

Diversity of bulbous monocots in Turkey with special reference. Chromosome numbers*

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Abstract: Turkey is among the richest countries in the world in terms of plant diversity. The aim of this paper is to show diversity of the petaloid and bulbous plants, which belong to monocotyledones. According to *Flora of Turkey* and its supplements, the number of species of bulbous monocotyledones is around 688, of which 244 are endemic (endemism 35.4 %). According to the statistical data of Turkish flowering plants based on the published records, only 15 % of the flora have information about chromosome counts, although bulbous monocots percentage is higher at 58 %. *Fritillaria* and *Tulipa* are stable genera as regards chromosome numbers with $2n = 24$ and karyotype; on the other hand, the most variable genera are *Crocus* ($2n = 6, 8, 10, 12, 14, 16, 18, 20, 22, 26, 28, 30, 70$) and *Ornithogalum* ($2n = 12, 14, 16, 18, 20, 21, 24, 27, 28, 32, 40, 45, 54, 60, 80$).

INTRODUCTION

Turkey covers 779.452 km², of which 3 % lies in European Turkey (Thrace), the remainder in Asian Turkey (Anatolia). With around 9000 species, the flora is the richest of any country in Europe, North Africa, and the Middle East, and indeed is more typical of a continent or tropical country than an individual temperate country. Of these, nearly one in every three plants is endemic, an astonishingly high percentage for a mainland country (Table 1).

Table 1 Wild flowering plants species in Turkey [1–3].

Family	Genera	Species	Total infrageneric taxa (ssp. & var.)	Endemic taxa	Endemism
142	1138	8930	10 653	3707	34.5 %

The main reasons for this wealth are as follows:

- a variety of climates
- topographical diversity with marked changes in ecological factors over a short distance
- geological and geomorphic variation
- a range of aquatic environments such as seas, lakes, and rivers
- altitude variations from sea level to 5000 m
- There are a number of major mountain ranges in Anatolia that constitute effective barriers, and these have further encouraged a greater diversity of species

*Lecture presented at the 3rd IUPAC International Conference on Biodiversity (ICOB-3), Antalya, Turkey, 3–8 November 2001. Other presentations are presented in this issue, pp. 511–584.

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- The situation of the country at the junction of three major phytogeographical regions: the Euro-Siberian element that predominates in the cooler northern parts of the country; the Mediterranean element that is mainly restricted to the mild climatic zone along Turkey's southern and western shores; and the Irano-Turanian element, characteristic of the vast steppes and mountains of Inner Anatolia with a continental climate characterized by soaring summer temperatures, and often bitterly cold winters.
- Additionally, during many historical periods, Anatolia has served as a passage way between the continents of Europe, Asia, and Africa, resulting in the dispersal of a wide variety of plants and animals.

All of these factors combined have provided many opportunities for the plants to evolve and differentiate, creating the present wealth of species now estimated to be over 8930, about one-third of which are endemics.

BULBOUS PLANTS IN TURKEY

It is also a well-known fact to botanists that Turkey is among the world's most richly endowed countries with regard to bulbous monocotyledones. It has the richest variety in the world, with greater numbers of *Fritillaria* and *Crocus*, for instance, than any other country. This wealth mirrors the general richness of Turkish flora. This diversity stems principally from Turkey's geographical position, sandwiched between the steppes of central Asia, the deserts of Syria, the cold forested mountains of Central Europe, and the Mediterranean to the west. Many of Turkey's varied climates are ideal for bulbs, being moist in the spring or autumn, when bulbs flower and seed, and dry in the summer, when the specially adapted bulbs are able to lie dormant during the extremes of heat and drought.

Table 2 Monocotyledones in Turkey.

Family	Genera	Species	Total infrageneric taxa (subsp. & var.)	Endemic taxa	Endemism
24	251	1450	1731	389	22.5 %
Petaloid and bulbous monocotyledones in Turkey			688	244	35.4 %

THREATS OF THE TURKISH BULBS

Commercial collection and trade represents the principle threat to individual species. Among the groups of plants most affected are medicinal plants, orchids, and bulbous plants. Özhatay et al. [4] have documented the commercial trade in medicinal plants, identifying some 346 taxa either in internal commerce and exported. On average, Turkey exports 28.000 tons of medicinal and aromatic plants annually, generating approximately USD 50 million in foreign income. A number of conservationists regard the trade in orchid tubers to be the most worrying. Annually, it is estimated that up to 30 million tubers, of some 40 species, are collected, to be dried and powdered for the production of a warm winter drink ("salep") and a distinctive ice cream ("Maras Dondurması").

The best-documented example of the trade in a group of plants is that of the bulbous plants collected for the horticultural trade. Since the 1960s, the collection of wild bulbs has increased annually, reaching a peak of over 70 million tubers in late 1980s. Conservationists feared that for at least some species (e.g., *Cyclamen* spp., *Galanthus elwesii*, *G. woronowii*, *Fritillaria imperialis*, *F. persica*, etc.), such levels of collection were unsustainable. Rather than simply seeking a ban within the importing

countries, conservationists, and Turkish scientists have collectively promoted programs to artificially propagate and cultivate bulbs in village locations, thereby reducing pressures on wild populations, yet at the same time maintaining valuable income to village communities. While the switch from collection to cultivation is taking longer than previously expected, the signs are encouraging. Today, a large quantity of *Leucojum aestivum*, *Fritillaria imperialis*, and *F. persica* is produced from cultivated sources.

However, the greater threat to a wider range of Turkish plants arises indirectly, through damage and destruction of their habitats.

CHROMOSOME NUMBERS OF TURKISH PETALOID AND BULBOUS MONOCOTS

The *Flora of Turkey and the East Aegean Islands* [1–3] includes 10 653 flowering plant taxa, only 1613 of them have chromosome numbers [5]. All of the counts are taken from published papers, and all chromosome counts have been traced in the available literature (only material of known wild Turkish origin, which has been cultivated in Turkey or cultivated elsewhere from material of wild Turkish origin).

According to the statistical data of Turkish flowering plants based on the supplements Vols. 10 and 11 of the *Flora of Turkey* [2,3], only chromosome numbers of 1613 taxa are counted (Fig. 1).

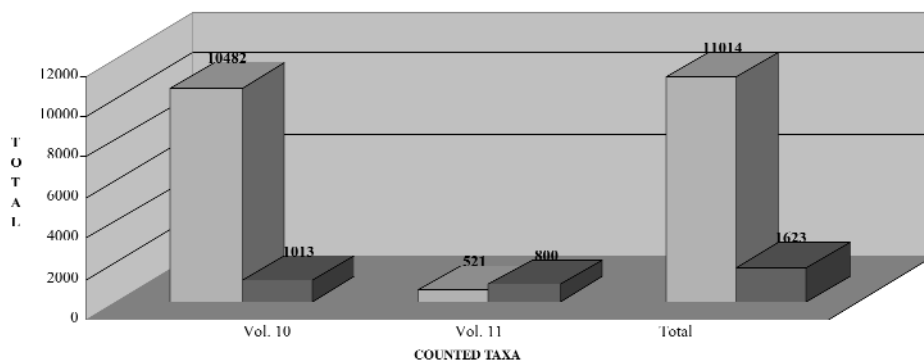


Fig. 1 Chromosome numbers of counted taxa of Turkish flowering plants.

In spite of the floristic richness of Turkey, only 15 % of the flora has information about the chromosome counts. In comparison, counted chromosome numbers of petaloid and bulbous monocots are considerably higher than the rest of the Turkish flowering plant taxa (Fig. 2).

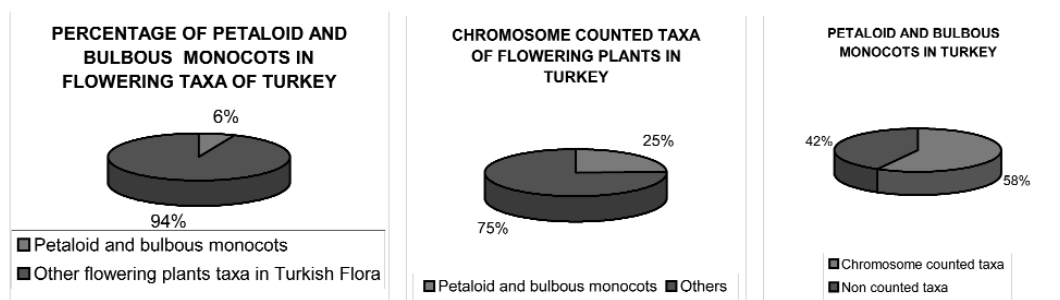


Fig. 2 Percentage of chromosome numbers of counted taxa of petaloid and bulbous monocots in Turkey.

The list of the petaloid and bulbous monocotyledones in Turkey with the chromosome number are given below (Table 3).

Table 3 List of the chromosome numbers of Turkish petaloid and bulbous monocots.

Taxon	Chromosome number (2n)	Taxon	Chromosome number (2n)
Amaryllidaceae			
<i>Galanthus elwesii</i>	24	<i>C. biflorus</i> ssp. <i>isauricus</i>	8, 10, 12
<i>G. fosteri</i>	24	<i>C. biflorus</i> ssp. <i>nubigena</i>	12
<i>G. gracilis</i>	24	<i>C. biflorus</i> ssp. <i>pseudonubigena</i>	18, 20
<i>G. nivalis</i> ssp. <i>cilicicus</i>	24	<i>C. biflorus</i> ssp. <i>pulchricolor</i>	8
<i>G. nivalis</i> ssp. <i>nivalis</i>	24	<i>C. biflorus</i> ssp. <i>punctatus</i>	8
<i>G. peshmenii</i>	24	<i>C. biflorus</i> ssp. <i>tauri</i>	20, 22
<i>G. rizehensis</i>	24	<i>C. cancellatus</i> ssp. <i>cancellatus</i>	10
<i>Leucojum aestivum</i>	22, 24	<i>C. cancellatus</i> ssp. <i>damascenus</i>	8, 10, 10 + 4B, 12
<i>Sternbergia candida</i>	20	<i>C. cancellatus</i> ssp. <i>lycius</i>	14
<i>S. clusiana</i>	20	<i>C. cancellatus</i> ssp. <i>mazziaricus</i>	16
<i>S. colchiciflora</i>	20, 10	<i>C. cancellatus</i> ssp. <i>pamphlicus</i>	12
<i>S. fischeriana</i>	20	<i>C. candidus</i>	6
<i>S. lutea</i>	22, 33	<i>C. chrysanthus</i>	8, 10, 12, 14, 16
<i>S. sicula</i>	24	<i>C. danfordiae</i>	8
Araceae			
<i>Arum byzantinum</i>	28	<i>C. flavus</i> ssp. <i>dissectus</i>	8
<i>A. creticum</i>	28	<i>C. flavus</i> ssp. <i>flavus</i>	8, 8 + 11B
<i>A. dioscorides</i>	28	<i>C. fleischeri</i>	20
<i>A. elongatum</i>	28	<i>C. gargaricus</i>	30
<i>A. euxinum</i>	28	<i>C. graveolens</i>	6
<i>A. italicum</i>	70, 84	<i>C. karduchorum</i>	10
<i>A. maculatum</i>	56	<i>C. kotschyanus</i> s.l.	20
<i>A. nickelii</i>	84	<i>C. kotschyanus</i> ssp. <i>cappadocicus</i>	10
<i>A. orientale</i>	28	<i>C. kotschyanus</i> ssp. <i>hakkariensis</i>	10
<i>Biarum davisii</i> ssp.	26	<i>C. kotschyanus</i> ssp. <i>kotschyanus</i>	8, 10
<i>marmarisense</i>		<i>C. kotschyanus</i> ssp.	20
<i>B. ditschianum</i>	26	<i>suworowianus</i>	
<i>B. eximium</i>	16	<i>C. laevigatus</i>	26
<i>B. kotschy</i> c.	96	<i>C. leichtlinii</i>	20
<i>Eminium koenenianum</i>	28	<i>C. mathewii</i>	70
Iridaceae			
<i>Crocus abantensis</i>	16	<i>C. olivieri</i> ssp. <i>balansae</i>	6
<i>C. adanensis</i>	14	<i>C. pallasii</i> ssp. <i>dispathaceus</i>	14
<i>C. aerius</i>	22, 26	<i>C. pallasii</i> ssp. <i>pallasii</i>	14
<i>C. ancyrensis</i>	10	<i>C. pallasii</i> ssp. <i>turcicus</i>	12
<i>C. antalyensis</i>	8	<i>C. pestalozzae</i>	28
<i>C. asumaniae</i>	26	<i>C. pulchellus</i>	12
<i>C. baytopiorum</i>	28	<i>C. reticulatus</i> ssp. <i>hititicus</i>	10
<i>C. biflorus</i> s.l.	8, 10	<i>C. reticulatus</i> ssp. <i>reticulatus</i>	10
<i>C. biflorus</i> ssp. <i>biflorus</i>	8, 10	<i>C. sativus</i>	24
<i>C. biflorus</i> ssp. <i>crewei</i>	10	<i>C. schorojanii</i>	8
<i>C. speciosus</i> ssp. <i>speciosus</i>	8, 10, 18	<i>C. sieheanus</i>	16
<i>C. speciosus</i> ssp. <i>xantholaimos</i>	10	<i>C. speciosus</i> ssp. <i>ilgazensis</i>	6, 8
<i>C. tournefortii</i>	30	<i>A. charaulicum</i>	16
<i>C. vallicola</i>	8	<i>A. chrysanthorum</i>	16 + 1
<i>C. vitellianus</i>	8	<i>A. commutatum</i>	32
<i>Gladiolus anatolicus</i>	60	<i>A. coppoleri</i>	32
<i>G. antakiensis</i>	120	<i>A. cupani</i>	16
<i>G. atroviolaceus</i>	80	<i>A. cupani</i> ssp. <i>hirtovaginatatum</i>	14
		<i>A. curtum</i>	16, 16 + 4B
		<i>A. cyrilli</i>	16, 32

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Table 3 (Continued)

Taxon	Chromosome number (2n)	Taxon	Chromosome number (2n)
<i>G. illyricus</i>	60	<i>A. deciduum</i> ssp. <i>deciduum</i>	16
<i>G. kotschyanus</i>	60	<i>A. dentiferum</i>	32
<i>Iris albicans</i>	44	<i>A. dictyoprasum</i>	16
<i>I. altica</i>	16	<i>A. djimilense</i>	16
<i>I. danfordiae</i>	18	<i>A. eldivanense</i>	16
<i>I. germanica</i>	44	<i>A. enginii</i>	16
<i>I. histrio</i>	20	<i>A. fethiyense</i>	16
<i>I. histrioides</i>	16	<i>A. flavum</i> ssp.	16, 32
		<i>flavum</i> var. <i>flavum</i>	
<i>I. junonia</i>	48	<i>A. flavum</i> ssp. <i>tauricum</i>	16, 32
<i>I. lazica</i>	32	<i>A. flavum</i> ssp.	16
		<i>tauricum</i> var. <i>tauricum</i>	
<i>I. pamphylica</i>	20	<i>A. fulcoviolaecum</i>	16, 16 + 1B
<i>I. persica</i>	24	<i>A. glumaceum</i>	16
<i>I. pseudoacorus</i>	34	<i>A. gramineum</i>	16
<i>I. purpureobracteata</i>	24, 48, 49, 72	<i>A. guttatum</i> ssp. <i>dalmaticum</i>	16
<i>I. reticulata</i>	18, 20	<i>A. guttatum</i> ssp. <i>guttatum</i>	16, 32, 40
<i>I. schachtii</i>	48	<i>A. guttatum</i> ssp. <i>sardoum</i>	16
<i>I. sintenisii</i>	16	<i>A. hirtovaginatatum</i>	16
<i>I. suaveolens</i>	24	<i>A. ilgazense</i>	16
<i>I. taochia</i>	24	<i>A. incisum</i>	16
Liliaceae		<i>A. jubatum</i>	16
<i>Allium affine</i>	16	<i>A. junceum</i> ssp. <i>junceum</i>	16
<i>A. akaka</i>	16	<i>A. junceum</i> ssp. <i>tridentatum</i>	16
<i>A. amethystinum</i>	16	<i>A. karamanoglui</i>	16
<i>A. ampeloprasum</i>	24, 32, 40, 48	<i>A. karsianum</i>	16
<i>A. amphipulchellum</i>	16	<i>A. karyeteini</i>	16
<i>A. anatolicum</i>	16	<i>A. kastambulense</i>	16
<i>A. armenum</i>	16	<i>A. kharputense</i>	16
<i>A. artvinense</i>	16	<i>A. kossoricum</i>	16
<i>A. asperiflorum</i>	16	<i>A. kunthianum</i>	16
<i>A. atropurpureum</i>	16	<i>A. lacerum</i>	16
<i>A. atroviolaceum</i>	16, 24, 32	<i>A. lycaonicum</i>	16, 24
<i>A. aucheri</i>	16	<i>A. machrochaetum</i>	16
<i>A. bassilense</i>	16	<i>A. moschatum</i>	16
<i>A. baytopiorum</i>	16	<i>A. myrianthum</i>	16
<i>A. bourgeaui</i> ssp. <i>bourgeaui</i>	16	<i>A. neapolitanum</i>	21, 28, 35, 42
<i>A. bourgeaui</i> ssp. <i>cycladicum</i>	16	<i>A. nevsehirense</i>	16, 32
<i>A. callimischoi</i> ssp.	16	<i>A. nigrum</i>	16
<i>haemostictum</i>			
<i>A. cappadocicum</i>	16, 16 + 1B	<i>A. oltense</i>	16
<i>A. cardiostemon</i>	16	<i>A. olympicum</i>	16
<i>A. oreophilum</i>	16	<i>Bellevallia anatolica</i>	8
<i>A. orientale</i>	16	<i>B. clusiana</i>	8
<i>A. pallens</i> ssp. <i>pallens</i>	16	<i>B. dubia</i>	8
<i>A. paniculatum</i> ssp. <i>fuscum</i>	16, 24	<i>B. edirnensis</i>	24
<i>A. paniculatum</i> ssp.	16, 32, 40	<i>B. fominii</i>	8
<i>paniculatum</i>			
<i>A. paniculatum</i> ssp. <i>villosulum</i>	16	<i>B. forniculata</i>	8
<i>A. peroninianum</i>	16	<i>B. gracilis</i>	8 + 3B, 16
<i>A. phrygium</i>	16	<i>B. kurdistanica</i>	16
<i>A. ponticum</i>	32	<i>B. latifolia</i>	32
<i>A. proponticum</i>	16	<i>B. longistyla</i>	31, 32, 32 + B, 35
<i>A. pseudoalbidum</i>	16	<i>B. mathewii</i>	8

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Table 3 (Continued)

Taxon	Chromosome number (2n)	Taxon	Chromosome number (2n)
<i>A. pseudampeloprasum</i>	16	<i>B. modesta</i>	8
<i>A. pseudflavum</i>	16	<i>B. paradoxa</i>	8, 8 + 3B
<i>A. reuterianum</i>	16	<i>B. pycnantha</i>	16, 16 + 2B
<i>A. rhodopeum</i> ssp. <i>tauricum</i>	16	<i>B. rixii</i>	8
<i>A. rollovii</i>	16	<i>B. sarmatica</i>	8, 8 + 2B, 8 + 3B
<i>A. roseum</i>	40	<i>B. tauri</i>	16
<i>A. rotundum</i> s.l.	32	<i>B. trifoliata</i>	8
<i>A. rotundum</i> ssp. <i>jajlae</i>	16, 32	<i>Colchicum baytopiorum</i>	46, 54, 108
<i>A. rotundum</i> ssp. <i>rotundum</i>	16, 16 + 2B, 32, 40	<i>C. bivonae</i>	36
<i>A. rotundum</i> ssp. <i>waldsteinii</i>	24	<i>C. boissieri</i>	46
<i>A. rupestre</i>	16	<i>C. chalconicum</i> ssp. <i>chalconicum</i>	54
<i>A. rupicola</i>	16 + B	<i>C. chalconicum</i> ssp. <i>punctatum</i>	50
<i>A. sandrasicum</i>	16	<i>C. cilicicum</i>	54
<i>A. scabriflorum</i>	16	<i>C. davisii</i>	46
<i>A. schoenoprasum</i>	16	<i>C. decaisnei</i>	54
<i>A. scorodoprasum</i>	16, 32	<i>C. dolichantherum</i>	54
<i>A. sieheneanum</i>	24 + 1B	<i>C. heldreichii</i>	54
<i>A. sipyleum</i>	16	<i>C. imperatoris-friderici</i>	54
<i>A. sivasicum</i>	16	<i>C. inundatum</i>	54
<i>A. sosnowskyanum</i>	16	<i>C. kotschy</i>	20
<i>A. sphaerocephalon</i> s.l.	16, 32	<i>C. lingulatum</i> s.l.	54
<i>A. sphaerocephalon</i> ssp. <i>sphaerocephalon</i>	16	<i>C. lingulatum</i> ssp. <i>rigescens</i>	54
<i>A. stamineum</i>	16	<i>C. macrophyllum</i>	54
<i>A. stearnianum</i> ssp. <i>stearnianum</i>	16	<i>C. micaceum</i>	54
<i>A. stenopetalum</i>	16	<i>C. minutum</i>	44
<i>A. stylosum</i>	16	<i>C. munzurensense</i>	24
<i>A. subhirsutum</i>	14	<i>C. paschei</i>	48
<i>A. szovitsii</i>	16, 56	<i>C. persicum</i>	54
<i>A. tchihatschewii</i>	16	<i>C. sanguicolle</i>	22
<i>A. trachycoleum</i>	32, 48	<i>C. speciosum</i>	38
<i>A. tuncelianum</i>	16	<i>C. triphyllum</i>	42
<i>A. turcicum</i>	16, 17	<i>C. turcicum</i>	52
<i>A. vineale</i>	32	<i>C. variegatum</i>	44
<i>A. wendelboanum</i>	16	<i>Fritillaria bithynica</i>	24
<i>A. wiedemannianum</i>	16	<i>F. carica</i>	24
<i>A. zebdanense</i>	18	<i>F. crassifolia</i> ssp. <i>hakkariensis</i>	24
<i>F. elwesii</i>	24	<i>O. arcuatum</i>	26, 32
<i>F. imperialis</i>	36	<i>O. armeniacum</i>	14, 16, 18, 18 + 1B, 20, 20 + 1B, 20 + 4B
<i>F. minima</i>	24	<i>O. arabicum</i>	28
<i>F. minuta</i>	24	<i>O. balansae</i>	12, 24, 24+1B
<i>F. persica</i>	24	<i>O. comosum</i>	14, 16, 18, 20
<i>F. pontica</i>	24	<i>O. euxinum</i>	18
<i>F. sororum</i>	24	<i>O. fimbriatum</i>	12, 13, 35, 36, 20 + 1B
<i>F. stribnyi</i>	24	<i>O. gussonei</i>	14, 18
<i>Gagea bohemica</i>	36	<i>O. improbum</i>	18
<i>G. chrysantha</i>	36	<i>O. joschtiae</i>	18
<i>G. pratensis</i>	36	<i>O. kuereanum</i>	14
<i>G. villosa</i> var. <i>villosa</i>	24, 36, 48	<i>O. lanceolatum</i>	18, 20, 22
<i>Hyacinthella acutiloba</i>	18	<i>O. luschanii</i>	22, 28, 44, 60, 76

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Table 3 (Continued)

Taxon	Chromosome number (2n)	Taxon	Chromosome number (2n)
<i>H. campanulata</i>	18	<i>O. macrum</i>	54
<i>H. glabracens</i>	18, 20	<i>O. montanum</i>	14, 18
<i>H. heldreichii</i>	18	<i>O. mysum</i>	16
<i>H. hispida</i>	18	<i>O. narbonense</i>	14, 16, 18, 22, 24, 28, 14 + 1B, 2B, 5B, 36, 46
<i>H. lazulina</i>	22	<i>O. nivale</i>	14
<i>H. lineata</i>	16	<i>O. nutans</i>	14, 15, 18, 40
<i>H. nervosa</i>	24	<i>O. oligophyllum</i>	16, 18, 20, 24, 24 + 2, 40, 80
<i>H. siirtensis</i>	22	<i>O. orthophyllum</i>	14, 16, 28
<i>H. venusta</i>	22	<i>O. pascheanum</i>	14
<i>Hyacinthus orientalis</i> ssp. <i>orientalis</i>	16	<i>O. platyphyllum</i>	16, 18, 27, 54
<i>H. orientalis</i> subsp. <i>chionophilus</i>	16	<i>O. pluttulum</i>	14
<i>Merendera trigyna</i>	22	<i>O. pyrenaicum</i>	16, 18, 24
<i>Muscari anatolicum</i>	18	<i>O. reflexum</i>	12
<i>M. armeniacum</i>	18	<i>O. refractum</i>	28, 54
<i>M. aucheri</i>	18, 36, 37	<i>O. saginatum</i>	28
<i>M. azureum</i>	18	<i>O. shelkovnikovii</i>	26
<i>M. bourgaei</i>	18	<i>O. sibthorpii</i>	14, 28, 32
<i>M. caucasicum</i>	18	<i>O. sigmoideum</i>	12, 14, 16, 16 + B, 19, 20, 24, 34
<i>M. commutatum</i>	18, 27	<i>O. sorgerae</i>	18
<i>M. coelesta</i>	18	<i>O. sphaerocarpum</i>	16
<i>M. comosum</i>	18	<i>O. ulophyllum</i>	14, 16, 18
<i>M. discolor</i>	18	<i>O. uluense</i>	20
<i>M. latifolium</i>	18, 18 + 1B	<i>O. umbellatum</i>	16, 36, 44, 45, 54
<i>M. longipes</i>	18	<i>O. wiedemannii</i>	12, 12 + 1B, 14, 14 + 1, 14 + 2B, 18, 21, 22
<i>M. macrocarpum</i>	18	<i>Scilla autumnalis</i>	14, 16, 28, 41
<i>M. massayanum</i>	18	<i>S. bifolia</i>	14, 18, 36
<i>M. microstomum</i>	18	<i>S. bithynica</i>	12
<i>M. mirum</i>	18	<i>S. cilicica</i>	12
<i>M. muscarimi</i>	18	<i>S. dedea</i>	18
<i>M. neglectum</i>	18, 28, 36, 36 + 1, 45, 54	<i>S. forbesii</i>	18
<i>M. sandrasicum</i>	18	<i>S. hyacinthoides</i>	20
<i>M. tenuiflorum</i>	18, 18 + 1B	<i>S. ingridae</i>	12
<i>M. weissii</i>	18	<i>S. leepii</i>	12
<i>Ornithogalum alpigenum</i>	18	<i>S. melaina</i>	12
<i>O. aemulum</i>	16	<i>S. monanthos</i>	12
<i>S. persica</i>	8	<i>T. thracica</i>	48
<i>S. pruinosa</i>	36	<i>T. undulatifolia</i>	36
<i>S. rosenii</i>	12	<i>Nectaroscordum siculum</i> ssp. <i>siculum</i>	18
<i>S. siberica</i> ssp. <i>armena</i>	12	<i>N. siculum</i> subsp. <i>bulgaricum</i>	18
<i>Tulipa armena</i>	24	<i>Urginea maritima</i>	20, 40, 50
<i>T. biflora</i>	24	Orchidaceae	
<i>T. cinnabarina</i>	24	<i>Orchis coriophora</i>	38
<i>T. hellespontica</i>	48	<i>O. morio</i> ssp. <i>morio</i>	36
<i>T. orphanidea</i>	36	<i>O. purpurea</i>	42
<i>T. sylvestris</i>	24	<i>O. tridentata</i>	42
<i>T. sylvestris</i> ssp. <i>australis</i>	24, 36		

RESULTS AND DISCUSSION

All of the counts of this presentation are taken from published papers. The *Flora of Turkey and the East Aegean Islands* [1–3] include 11 014 flowering plant taxa, of which 1623 chromosome numbers have been recorded. The chromosome numbers of 366 taxa of Turkish petaloid and bulbous monocotyledones have been counted. Table 4 summarizes genera of which chromosomes are counted with the number of species and endemic taxa.

Table 4 Genera of petaloid and bulbous monocots with their species numbers, endemism, and chromosome numbers.

Genus	Species+ subsp./var.	Endemic taxa	Endemism (%)	Chromosome counted taxa	Chromosome numbers (2n)
<i>Allium</i>	164 + 41	65	40 %	111	14, 16, 18, 21, 24, 28, 32, 35, 40, 42, 48, 56
<i>Arum</i>	11 + 8	2	18 %	9	25, 56, 70, 84
<i>Bellevia</i>	21	10	43 %	18	8, 16, 24, 31, 32, 35
<i>Biarum</i>	7 + 2	2	29 %	4	16, 26, 96
<i>Chionodoxa</i>	3	3	100 %	3	18, 27
<i>Colchicum</i>	35	14	40 %	26	20, 22, 24, 36, 38, 42, 44, 46, 50, 52, 54, 108
<i>Crocus</i>	36 + 34	22	61 %	54	6, 8, 10, 12, 14, 16, 18, 20, 22, 26, 28, 30, 70
<i>Eminium</i>	3 + 3	1	33 %	1	28
<i>Fritillaria</i>	36 + 12	19	53 %	11	24
<i>Gagea</i>	25 + 2	2	8 %	4	24, 36, 48
<i>Galanthus</i>	13 + 4	2	14 %	7	24
<i>Gladiolus</i>	9	4	44 %	5	10
<i>Iris</i>	39	14	36 %	17	16, 18, 20, 24, 32, 44, 48, 49, 72
<i>Hyacinthella</i>	11	10	91 %	10	16, 18, 20, 22, 24
<i>Hyacinthus</i>	1 + 2	1	50 %	2	16
<i>Leucojum</i>	1	–	–	1	22, 24
<i>Merendera</i>	4	–	–	1	22
<i>Muscari</i>	26	16	62 %	21	18, 27, 28, 36, 37, 45, 54
<i>Nectaroscordum</i>	2 + 2	–	–	2	18
<i>Orchis</i>	22 + 6	–	–	4	36, 38, 42
<i>Ornithogalum</i>	37 + 2	14	38 %	39	12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 24, 26, 27, 28, 32, 40, 44, 45, 54, 60, 76, 80
<i>Puschkinia</i>	1	–	–	1	10
<i>Scilla</i>	16	4	25 %	15	8, 12, 14, 16, 18, 20, 28, 36, 41
<i>Sternbergia</i>	7	2	29 %	6	10, 20, 22
<i>Tulipa</i>	15	3	20	9	24, 36, 48
<i>Urginea</i>	1	–	–	1	20, 20, 50

Chromosome numbers of whole taxa of five genera *Hyacinthus*, *Chionodoxa*, *Leucojum*, *Puschkinia*, and *Urginea* are counted. On the other hand, none of species has information on any of the genera *Lilium*, *Arisarum*, *Ixiolirion*, and many *Orchidaceae*.

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