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メタデータ	言語: English 出版者: 公開日: 2012-11-07 キーワード (Ja): キーワード (En): 作成者: TAKENOUCHI, Yasushi メールアドレス: 所属:
URL	https://doi.org/10.32150/00002243

A Chromosome Study on Three Anthribid Beetles (Coleoptera)

Yasushi TAKENOUCI

Biological Laboratory, Sapporo College, Hokkaido University of Education, 064 Sapporo

竹内 恭：ヒゲナガゾウムシ科昆虫3種類の染色体
北海道教育大学札幌分校生物学教室

According to the already existent literature the chromosomes of only five beetle species belonging to the Anthribidae family have been established so far (Takenouchi, 1958, 1968; Virkki, 1965). Recently the present author had a chance to investigate the chromosomes of three species of this family, the results of which are described in this paper.

Material and Methods

Five males of *Platystomus sellatus* Roelofs and a single male of *Tropideres japonicus* Roelofs were obtained on July 6, 1973, from Toyama in the suburbs of Sapporo. And two males of *Habrissus longipes* Sharp were captured on July 1, 1973 from the same place mentioned above.

The testes of adult males were prepared by Smith's squash method (1943) and stained with 0.6 % methyl green and 0.15 % basic fuchsin (1:1) (Smith and Takenouchi, 1969). The photomicrographs and a drawing from the original enlarged about 3,600 times were made.

Observations

Platystomus sellatus Roelofs

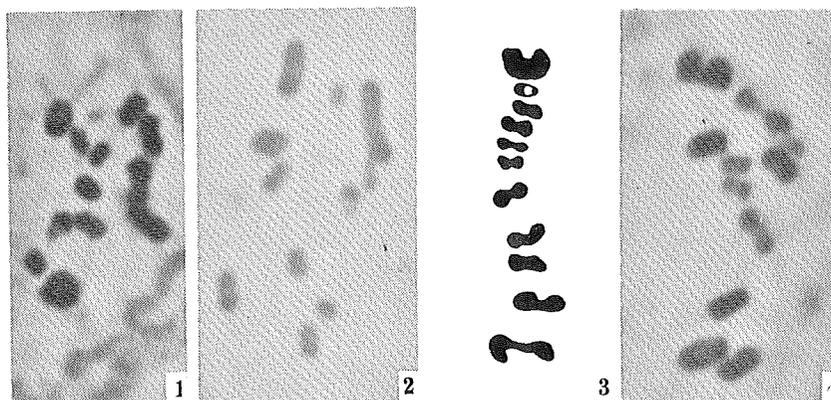
Five males were examined and four specimens provided several excellent MI metaphases. Every plate showed well-defined chromosomes of different sizes (Figs. 1 and 2) which consisted of 10 autosomal bivalents and a sex-bivalent of a typical parachute form (Xy_p). Among the haploid complement the largest element and a larger element were outstanding and the size seriation of other chromosomes was gradual. The sex bivalent was not the smallest in the complement.

Tropideres japonicus Sharp

A single male studied fortunately furnished the first metaphases, in which 11 bivalents of varying sizes were detected (Fig. 3). Two elements were extremely large in the haploid complement. The size seriation of other chromosomes was gradual. The sex-bivalent was remarkable for its parachute form. The larger three elements may have been ring bivalents consisting of two metacentric univalents respectively.

Habrissus longipes Sharp

One of the two examined males provided several first spermatocyte chromosomes. The first metaphase showed 11 bivalents of various sizes consisting of 10 autosomal bivalents and an Xy_p sex bivalent (Fig. 4). Two of them were outstanding in the complement on account of their extremely large sizes, the others being of medium and small sizes. One of the smaller bivalents was the Xy_p .



Figs. 1-4. 1 and 2, first meiotic metaphases of *Platystomus sellatus*. 3, the same of *Tropideres japonicus*. 4, the same of *Habrissus longipes*. ca $\times 3,600$.

Discussion

Three out of four anthribid beetles studied so far show that they have the chromosome formula, $10\text{II} + Xy_p$, respectively. However, one species, *Tropideres germanus* Sharp, has two forms with different chromosome numbers: the one was characterized by $10\text{II} + Xy_p$, the other by $11\text{II} + Xy_p$ (Takenouchi, 1958, 1968; Virkki, 1965). This fact suggests that the standard number of the genus *Tropideres* may be $10\text{II} + Xy_p$ and that $11\text{II} + Xy_p$ is caused by a centric fusion as Virkki (1965) had stated. The chromosome formulae established in three new anthribid beetle species belonging to three different genus, namely, *Tropideres*, *Platystomus*, and *Habrissus* are all $10\text{II} + Xy_p$. These results may well ascertain that the standard chromosome number of *Tropideres* is surely $10\text{II} + Xy_p$.

Summary

The chromosomes of three anthribid beetles, *Platystomus sellatus*, *Tropideres japonicus*, and *Habrissus longipes*, were studied. The results are summarized in Table 1.

Acknowledgement

The author is deeply grateful to Dr. K. Morimoto, Kyūshū Branch, Government Forest Experiment Station, Kumamoto, for the identification of the species. The author's thanks are also due to Mr. N. Ikahata, for his cooperation in collecting the materials.

Table 1. Summary of chromosome studies in the Anthribidae

Species	Chromosome number		Author
	$2n$	n	
<i>Tropideres germanus</i> Sharp		11 II + Xy _p	Takenouchi, 1958
" "		10 II + Xy _p	Takenouchi, 1968
<i>Tropideres laxus</i> Sharp		10 II + Xy _p	Takenouchi, 1968
<i>Tropideres japonicus</i> Sharp		10 II + Xy _p	The present paper
<i>Ptychoderes tricostifrons</i> Fahr.	22s	10 II + Xy _p	Virkki, 1965
<i>Ptychoderes bivittatus</i> Jord.		10 II + Xy _p	Virkki, 1965
<i>Platystomus sellatus</i> Roelofs		10 II + Xy _p	The present paper
<i>Habrissus longipes</i> Shap		10 II + Xy _p	The present paper

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Errata to Chromosome Numbers of Japanese Weevils of Curculionoidea (Coleoptera) by Takenouchi, Y. 1972 KONTYU Vol. 40, No. 2 : 123-132.

In p. 131 of this paper, the author said that the results of *Anthonomus bisignifer* Schenkling ($2n = 19, n = 9 + X$) (Takenouchi, 1963) is surely wrong. No XO sex-determining mechanism was obtained. But very recently Dr. K. Morimoto said that *A. bisignifer* had many taxonomically different types and so the author's finding might be right. Therefore, this species is the first with XO sex-determining system in the Curculionidae.

(Takenouchi, Y. 1963. A further investigation on the chromosomes in twenty-three species of weevils (Curculionidae, Coleoptera). *J. Hokkaido Gakugei Univ. 2nd Ser.* **13** : 160-175).