Nota lepid. 12 (3): 198-200: 30.XI.1989

Male germ-line chromosomes of *Erebia niphonica niphonica* JANSON, 1877 (Lepidoptera, Satyridae)

Kazuo Saitoh

Department of Biology, Hirosaki University, Hirosaki, 036 Japan.

Summary

Male germ-line chromosomes were examined in the satyrid, *Erebia niphonica niphonica* JANSON, 1877 from Mt. Chôkai, Japan. A 2n, 38-; n, 19-karyotype (\vec{o}) was established (Figs 1-3).

In Japan, the satyrid, *Erebia niphonica* JANSON, 1877 is distributed in Hokkaido and Honshû (Mainland). As early as 1961, DE LESSE preliminarily recorded its haploid chromosome number $(n, c. 19, \delta)$, making no mention of the collecting site of his samples examined. Diploid spermatogonial chromosomes were then observed in males from Hokkaido (SAITOH, 1988). However, detailed information on haploid meiotic chromosomes of *E. niphonica* is still scanty.

It is well known that in Europe the genus comprises many species which are alike in appearance and that chromosome numbers, together with the male genitalia, provide very useful characters for the precise identification of these species.

In view of these current circumstances, the present author has attempted a comparative chromosome survey of some geographical populations of E. *niphonica* from Hokkaido and Honshû, paying special attention to their chromosome numbers. This paper primarily gives an account of male germ-line chromosomes examined in one population of E. *niphonica niphonica* JANSON, 1877.

Material and methods

Four wild-caught females of *E. niphonica niphonica* (collecting site : Saino-kawara, Mt. Chôkai, Yamagata-ken, Japan) laid eggs.

Larvae were reared in the laboratory. Lactic acetic orcein-squashes of testes were made for chromosome examination. As shown in Table 1, a total of 671 metaphases were carefully examined in six males (one prepupa and five

mature larvae) for the determination of diploid and haploid chromosome numbers. Efforts were made also to observe chromosome morphology and behaviour.

Specimen no.	No. of metaphases examined in :		
	Spermatogonial mitosis (2n, 38)	First division (n, 19)	Second division (n, 19)
1 (Prepupa)		10	
2 (Larva)		50	24
3 (Larva)		60	6
4 (Larva)	8	239	56
5 (Larva)		126	35
6 (Larva)	4	49	4
Total	12	534	125

 Table 1

 Chromosome counts in six males

 of Erebia niphonica niphonica from Mt. Chôkai, Japan

Observations and remarks

Spermatogonial complements examined consist of 38 elements (Fig. 1). Primary spermatocyte metaphases comprise 19 elements (Fig. 2) and the occurrence of the same number of secondary spermatocyte chromosomes was ascertained (Fig. 3). Variation in the chromosome number was not observed in both spermatogonial and spermatocyte divisions. As evident from the figures, metaphase chromosomes are roundish, or somewhat oval in outline. Chromosomes which were remarkable in shape, or behaviour were not observed in the examined material.



Figs 1-3. Male germ-line chromosomes of *Erebia niphonica niphonica* from Mt. Chôkai, Japan. Lactic acetic orcein-squashed.

1. Diploid complement (2n, 38) in spermatogonial mitosis. 2. Haploid complement (n, 19) in meiosis-I. 3. Ditto (n, 19) in meiosis-II. Scale bar represents ca. 5 μ m.

Judging from the present chromosome counts (Table 1), the conclusion can safely be drawn that the males of this population have a 2n, 38-; n, 19-karyotype. Further, occurrence of the same number of chromosomes has been confirmed in another population of Honshû (unpublished) and also in some Hokkaido-populations (SAITOH, 1988; unpublished). Consequently, uniformity in the ascertained chromosome number seems at least to suggest that the early count by DE LESSE (1961) was made with real n, 19-males.

The karyotypes of 2n, 38, or n, 19 have also been recorded for several *Erebia*-species from Europe (DE LESSE, 1961).

Acknowledgements

The author is grateful to Y. HATANAKA and K.-J. SUZUKI for the collection and rearing of the research specimens.

References

- DE LESSE, H., 1961. Signification supraspécifique des formules chromosomiques chez les Lépidoptères. Bull. Soc. ent. Fr. 66 : 71-83.
- SAITOH, K., 1988. Spermatogonial chromosomes of *Erebia niphonica* from Hokkaido (Lepidoptera, Satyridae). *Tyô to Ga* 39 : 251-252. (In Jap. with Eng. summary).

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: Nota lepidopterologica

Jahr/Year: 1989

Band/Volume: 12

Autor(en)/Author(s): Saitoh Kazuo

Artikel/Article: <u>Male germ-line chromosomes of Erebia niphonica niphonica</u> Janson, 1877 (Lepidoptera, Satyridae) 198-200