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## Chromosome numbers in Polish brambles (*Rubus* L., *Rosaceae*). II

### Abstract

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In eight Polish representatives of the genus *Rubus* L.  $2n=4x=28$  chromosome numbers were found – *R. nemoralis* P.J. Müller, *R. radula*, Weihe, *R. gracilis* Presl, *R. dollnensis* Spribille, *R. gliviciensis* Spribille, *R. pyramidaliformis* (Sudre) Ziel., *R. schneideri* H.E. Weber and *R. orthostachys* G. Braun. In *R. grossus* H.E. Weber I found  $2n=5x=35$  chromosomes. The data for the last 6 species are published for the first time.

*Additional key words:* Chromosome numbers, *Rubus* L., Poland.

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### INTRODUCTION

The present article is the second of a planned series of papers concerning the kariology of Polish brambles (Boratyńska, in print).

### MATERIAL AND METHODS

The chromosome numbers have been established in root-tip cells. The root-tips have been pretreated in p-dichlorobenzene for 2-3 hours. Then they were fixed for 1-2 hours in Carnoy's solution (3:1) washed and hydrolyzed in HCl. The hydrolyzed material has been stained in 2% aceto-carmin and squashed in a drop of 45% acetic-acid.

The chromosomes have been counted under a magnification of  $1900\times$  using a Jenamed II optical microscope additionally equipped with drawing apparatus.

## RESULTS

*R. gracilis* Presl (Sectio *Rubus*, series *Rhamnifolii* (Bab.) Focke)

The  $2n=4x=28$  number was found in all my studied plants. The same number has been mentioned earlier by Datta (1932) and Heslop-Harrison (1952).

Material studied: 1. Province of Poznań, Konarskie near Kórnik, 10.07.1987, J. Zieliński; 2. Province of Radom, SW of Radom, 9.09.1988, J. Zieliński; 3. Province of Szczecin, N of Stare Czarnowo, 2.07.1992, K. Boratyńska, A. Dolatowska, J. Zieliński; 4. Province of Zielona Góra, Pieski 10 km SWW of Międzyrzecz, 28.08.1992, J. Zieliński.

*R. nemoralis* P.J. Müller (Sectio *Rubus*, series *Rhamnifolii* (Bab.) Focke)

All my samples were tetraploids with  $2n=4x=28$ . The same number has been published by Gustafsson (1939) and Heslop-Harrison (1952). This number has been found both in the typical variety and *R. nemoralis* var. *microphyllus* Lindeb. (Fig. 1).

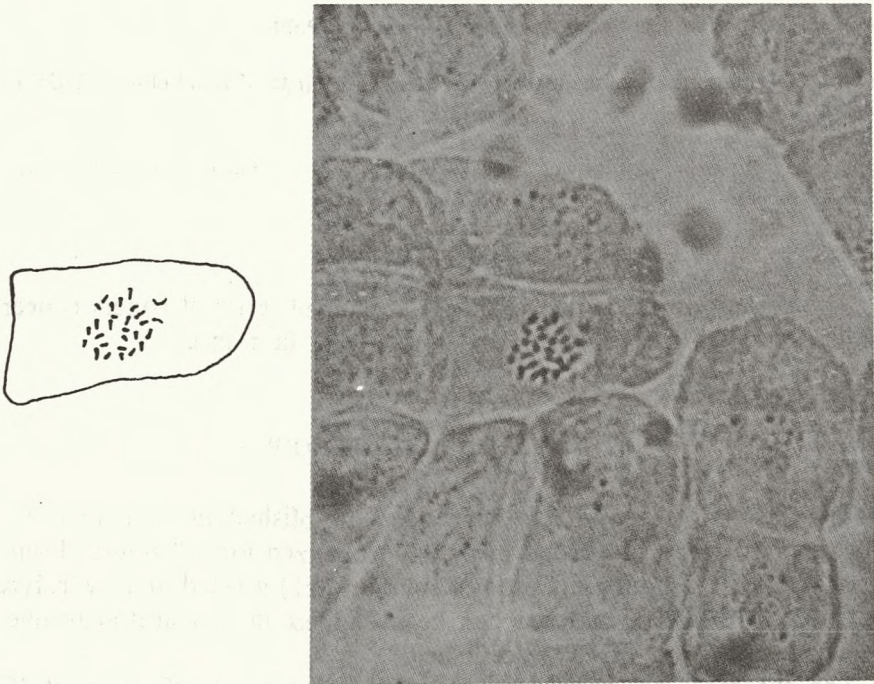


Fig. 1. *Rubus nemoralis* - micrograph and drawing of mitotic metaphase of a root-tip cell.  
Scale bar - 10.



Material studied: 1. Province of Kielce, Świętokrzyski National Park, range Serwis, 13.08.1987, J. Zieliński; 2. Province of Wałbrzych, Góra Zwycięstwa NNE of Strzegom, 8.08.1991, J. Zieliński; 3. Province of Wałbrzych, Witków Śląski, W slope of Trójgarb, 550-600 m alt., 8.09.1987, A. Boratyński, J. Zieliński; 4. Province of Wrocław, between Podgaj and Głównin, 9.08.1991, J. Zieliński.

*R. radula* Weihe (Sectio *Rubus*, series *Radulae* (Focke) Focke)

I have found the  $2n=4x=28$  chromosome number in all studied plants. The same number  $2n=28$  has been reported by Gustafsson (1933, 1939) and Heslop-Harrison (1952) from England and Scandinavia.

Material studied: 1. Province of Poznań, Konarskie near Kórnik, 10.07.1989, J. Zieliński; 2. Province of Kalisz, NW of Szczytniki, 22.09.1988, J. Zieliński; 3. Province of Szczecin, between Gryfice and Trzebiatów, near Kłodkowa, 3.07.1992, K. Boratyńska, A. Dolatowska, J. Zieliński; 4. Province of Opole, between Jaczowice and Pielgrzymowice, 15 km SW Grodków, 20.07.1988, J. Zieliński; 5. Province of Opole, Grabina between Korfantów and Biała, 20.07.1988, J. Zieliński; 6. Province of Zielona Góra, Pieski, 10 km SWW of Międzyrzecz, 28.08.1992, J. Zieliński.

*R. dollnensis* Spribille (Sectio *Corylifolii* Lindley, series *Hystriopsis* H.E. Weber)

There is no data concerning chromosome numbers in *R. dollnensis*. In my samples from south-eastern Poland the plants turned out to be tetraploids with  $2n=4x=28$ .

Material studied: 1. Province of Wałbrzych, Jarząbek between Jugowice and Olszyniec, 400 m alt., 10.09.1987, A. Boratyński, J. Zieliński; 2. Province of Wałbrzych, N of Ziębice between Płosa and Nowina, 9.08.1991, J. Zieliński.

*R. gliviciensis* Spribille (Sectio *Rubus*, series *Micantes* Sudre)

All my plants of *R. gliviciensis* are tetraploid with  $2n=4x=28$ . The chromosome number of this species has not been published before.

The chromosomes of this species, as other species, are small-sized. Generally they are submetacentric and metacentric in shape and two of them have satellites.

Material studied: 1. Province of Kielce, Stachura, 11.08.1987, J. Zieliński; 2. Province of Kielce, between Stachura and Miniów, 11.08.1987, J. Zieliński; 3. Province of Tarnów, Szerzyny, 18.08.1988, J. Zieliński; 4. Province of Katowice, between Babice and Szymocice, 18.07.1988, J. Zieliński.

*R. grossus* H.E. Weber (Sectio *Corylifolii* Lindley, series *Subthyrsoidei* (Focke) Focke)

No chromosome numbers have been reported till now for *R. grossus*. I have studied material from two localities. In both cases I found the plants to be pentaploids with  $2n=5x=35$ .

Material studied: 1. Province of Wałbrzych, Jarząbek between Jugowice and Olszyniec 10.09.1987, A. Boratyński, J. Zieliński; 2. Province of Częstochowa, between Apolonka and Bystrzanowice, 24.07.1991, J. Zieliński.

*R. orthostachys* G. Braun (Sectio *Corylifolii* Lindley, series *Subrectigeni* H.E. Weber)

This is the first information on chromosome numbers for *R. orthostachys*. In my studies this species appeared to be tetraploid with  $2n=4x=28$ .

Material studied: 1. Province of Poznań, Borówiec near Kórnik, 29.06.1992, A. Boratyński, J. Zieliński; 2. Province of Łódź, between Przeclaw and Rogów, in woods of SGW, 1988, J. Zieliński.

*R. pyramidaliformis* (Sudre) Ziel. (Sectio *Rubus*, series *Rhamnifolii* (Bab.) Focke)



Fig. 2. *Rubus pyramidaliformis* - micrograph and drawing of mitotic metaphase of a root-tip cell.

Scale bar - 10.



The chromosome number of this species has not been studied hitherto. All plants from 4 localities proved tetraploid with  $2n=4x=28$  (Fig. 2).

Material studied: 1. Province of Jelenia Góra. Stołowe Mts.: between Chełmsko and Łączna, 600-650 m alt., 29.07.1987, A. Boratyński, J. Zieliński; 2. Province of Wałbrzych, Jarząbek between Jugowice and Olszyniec, E of Jedliny Zdrój, 400 m alt., 10.09.1987, A. Boratyński, J. Zieliński; 3. Province of Częstochowa, Strojec between Rudniki and Praszka, 24.07.1991, J. Zieliński; 4. Province of Katowice, between Rybnik and Niedobczyce, 19.07.1988, J. Zieliński.

*R. schnedleri* H.E. Weber (Sectio *Rubus*, series *Pallidi* W.C.R. Watson)

No chromosome number has been reported so far for this species. In my investigation this taxon turned out to be tetraploid with  $2n=4x=28$ .

Material studied: 1. Province of Radom, Chynów between Grójec and Góra Kalwaria, 16.07.1990, J. Zieliński; 2. Province of Piotrków Trybunalski, between Rzeczyca and Liciężna, 7.09.1988, J. Zieliński; 3. Province of Siedlce, 500 m S of Ignaców, between Mińsk Mazowiecki and Kałuszyn, 17.07.1990, J. Zieliński.

#### LITERATURE

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## Liczby chromosomów jeżyn rosnących w Polsce. II

### Streszczenie

Autorka podaje liczby chromosomów 9 gatunków z rodzaju *Rubus* L. występujących w Polsce. Liczby te ustaliła obserwując mitotyczny podział w stożkach wzrostu korzeni. Wszystkie jeżyny, poza *R. grossus*, okazały się tetraploidami z  $2n=28$ . *R. grossus* natomiast jest pentaploidem z  $2n=35$ .