Shoichi KAWANO*: Brief notes on the chromosomes of some Japanese plants (1)

河野昭一*: 日本植物の染色体短報 (1)

Five species of Compositae were karyologically analyzed. All preparations were made by using the 8-oxyquinoline pretreatment method described by Tjio and Levan (1950). Somatic chromosomes were counted in the root tip cells of seedlings germinated in pots.

1. *Ixeris dentata* Nakai (Fig. 1)

Seeds were collected from the plant growing in the rather dry marsh near the seashore at Noshappu-misaki, Wakkanai. Radical leaves of this sample plant are obovate-lanceolate, finely dentate at the margin, and acute at the top. Cauline leaves are small and not so amplexicaul.

Twenty-one somatic chromosomes were counted in root tip cells. The chromosomes can be classified into six main groups which have been described by Nishioka (1956). Among the largest chromosomes, only one possesses a secondary constriction in one arm but two others have none. Takemoto (1954) has reported a similar case in *Ixeris dentata* f. dentata and in f. amplifolia. Whilst Nishioka (1956) has observed a case where each of largest chromosomes have secondary constrictions. In the present study it was further noted that of the three chromosomes belonging to the 3E_type (in Nishioka’s sense) only one chromosome possesses a long arm much longer than in the others.

The karyotype formula of the present sample plant can thus be expressed as follows:

K(2n) = 21 = 1^cs A^m + 2A^m + 3B^sm + 3C^m + 6C^sm + 3D^m + 1E^st + 2F^st

2. *Picris hieracioides* L. ssp. *japonica* Krylov (Fig. 2 & 5)

This plant with 2n=10 chromosomes is of the very robust and tall type which is rather common in northern Japan. The karyotype of this sample plant was determined as follows:

K(2n) = 10 = 2A^sm + 2B^st + 2C^sm + 2D^st + 2E^sm

The karyotype formula is a little different from the previous result of Nishioka (1956), i.e., the third and fifth pairs of chromosomes have constrictions at the submedian part rather than at the subterminal, and further, satellite chro-

* Present address: Institute Botanique, Université de Montréal, Canada. 現住所: カナダ。モントリオーレル大学植物学教室.
Fig. 1-10. Somatic Chromosomes.

1. *Ixeris dentata.*
mosomes are lacking in the present sample plant (cf. Nishioka, 1956)

3. *Picris hieracioides* L. ssp. *kamtschatica* (Ledeb.) Hult. (Fig. 3 & 4)  
The origin of the sample plant is not exactly known, but it seems nevertheless apparent that this was collected from the alpine zone of Hokkaido. It has ten chromosomes.

The karyotype formula is as follows:

\[
K(2n) = 10 - 2A^{sm} + 2B^{st} + 2C^{sm} + 2D^{st} + 2E^{sm}
\]

4. *Lactuca Raddena* Maxim. var. *elata* (Hems.) Kitam. (Fig. 6)  
Eighteen somatic chromosomes were counted in this plant. The karyotype could not be determined certainly in this material. However, among the 18 chromosomes two pairs show clearly a constriction (cf. Nishioka, 1956).

5. *Aster scaber* Thunb. (Fig. 7 & 9)  
Morphologically this is fairly a stable species with *2n=18* chromosomes, and the plant from which some seeds were collected is also a typical form. The result of the cytological analysis is essentially in accordance with Huziwara’s previous

Table 1. Chromosomes numbers of some *Compositae* plants.

<table>
<thead>
<tr>
<th>Species name</th>
<th>Present result (2n)</th>
<th>Locality</th>
<th>Previous report (n) (2n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>var. <em>albiflora</em> f. <em>amplifolia</em></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Hiyama</td>
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<tr>
<td><em>Aster scaber</em> Thunb.</td>
<td>18</td>
<td>Sokuryo-yama Muroran, Hokkaido</td>
<td>Huziwara, 1957 18</td>
</tr>
<tr>
<td><em>Eupatorium Glehni</em> Fr. Schm.</td>
<td>20</td>
<td>Sokuryo-yama Muroran, Hokkaido</td>
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</tr>
</tbody>
</table>
report (Huziwara, 1957). However, it is noteworthy that a heterogenous chromosome pair was found in the complement, i.e., an extraordinary small chromosome occurs there.

\[ K(2n) = 18 + 2A^{sm} + 2B_1^{sm} + 2B_2^{sm} + 2B_3^{sm} + 2C_1^{sm} + 2C_2^{sm} + 2D_1^{sm} + 1D_2^{sm} + 2^{cs}D_3^{sm} + 1E^{st} \]

6. *Eupatorium Glehni* Fr. Schm. (Fig. 8 & 10)

Twenty somatic chromosomes were counted. The two shortest pairs possess small subterminal short arms and are characteristic of the complement.

The karyotype formula is as follows:

\[ K(2n) = 18 + 4A^{sm} + 2B_1^{st} + 2B_2^{st} + 2C_1^{st} + 4C_2^{st} + 2C_3^{st} + 4D^{st} \]

References


摘要

最近染色体に関する知識の増加に伴い、分類学的考察を行う際にも此等の data が加味される様になりつつある。本報を通じて、邦産植物の染色体数、核型等を断片的ではあるが、出来るだけ外部形態上の変異及び生態的立地にも注意を払い、報告する事にする。同一種類でもさらに多くの地域から集められた材料をもとにして、比較検討される事が必要であろう。

観察された材料植物はいずれも北海道産のものである。ヨツバヒヨドリ以外はいずれも染色体数、核型等が報じられて居り、結果は既報と大体一致する。

シラヤマキクの染色体 18 本中，1 対は異型であり，その 1 本は極端に短かく，叢縮は次末端部に在り，短腕は非常に短かいのが特徴的である（注：藤原，1957）。ヒヨドリバナ属は基本数が 10 と知られている。ヨツバヒヨドリでは体染色体 20 本が数えられた。

□田辺和雄：山とお花畑 K. TANABE: Mountains and alpine flowers of Japan

1 107 pp. 96 color plates, Koyo Shoin Co. Tokyo (1961) 副題は原色写真で見る高山植物。B 5 版 3 巻の中の第 1 巻。植物写真の田辺さんの山と高山植物の写真集だからとにくく美しい。北アルプス、御岳、乗鞍、白山が収められ、高山植物の概況と各種類の解説あり。終りに渋田久弥氏の紀行文を添える。¥ 2,800 (前川文夫)

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