

CHROMOSOME COUNTS OF SOME ANGIOSPERMS FROM IRAN

S. M. Ghaffari & M. Sanei Chariat-Panahi

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Original chromosome observations including 25 species from 8 families are reported, of these 6 are first reports and one of them is endemic to Iran.

Seyyed Mahmoud Ghaffari, Institute of Biochemistry and Biophysics, University of Tehran, P. O. Box 13145—1384, Tehran, Iran. — Mohammad Sanei Chariat-Panahi, Agricultural college, Karaj, Iran.

شمارش کروموزومی تعدادی از نهاندانگان ایران
از: سید محمود غفاری و محمد صانعی شریعت‌پناهی
مشاهدات کروموزومی ۲۵ گونه متعلق به ۸ خانواده گزارش میشود. یکی از
گونه‌های مذکور انحصاری ایران است و شمارش کروموزومی ۶ گونه برای اولین بار
ارائه میگردد.

INTRODUCTION

Chromosome counts serve as a reservoir of data for biologists concerned with systematic and evolutionary investigations. Unlike the morphological information content of specimens which can be measured and remeasured by succeeding generations of botanists, chromosomal information is ephemeral and is not directly retrievable from a dried specimen, consequently documentation of chromosome numbers and meiotic irregularities serve as a unique source of information for both current and future investigators. In this publication chromosome numbers for 25 species including 23 genera and 8 families are reported. Counts are published here for the first time for 7 species. Autotetraploid was noted in one species (*Heteropappus altaicus*). Some of the observations that are reported here confirm earlier reports listed in cumulative indices edited by Fedorov (1969) or Moore (1982), these are listed without discussion. Voucher specimens are preserved in the Herbarium of Research Institute of Forests and Rangelands (TARI).

MATERIALS AND METHODS

Chromosome counts were made from flower buds of wild plants. Flower buds were fixed in acid alcohol (1:3) and

stored in 70% Ethanol. Gametophytic numbers (n) were determined from squash preparations of pollen mother cells stained in acetocarmine.

CARYOPHYLLACEAE

Holosteum umbellatum L. — $2n=10$ II.

Tehran: ca. 50 km NW. of Karaj, Samgh-Abad, Ghaffari 7063.

Vaccaria pyramidata Medik. — $2n=15$ II.

Tehran: 25 km NW. of Karaj, Kouhpayeh, 14263.

Lessani & al. (1979) reported $n=15$ for this taxon from Azerbaidjan prov., between Rezaiyeh and Ochnouyeh.

COMPOSITAE

Cousinia gaubae Bornm. — $2n=13$ II. (Fig.1).

Tehran: ca. 50 km NW. of Karaj, Samgh-Abad, Ghaffari 7962.

The species is endemic to Iran and this is the first chromosome number report for it. 13 bivalents were observed in the first metaphase and other stages were regular.

Crepis sancta (L.) Bab. — $2n=5$ II, (Fig.2).

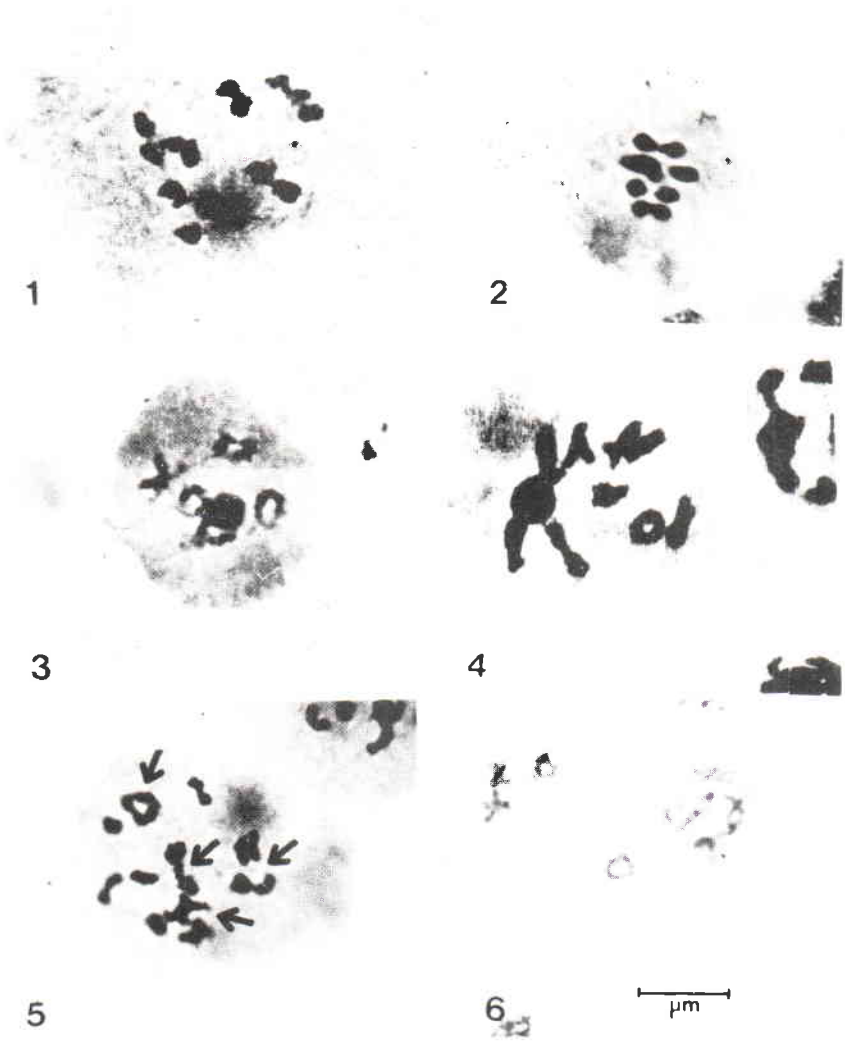


Fig. 1—6: Meiotic chromosome figures. — Fig. 1: *Cousinia gaubae*, Metaphase I, 13 pairs. — Fig. 2: *Crepis sancta*, 5 pairs. — Fig. 3: *Garhadiolus angulosus*, Diakinesis, 5 pairs. — Fig. 4: *Gundelia tournefortii*, 9 pairs. — Fig. 5: *Heteropapus altaicus*, Metaphase I, showing ring and chains of four chromosomes (indicated by arrows). -- Fig. 6: *Lactuca serriola*, 9 pairs.

Tehran: ca. 40 km NW. of Karaj, Koshk-Zar, Ghaffari 2963.

Crupina crupinastrum (Moris) Vis. — $2n=14$ II.

Khorassan: between Mashhad and Neyshabour, Ghaffari 3657.

Garhadiolus angulosus Jaub. & Spach. — $2n=5$ II, (Fig.3).

Tehran: ca. 40 km NW. of Karaj, Koshk-Zar, Ghaffari 1863.

This is the first report for this species. Counts of $2n=10$ have been reported for three more species of the genus.

Gundelia tournefortii L. — $2n=9$ II. (Fig.4).

Tehran: ca. 40 km NW. of Karaj, Koshk-Zar, Ghaffari 5763.

Heteropappus altaicus (Willd.) Novopokr. (*Aster altaicus* Willd.). — $2n=18$ II, (Fig. 5).

Tehran: 20 km SW. of Karaj, Mard-Abad, Ghaffari 17363.

Previous reports are $2n=18$ and 36 , indicate that this species has both diploid and tetraploid races. Rings and chains of four chromosomes in many cells at first metaphase were observed, probably represent an autotetraploid.

Lactuca serriola L. — $2n=9$ II, (Fig. 6).

Tehran: Karaj, Taleghan area, Mianvand, Ghaffari 8762.

Onopordon heteracanthum C. A. Mey. — $2n=17$ II.

Khorassan: Shirvan, Ghaffari 4357.

Aryavand (1975) reported $n=17$ from the prov. Esfahan, Khonsar.

Senecio vernalis W. & K. — $2n=10$ II.

Tehran: 20 km SW. of Karaj, Mard-Abad, Ghaffari 5763.

Aryavand (1977 a) reported $n=10$ for this species from Mazandaran.

CRUCIFERAE

Alyssum minus (L.) Rothm. — $2n=24$ II.

Tehran: 20 km SW. of Karaj, Mardabad, Ghaffari 1262.

Ramak Maassoumi (1980) reported $n=24$ for this taxon from Tehran. Other reports which are listed by Moore (1982) are $2n=16$.

Alyssum stapfii Vierh. — $2n=24$ II.

Tehran: Karaj, Chalous road, Asara, Ghaffari 4263.

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Descourainia sophia (L.) Webb. — $2n=14$ II.

Tehran: ca. 20 km SW. of Karaj, Mardabad, Ghaffari 4963.

Previous reports are $n=10$ by Ramak Maassoumi (1980) from Fariman and $2n=28$ by Aryavand (1977 b) from Esfahan. Other reports by Fedorov (1969) are $2n=20$ and 28.

LABIATAE

Salvia nemorosa L. — $2n=7$ II.

Tehran: 20 km SW. of Karaj, Mardabad, Ghaffari 11263.

Salvia reuteriana Boiss. — $n=10$ (first anaphase), (Fig. 8).

Tehran: between Karaj and Chalous, Kandavan, Ghaffari 11863.

This is the first record for the species.

Sideritis montana L. — $2n=16$ II.

Tehran: 20 km SW. of Karaj, Mardabad, Ghaffari 5663.

LEGUMINOSAE

Glycyrrhiza echinata L. — $2n=8$ II.

Tehran: 20 km SW. of Karaj, Mardabad, Ghaffari 1962.

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Lathyrus cicera L. — $2n=7$ II, (Fig. 7).

Tehran: ca. 40 km NW. of Karaj, Koshk-Zar, Ghaffari 2063.

Vicia sativa L. — $2n=6$ II.

Tehran: 20 km SW. of Karaj, Mardabad, Ghaffari 10463.

PAPAVERACEAE

Glaucium elegans Fisch. & C. A. Mey. — $2n=6$ II, (Fig. 9).

Tehran: between Karaj and Chalous, Kandavan, Ghaffari 8263.

This is the first report for the species, 6 pairs in metaphase I were observed, one pair of which were the largest.

Hypecoum pendulum L. — $n=8$ (first anaphase), (Fig. 10).

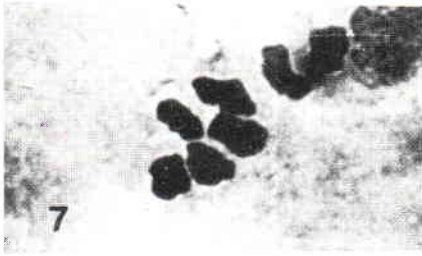
Tehran: ca. 50 km NW. of Karaj, Samgh-Abad, Ghaffari 6463.

Aryavand (1975) reported $2n=16$ for this taxon from Esfahan.

Papaver decaisnei Hochst. & Steud. ex Boiss. — $2n=14$ II, (Fig. 11).

Tehran: 20 km SW. of Karaj, Mardabad, Ghaffari 11063.

This is the first report for the species, related species have $n=14$.



8



9



10



11



12



13

µm

Fig. 7—13: Meiotic chromosome figures. — Fig. 7: *Lathyrus cicera*, 7 pairs. — Fig. 8: *Salvia reuteriana* Anaphase I, $n=10$. — Fig. 9: *Glaucium elegans*, Metaphase I, 6 pairs. — Fig. 10: *Hypecoum pendulum*, First anaphase, $n=8$. — Fig. 11: *papaver decaisnei*, 14 pairs. — Fig. 12: *Dendrostellera lessertii*, Anaphase I, $n=9$. — Fig. 13: *Prangos ferulacea*, 34 pairs.

THYMELAEACEAE

Dendrostellera lessertii (Wikstr.) Van Tiegh. — $n=9$ (first anaphase), (Fig. 12).

Tehran: 45 km from Ghom to Arak, Ghaffari 1-2-63.

Most members of the family have $n=9$. *Diarthron lessertii* (Wikstr.) Kit Tan is the new combination which has recently been made for this taxon (cf. Kit Tan 1982 p. 218).

UMBELLIFERAE

Prangos ferulacea (L.) Link. — $2n=34$ II, (Fig. 13).

Tehran: Karaj, Chalous road, Asara, Ghaffari 4163.

This is the first chromosome number report for the species. 34 pairs in diakinesis and metaphase I were observed.

Acknowledgments

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