombo & al. 1982
Helianthemum ledifolium (L.) Miller	1222	30	$2n = 20$	$2n = 20$	Björkqvist & al. 1969
					Löve & Kjellqvist 1974b

					Leitão & Alvés 1976 Kliphuis 1977 Sánchez Anta & al. 1985
				$2n = 40$	Markova 1972 Kliphuis & Barkoudah 1977
				$n = 10$	Luque & Mejías 1986 Sánchez Anta & al. 1985
Helianthemum papillare Boiss.	2566	1	$2n = 20$		*
Helianthemum salicifolium (L.) Miller	1678	36	$2n = 20$	$2n = 20$	Murín & Chaudhri 1970 Márková 1972 Löve & Kjellqvist 1974b Leitão & Alvés 1976 Romero García & Ortega 1988
Euphorbiaceae					
Euphorbia characias L.	786	20	$2n = 20$	$2n = 20$	Larsen 1956 Dahlgren & al. 1971 Löve & Kjellqvist [1974b, sub *Tithymalus characias* (L.) Hill] Cardona 1977 Queirós 1975, 1979 Pavone & al. 1981a Garcia & Valdés 1981
Euphorbia peplus L.	124	2	$2n = 16$	$2n = 16$	Gadella & Kliphuis 1963 Björkqvist & al. 1969

					Dahlgren & al. 1971 Löve & Kjellqvist [1974b, sub *Tithymalus peplus* (L.) Gaertner]
Euphorbia segetalis L.	167	5	$2n = 16$	$2n = 16$	Dahlgren & al. 1971
	168	5	$2n = 16$		Fritsch 1973 Queirós 1975 Fernández Casas 1976 Pavone & al. 1981a
Fabaceae					
Astragalus hamosus L.	1262	30	$2n = 44$	$2n = 48$	Fernandes & Santos 1971 Löve & Kjellqvist 1974b
				$2n = 44$	Pretel Martínez 1974
				$2n = 32$	Kuzmanov & Georgieva 1976 Colombo & al. 1983 Dalgaard 1987
				$2n = 42$	Fernandes & al. 1977a
				$n = 22$	Pretel Martínez & Sañudo 1978
A. incanus L. subsp. ***incurvus*** (Desf) Chater	1250	30	$2n = 16$	$2n = 16$	Lorenzo-Andreu & García-Sanz 1950 Pretel Martínez 1974 (subsp. *incanus*) Fernandes & al. 1977a (subsp. *macrorhizus*)
				$n = 8$	Pretel Martínez & Sañudo 1978 (subsp. *incanus* and subsp. *macrorhizus*)
A. monspessulanus L.	1626	35	$2n = 16$	$2n = 16$	Kozuharov & al. 1972

					Küpfer 1974 (subsp. *tipica*) Cartier 1977 Strid & Franzén 1981 Andreev 1982 (subsp. *vandasii*) Colombo & al. 1982 (subsp. *tipica*)
A. sesameus L.	1261	30	$2n = 16$	$2n = 16$ $n = 8$	Pretel Martínez 1974 Pretel Martínez & Sañudo 1978
A. stella Gouan	1259	30	$2n = 16$	$2n = 16$	Domínguez 1987
Coronilla scorpioides (L.) Koch	1252 2068	30 42	$2n = 12$ $2n = 12$	$2n = 12$	Larsen, 1955 Kozuharov & al. 1972 Motzkus 1973 Krusheva 1975 Fernandes & al. 1977a Fernandes & Queirós 1978 Natarajan 1978 Van Loon & Kieft 1980 Guinochet & Lefranc 1981 Colombo & al. 1983
Lathyrus hirsutus L.	2192	44	$2n = 14$	$2n = 14$	Podlech & Dieterle 1969 Fernandes & Santos 1971 Kozuharov & al. 1972 Kozuharov & Petrova 1973 Dvorák & Dadáková 1975 Van Loon & Kieft 1980

Lens nigricans (Bieb.) Godron	1023	26	$2n = 14$	$2n = 14$	Ceschmedjiev 1983
Medicago lupulina L.	1899	37	$2n = 16$	$2n = 16$	Podlech & Dieterle 1969 Fernandes & Santos 1971, 1975 Kozuharov & al. 1972 Löve & Kjellqvist 1974b Labadie 1976 Sareen & Trehan 1976 Fernandes & al. 1977a Natarajan 1978 Abdel-Guerfi & Guittonneau 1979 Kliphuis 1979 Van Loon & Kieft 1980 Löve & Löve 1982 Van Loon & Van Setten 1982
Ononis minutissima L.	1631	35	$2n = 30$	$2n = 30$	Dahlgren & al. 1971
Ononis pusilla L.	86	1	$2n = 30$	$2n = 30$	Baksay 1956 Kuzmanov & Markova 1973 Löve & Kjellqvist 1974b Fernandes & Santos 1975 Cartier 1976 Fernandes & al. 1977a Fernandes & Queirós 1978 Strid & Franzén 1981
				$n = 15$	Sañudo & al. 1976
Trigonella monspeliaca L.	1260	30	$2n = 16$	$2n = 16$	Fernandes & Santos 1971 Fernandes & al. 1977a

Trigonella polyceratia L.	1258	30	2*n* = 28	*n* = 14	Bir & Sidhu 1967
	1720	36	2*n* = 28	2*n* = 28	Fernandes & al. 1977a
				2*n* = 44	Singh & Roy 1970 (sec. Fernandes & al. 1977a)
Geraniaceae					
Geranium lucidum L.	312	10	2*n* = 40	2*n* = 20	Löve & Kjellqvist 1974b Uhríková & Májovsky 1980
				2*n* = 40	Alvés & Leitão 1976
				2*n* = c.40	Strid & Franzén 1981
				2*n* = 40-44	Van Loon 1984
				n = 30	Aryavand 1983b
Geranium purpureum Vill.	972	25	2*n* = 64	2*n* = 32	Löve & Kjellqvist 1974b Alvés & Leitão 1976 Devesa 1981 Löve & Löve 1982 Van Loon 1984 Dalgaard 1986
Juncaceae					
Luzula forsteri (Sm.) DC.	560	15	2*n* = 24	2*n* = 24	Löve & Kjellqvist 1973 Strid & Franzén 1981
Lamiaceae					
Marrubium supinum L.	1600	35	2*n* = 30	2*n* = 34	Löve & Kjellqvist 1974b
Micromeria graeca (L.) Bentham ex Reichenb.	8	1	2*n* = 60	2*n* = 20	Björkqvist & al. 1969 (subsp. *graeca*)
Sideritis montana L. subsp. ***ebracteata*** (Asso) Murb.	1195	30	2*n* = 16	2*n* = 16	Markova & Thi Thu 1974
	2583	51	2*n* = 16		Hindáková & Schwarzová 1977

					Strid & Franzén 1981 Van Loon & Van Setten 1982
				2*n* = 16 II	Ghaffari & Chariat-Panahi 1985
				2*n* = 32	Fernández Peralta & al. 1978 Fernández Peralta & al. 1980 (subsp. *montana*) González Aguilera & Fernández Peralta 1981 (subsp. *montana*)
Liliaceae					
Dipcadi serotinum (L.) Medicus	1074	27	2*n* = 8	2*n* = 8	Ruiz Rejón & al. 1980 Mejías & Luque 1986
				2*n* = 16, 28, 40, 64, 68	(other authors)
Linaceae					
Linum bienne Miller	2930	62	2*n* = 30	2*n* = 30	Petrova 1972 Van Loon & Kieft 1980 Strid & Franzén 1981 Mugnier 1981 Luque 1985
				2*n* = 32	Mugnier 1981 Dahlgren & al. 1971
Onagraceae					
Epilobium parviflorum Schreber	2197	44	2*n* = 36	2*n* = 36	Löve & Kjellqvist 1974b Van Loon & De Jong 1978
				2*n* = 24	Strid & Franzén 1981
Papaveraceae					
Roemeria hybrida (L.) DC.	1208	30	2*n* = 22	2*n* = 22	Sugiura 1937c

					(sec. Bolkhovskikh & al. 1969) Paiva 1986
Plantaginaceae					
Plantago afra L.	154	5	$2n = 12$	$2n = 12$	Dahlgren & al. 1971 González & Silvestre 1980
Plantago sempervirens Crantz	1181	30	$2n = 12$	$2n = 12$	Löve & Kjellqvist 1974b
	1410	32	$2n = 12$		
	2141	43	$2n = 12$		
Plumbaginaceae					
Limonium lobatum (L. fil.) Chaz. [= *L. thouinii* (Viv.) O. Kuntze]	182	6	$2n = 12$	$n = 6$	Fernández Casas 1973 Fernández Casas & Sánchez García 1979
Poaceae					
Aegilops ventricosa Tausch	2772	55	$2n = 28$	$2n = 28$	Dahlgren & al. 1971
Aira caryophyllea L. subsp. ***multiculmis*** (Dumort.) Bonnier & Layens	2417	48	$2n = 28$	$2n = 28$	Böcher & Larsen 1958 (subsp. *multiculmis*) Queirós 1973a, 1974a Kirschner & al. 1982
				$2n = 14$	Gould 1970 Queirós 1973a Gadella & Kliphuis 1971
Bromus sterilis L.	827	21	$2n = 28$	$2n = 14$	Fernandes & Queirós 1969 Queirós 1973a Májovsky & al. 1974 Devesa & Romero 1981
				$2n = 28$	Queirós 1980

Cynosurus effusus Link (= *C. elegans* auct. non Desf.)	1088	28	$2n = 14$	$2n = 14$	Fernandes & Queirós 1969 Queirós 1974a Devesa & Romero 1981 Pavone & al. 1981b
Desmazeria rigida (L.) Tutin subsp. ***rigida***	1136	29	$2n = 28$	$2n = 14$	Delay 1947, 1969 Fernandes & Queirós 1969 Strid 1971 Dahlgren & al. 1971 Queirós 1973a Kozuharov & Petrova 1974 Strid & Franzén 1981 Löve & Löve 1982 Devesa & Luque 1988
Echinaria capitata (L.) Desf.	2777	55	$2n = 18$	$2n = 18$	Kozuharov & Petrova 1974 Strid & Franzén 1981
				$n = 9$	Talavera 1978a Devesa & Viera Benítez 1988
Glyceria notata Chevall.	2797	57	$2n = 40$	$2n = 40$	Kozuharov & Petrova 1973 (sub *G. fluitans* R. Br.) Löve & Kjellqvist 1973 (sub *G. plicata* Fries) Stace 1984 (sub *G. fluitans* R. Br.)
Piptatherum miliaceum (L.) Cosson	2990	62	$2n = 24$	$2n = 24$	Johnson 1945 (sec. Bolkhovskikh & al. 1969, sub *Oryzopsis miliacea* (L.) Benth. & Hook

					Fernandes & Queirós 1969 (sub *O. miliacea* (L.)Aschers & Schweinf.)
Polygonaceae					
Rumex scutatus L. subsp. ***induratus*** (Boiss. & Reuter) Maire & Weiller	50	1	$2n = 40$	$2n = 20$	Löve (1967, sub *Acetosa scutata* (L.) Miller subsp. *indurata* (Boiss. & Reuter) Löve & Kapoor) Lessani & Chariat-Panahi 1979 Pavone & al. 1981b
				$2n = 40$	Fernández Casas 1977b García & al. 1989 Gonzalez Zapatero & Elena Roselló 1986
Portulacaceae					
Montia fontana L. subsp. ***amporitana*** Sennen	419	11	$2n = 20$	$2n = 20$	Löve & Kjellqvist 1974a
subsp. ***chondrosperma*** (Fenzl) Walters	1017	26	$2n = 20$	$2n = 18$	Scheerer 1940
				$2n = 20$	Lövkvist 1963 (sec. Moore, 1982)
				$2n = 20,40$	Wilsson, 1966 (sec. Bolkhovskih & al. 1969)
subsp. ***variabilis*** Walters	297	10	$2n = 20$		*
Primulaceae					
Androsace maxima L.	1409	32	$2n = 20$	$2n = 20$	Fernández Casas & al. 1980
	1994	39	$2n = 20$		
				$2n = 40$	Kliphuis & Barkoudah 1977
				$n = 20$	Aryavand 1977a
				$n = 30$	Aryavand 1980

Rosaceae					
Sanguisorba minor Scop. subsp. ***magnolii*** & (Spach) Briq.	282	9	$2n = 28$	$2n = 28$	Nordborg 1967 (sec. Bolkhovskih al. 1969) Dahlgren & al. 1971 (subsp. *magnolii*) Van Loon & De Jong 1978 (subsp. *magnolii*) Natarajan 1978 (subsp. *magnolii*) Dalgaard 1986 (subsp. *magnolii*) Mulligan & Cody 1974
				$2n = 56$	Humphries & al. 1978
Rubiaceae					
Crucianella angustifolia L.	155	5	$2n = 22$	$2n = 22$	Ehrendorfer (sec. Moore 1982) Ancev 1974 Queirós 1979, 1986 Strid & Franzén 1981
				$2n = 44$	Homeyer (1932, sec. Bolkhouskikh & al. 1969)
Crucianella patula L.	2469	49	$2n = 22$		*
Valantia hispida L.	153	5	$2n = 18$	$2n = 18$	Dahlgren & al. 1971
Scrophulariaceae					
Bellardia trixago (L.) All.	2981	61	$2n = 24$	$2n = 24$	González Zapatero & al. 1988
Chaenorrinum minus (L.) Lange subsp. ***minus***	2153	43	$2n = 14$	$2n = 14$	Valdés 1969
	582	17	$2n = 14$		Fernandes & al. 1977b Van Loon & Kieft

					Van Loon & Kieft 1980
Linaria anticaria Boiss. & Reuter var. ***cuartonensis*** (Degen & Herv.) Degen & Herv.	1906	47	$2n = 12$	$2n = 12$	Valdés 1969 Valdés 1970
Linaria hirta (L.) Moench.	2793	56	$2n = 12$	$2n = 12$	Löve & Kjellqvist 1974b Viano 1973 1974
Linaria verticillata Boiss.	799	20	$2n = 12$		*
Veronica anagallis-aquatica L.	2951	60	$2n = 36$	$2n = 18$ $2n = 36$	Kliphuis 1979 Snogerup 1985 Björkqvist & al. 1969 Löve & Kjellqvist 1974b Fernandes & al. 1977b Fernández Casas 1977a Van Loon & De Jong 1978 Van Loon & Kieft 1980 Strid 1980 Strid & Franzén 1981 Dalgaard 1985
Veronica praecox All.	876	22	$2n = 18$	$2n = 18$	Strid 1980 Strid & Franzén 1981
	1947	39	$2n = 18$		Javurková 1981
Solanaceae					
Hyoscyamus niger L.	1912	38	$2n = 34$	$2n = 34$	Griesinger (1937, sec. Bolhouskikh & al. 1969) Delay 1947 Löve & Löve 1948 Mehra & Sobti 1954

Urticaceae					
Urtica pilulifera L.	2634	53	$2n = 26$	$2n = 26$	Basset & Crompton 1972
				$2n = 24$	Colombo & al. 1982
Valerianaceae					
Centranthus calcitrapae (L.) Dufresne	2740	54	$2n = 32$	$2n = 32$	Dahlgren & al. 1971
				$n = 16$	Montmollin 1986
Valerianella carinata Loisel.	476	13	$2n = 18$	$2n = 16$	Löve & Kjellqvist, 1974b
	1330	31	$2n = 16$		Ancev 1978
				$2n = 18$	Elvers 1932b (sec. Bolkhovskikh & al. 1969)
				$n = 8$	Ernet 1972
Valerianella muricata (Steven ex MB.) J.W. Loudon	2954	60	$2n = 16$	$2n = 16$	Ernet 1972 Ancev 1982
Violaceae					
Viola kitaibeliana Schultes	1814	36	$2n = 48$	$2n = 16$	Uhríková & Májovsky 1978
	2012	40	$2n = 18$		Fernández Casado 1984
				$2n = 24$	Van Loon 1980 Franzén & Gustavsson 1983
				$2n = 48$	Fothergill 1944
				$2n = 14$ (16, 24, 36, 48)	Clausen (1926, 1927, 1931, sec. Bolkhovskikh & al. 1969)
Viola parvula Tineo	904	23	$2n = 10$	$2n = 10$	Björkqvist, & al. 1969 Favarger & Küpfer 1969 Franzén & Gustavsson 1983 Fernández Casado 1984

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