

# CHROMOSOME REPORT OF THREE SPECIES OF FLORA OF IRAN

F. S.Ghasemi, A. Jalili, S. S. Mirzadeh Vaghefi

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Chromosome number and karyotype are determined for three species: *Scorzonera parviflora* (Asteraceae) ( $2n=14$ ) *Silene noctiflora* (Caryophyllaceae) ( $2n=24$ ) and *Ranunculus repens* (Ranunculaceae) ( $2n=32$ ). Idiogram was prepared for each species. Symmetrical karyotypes were class 1A in *Scorzonera parviflora*, class 2A in *Silene noctiflora* and class 2B in *Ranunculus repens*. Karyotype formula were  $7m$  in *Scorzonera parviflora*,  $8m+4sm$  in *Silene noctiflora* and  $13sm+3m$  in *Ranunculus repens*.

Farzaneh Sadat Ghasemi (correspondence <fghasemi@rifr-ac.ir>), Adel Jalili & Saeede sadat Mirzadeh Vaghefi, Research Institute of Forests & Rangelands, P. O. Box 13185-116, Tehran, Iran.

**Key words:** Karyotype; cytology; Compositae; Caryophyllaceae; Ranunculaceae; Asia.

گزارش کروموزومی سه گونه گیاهی از فلور ایران

فرزانه سادات قاسمی، کارشناس ارشد، مؤسسه تحقیقات جنگل ها و مراتع کشور، تهران، ایران

عادل جلیلی، استاد پژوهش، مؤسسه تحقیقات جنگل ها و مراتع کشور، تهران، ایران

سعیده سادات میرزاده واقفی، کارشناس ارشد، مؤسسه تحقیقات جنگل ها و مراتع کشور، تهران، ایران

عدد کروموزومی و کاریوتیپ برای گونه های: *Scorzonera parviflora* ( $2n=14$ )، *Silene noctiflora* ( $2n=24$ ) و *Ranunculus repens* ( $2n=32$ ) تعیین شدند. برای هرگونه ایدیوگرام تهیه گردید. کلاس تقارن کاریوتیپی  $1A$  *Scorzonera parviflora*،  $2A$  *Silene noctiflora* و  $2B$  *Ranunculus repens* بود. فرمول کاریوتیپی در این گونه ها به ترتیب بالا عبارت بودند از:  $7m$ ،  $8m+4sm$  و  $13sm+3m$ .

## INTRODUCTION

Chromosome cytology has been an important element in evaluating relationships in angiosperms. Evolutionary changes in chromosome number and morphology, particularly in herbaceous plants, have tended to give the impression that these characteristics were of limited utility in classification, and have often led to numerical coincidences between unrelated groups (Hickey and Wolfe 1975). In order to complete cytology data plants of Iran, chromosome number and karyotype of species: *Ranunculus repens* L., *Scorzonera parviflora* Jacq. and *Silene noctiflora* L. are investigated. These numbers are reported for the first time (based on Ghahremaninejad *et al.* 2013).

## MATERIALS AND METHODS

For cytological study, rootlets were collected from germinated seeds on wet filter paper in Petri dishes at room temperature. The material was pretreated in

Alphabromonaphtalene for 2 h, fixed in solution of ethanol- acetic acid (3: 1) 4 hours. The meristems stained in hematoxylin and squashed in a drop of 45% acetic acid solution. Metaphase plates were examined with light microscope; Olympus; BH2-RFCA under oil immersion ( $\times 100$ ).

## RESULTS

### Asteraceae

#### *Scorzonera parviflora* Jacq.

Specimen studied: East Azarbaijan, Zarabad, Varzaghan, 1700 m., 27.07.2013, N  $38^{\circ} 30' 31''$ , E  $46^{\circ} 37' 28.9''$ , Ranjbari 8249 (East Azarbaijan Herbarium).

The Previous cytological studies about this genus are:  $2n=12, 14, 28$  and  $n=6$  (Nazorova 1990; Safavi 1999; Ghaffari 1999). About species *S. parviflora* Jacq.  $2n=14$  (Dvorak *et al.* 1979; Diazdelag Guardia & Blanca 1987; Nazorova 1984)

Chromosome number of this species was  $2n=14$  (Fig 1-A). Their arms are approximately equal in length (all metacentric= $7m$ ) (fig.2-A). It has symmetrical karyotype and is categorized in type 1A type (Stebbins1971).

### Caryophyllaceae

#### *Silene noctiflora* L.

Specimen studied: West Azarbaijan, road of Band, Ziveh, Dalampar village, Soledoygol, 2266, 13.09.2013, N  $37^{\circ} 10' 56.0''$ , E  $44^{\circ} 52' 25.5''$ , Ashrafi, 102723, (TARI).

The chromosome counts of the genus previously reported are:  $2n = 24, 48, 72$  (Yildiz *et al.* 2008; Dong 2011).

Our diploid count in *S. noctiflora* L. agrees with previous reports :  $2n = 24$  (Nersesian & Goukasian 1995; Uhrikova & Dubravcova 1997). Symmetrical karyotype in *Silene noctiflora* L. is class 2A ( Stebbins

1971). The karyotype formula is  $8m+ 4sm$ . (fig 1-B and fig 2-B).

### Rannunculaceae

#### *Ranunculus repens* L.

Specimen studied: East Azarbaijan, Bostanabad, Aligoo village, 1869, 25.07. 2013 , N  $37^{\circ} 54' 2.4''$ , E  $46^{\circ} 42' 5.11''$ , Ranjbari, 8234, (East Azarbaijan Herbarium.)

The chromosome number of *Ranunculus* was previously reported as  $2n=14,16, 32,48, 96$  (Hair 1983 ; Yang 2001).

Chromosome number of this species is  $2n=32$  (fig. 1-C,1-D). Idiogram of *Ranunculus repens* is presented (fig. 2-C). Symmetrical karyotype were classed 2B in *R. repens* ( Stebbins 1971). Karyotype formula was  $13sm+3m$ .

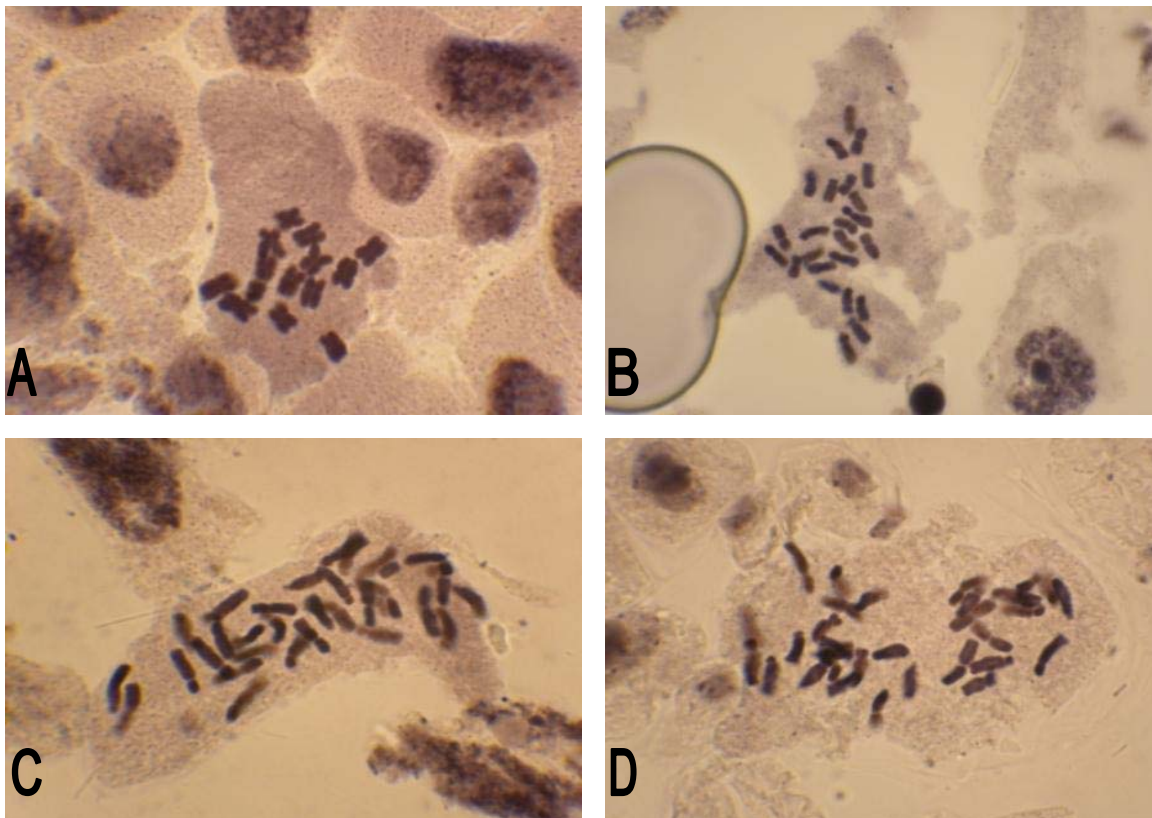


Fig.1. Somatic metaphases. A, *Scorzonera parviflora*; B, *Silene noctiflora*; C&D *Ranunculus repens*.

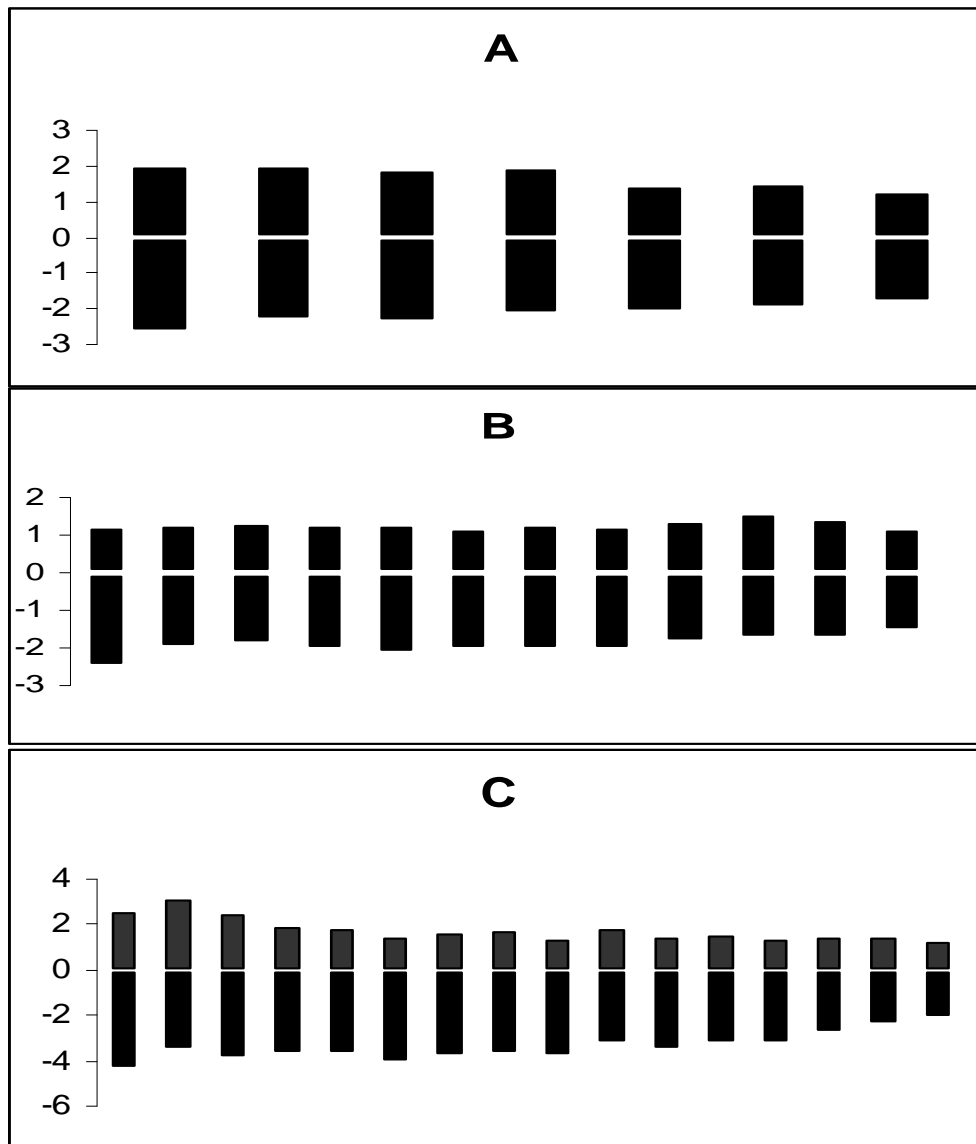


Fig 2. Idiograms. A, *Scorzonera parviflora*; B, *Silene noctiflora*; C, *Ranunculus repens*.

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