

CHROMOSOME NUMBERS OF SOME PERSICARIA (POLYGONACEAE) SPECIES FROM IRAN

M. Keshavarzi & S. Mosaferi

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Mitotic chromosome numbers of 5 taxa of the genus *Persicaria* (L.) Mill. is reported for Iran for the first time. Subspecies of *P. lapathifolia* showed $2n = 22$ chromosome number supporting the earlier report while the chromosome numbers of *P. minor* and *P. mitis* are $2n = 40$. Results are compared with previous records.

Maryam Keshavarzi (correspondence <Neshat112000@yahoo.com>) and Samaneh Mosaferi, Biology Dept., Faculty of Science, Alzahra University, Vanak, Tehran, Iran and Iran National Science Foundation (INSF).

Key words. *Persicaria*, Polygonaceae, Chromosome number, Iran.

اعداد کروموزومی برای برخی از گونه‌های *Persicaria* (تیره علف هفت بند) از ایران

مریم کشاورزی، استادیار گروه زیست‌شناسی، دانشکده علوم پایه دانشگاه الزهرا.

سمانه مسافری، دانش‌آموخته کارشناسی ارشد گروه زیست‌شناسی، دانشکده علوم پایه دانشگاه الزهرا.

عدد کروموزومی میتوزی برای ۵ آرایه از جنس *Persicaria* (L.) Mill. برای نخستین بار برای ایران گزارش می‌شود. زیرگونه‌های *P. lapathifolia* عدد کروموزومی $2n = 22$ را نشان می‌دهند که از اعداد کروموزومی که پیشتر گزارش شده است حمایت می‌کند در حالی که اعداد کروموزومی گونه‌های *p. minor* و *P. mitis* $2n = 40$ هستند. نتایج با گزارشات قبلی برای دنیا مقایسه شده است.

Introduction

The genus *Persicaria* (L.) Mill. comprises about 120 species distributed in moderate regions of North hemisphere. This genus has 6 annual species in Iran. High morphological variation especially in weedy species (Stanford 1925), allo- and autopolyploid hybridization (Timson 1964, Kim et al. 2008) and phenotypic plasticity (Sultan & Bazzaz 1993) are documented in *Persicaria* species. Due to the complex taxonomic history and delimitation problems in this genus, some biosystematic studies have been done (Ronse Decraene & Akeroyd 1988, Amiri & Sharifnia 2007, Mosaferi & Keshavarzi 2011, Mosaferi et al. 2011).

Previous cytological studies show that *Persicaria* has different basic chromosome numbers of $x = 10, 11, 12$ (Freeman & Reveal 2005). No chromosomal reports were available on *Persicaria* species of Iran so in order to understand whether there is any relation between diploid chromosome counts and morphological differences particularly in subspecies of *P. lapathifolia* (L.) Gray.

Materials and methods

We examined six taxa of annual *Persicaria* species

from Iran, as: *P. mitis* (Schrank) Holub, *P. minor* (Huds.) Opiz, *P. lapathifolia* subsp. *lapathifolia* L., *P. lapathifolia* subsp. *nodosa* (Pers.) Á. Löve and *P. lapathifolia* subsp. *brittingeri* (Opiz) Soják. Voucher specimens are deposited at the herbarium of Alzahra University (AUH). This investigation was based on counting mitotic chromosomes. Mature seeds of plants collected from different habitats of Iran (table 1) were germinated in humidified Petri dishes at room temperature. Root tips with length of 0.5- 1.0 cm was exposed to a treatment of 0.002 M 8- hydroxyquinoline for 2-3 hours, fixed in 3:1 absolute ethanol: acetic acid, hydrolyzed in 1N HCl for 20 min. and stained in 1% aceto- orcein. Aceto- orcein squash method was applied to the root tips (Singh 2003).

Results and discussion

Persicaria mitis is a tetraploid species which is distributed in Himalayas, North West Europe, Africa, temperate Asia and North America. It grows along water channels and moist soils in 400- 2000 m. Our count of $2n = 40$ agrees with the previous report by Stoeva (1985) (Fig. 1).

P. minor is a species with wide range of

Table 1. Collection data for populations used in this study.

Species	Voucher number	Origin	Collector
<i>P. lapathifolia</i> subsp. <i>nodosa</i>	504	Hamadan province, Heydareh village	Mosaferi
<i>P. lapathifolia</i> subsp. <i>lapathifolia</i>	506	Kermanshah province, Kermanshah, Gharesoo river	Gholami
<i>P. lapathifolia</i> subsp. <i>brittingeri</i>	513	Mazandaran province, Noushahr	Amini
<i>P. mitis</i>	535	Mazandaran province, Abbas abad, Abbas abad forest	Mosaferi
<i>P. minor</i>	514	Isfahan province, Golpaygan, Saravar village	Mosaferi

morphological traits such as leaf shape, spot and width and flower color in different habitats (Mosaferi et al. 2011). This annual herb is widespread in Europe, Asia and North America. The mitotic chromosome number of $2n=40$ is in congruent with Albers & Wisskirchen 1998. (Fig. 2).

P. lapathifolia subsp. *lapathifolia* occurs in Europe, Asia, Iran and Afghanistan. This diploid taxon occurs in damp soils and around cultivated lands in 0-1500 m. Our diploid count ($2n=22$) (Fig. 3) is in accordance with the previous report by Dempsey et al. (1994) and Probatova & Sokolovskaya (1989).

P. lapathifolia subsp. *nodosa* is diploid which differs from subsp. *lapathifolia* by having lax inflorescence and red dots on stem (Mosaferi et al. 2010). Its geographic distribution is from Western Himalayas to Western Europe in higher altitudes. Our counts of $2n=22$ confirms the count reported by Vanchova & Zaborsky (1980) (Fig. 4).

P. lapathifolia subsp. *brittingeri* is diploid and has distribution in Western and central Europe and Western Asia. It is found in ditches and moist places in 0-1500m. The diploid chromosome number of $2n=22$ is in accordance with the previous report by Albers & Wisskirchen 1998) (Fig. 5).

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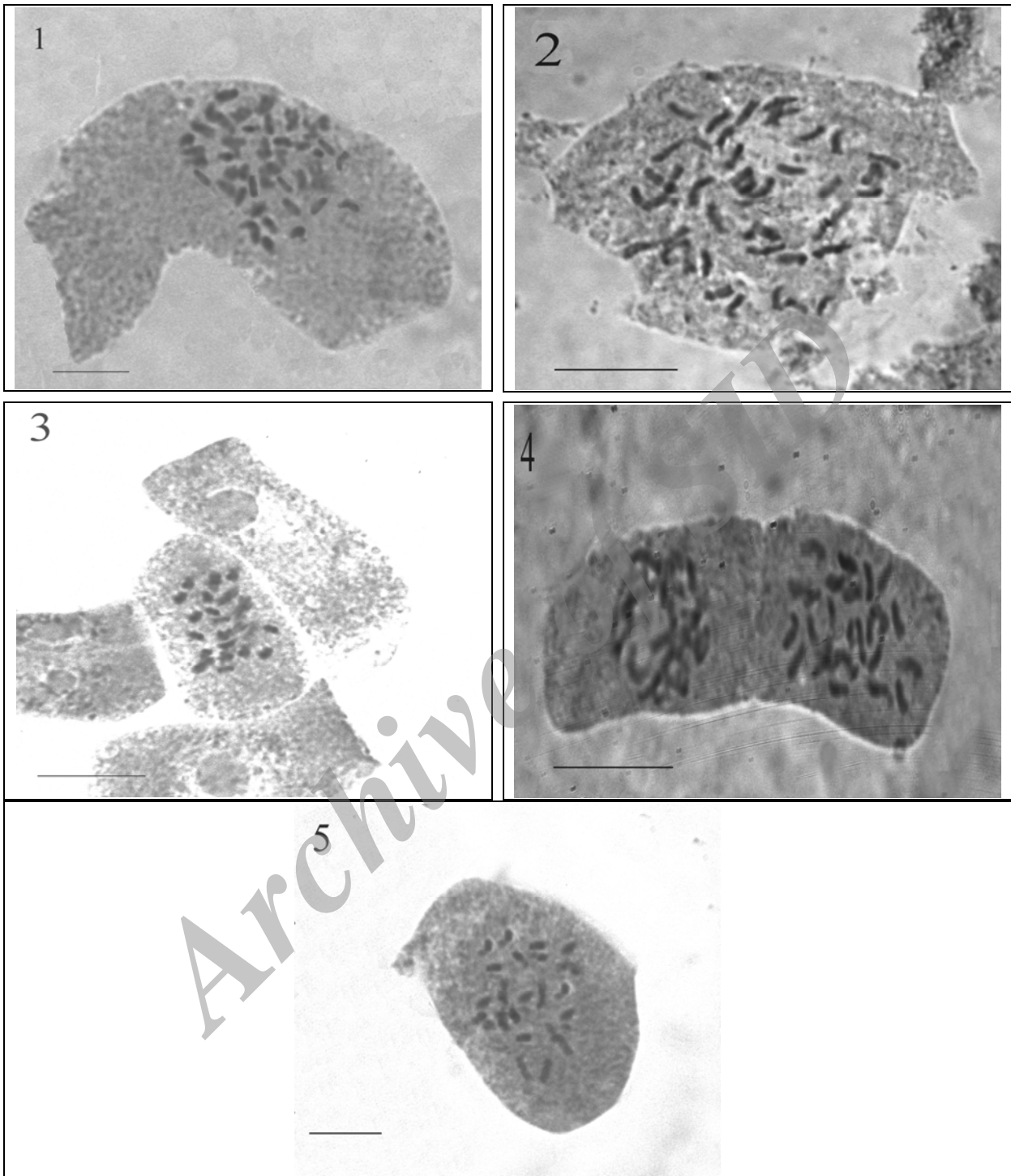
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Figs. 1-5: Somatic cells of *Persicaria* species 1. *P. mitis*; 2. *P. minor*; 3. *P. lapathifolia* subsp. *lapathifolia*; 4. *P. lapathifolia* subsp. *nodosa*; 5. *P. lapathifolia* subsp. *brittingeri* (Bar=10 μ m).