

Lakovaara, S. and M. Sorsa, University of Helsinki, Finland. Distribution and the chromosomal characteristics of a newly described species, *D. (Hirtodrosophila) subarctica* Hackman.

The species in question was described from material captured in Finland in 1969 (Hackman, 1969 Notul. ent. 49: 69). Although a rather effective trapping for *Drosophilids* has been going on during the last few years in various parts of Finland, *Drosophila subarctica* has been captured only in the northernmost part of the country. Its southern line of distribution seems to be surprisingly accurate passing parallel to the Arctic Circle not more than about 20 kilometres southwards. The find locality farthest north was near to the northernmost point of Finland at Utsjoki, Kevo (69° 45' latitude). In this distributional area of *D. subarctica* the species is obviously rather common, as estimated from samples of several hundred individuals from 14 different trapping sites. Outside Finland, a find of a male individual has been made, apparently belonging to the same species from Northern Norway in Rosta (69° 00' latitude; Basden & Harnden, 1956 Trans. R. ent. Soc. London 108: 147). As yet *D. subarctica* is not known elsewhere.

The strictness of the southern line of distribution suggests that the species may need an uninterrupted illumination period of several days for its reproduction. *D. subarctica* seems

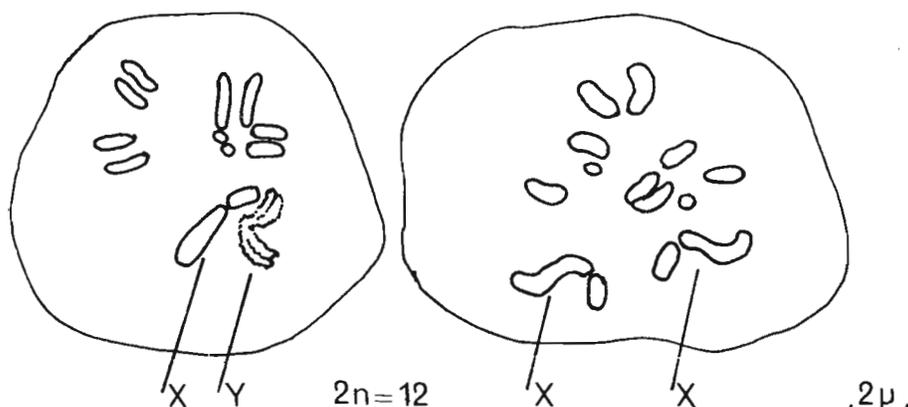


Fig. 1. Metaphase chromosomes from male and female larval ganglion cells of *Drosophila subarctica*.

to represent a "long-day" type of insect in relation to its photoperiodic response. This hypothesis is supported by some preliminary results obtained in experimental light-box cultivations of this species.

The somatic chromosome number of *D. subarctica*, as determined from ganglion cells of third instar larvae is  $2n=12$ , comprising of five pairs of autosomes and a sex chromosome pair. Four pairs of the autosomes are acrocentric rod chromosomes, while one is a dot chromosome pair. The sex chromosomes are the only ones in the chromosome complement with a median centromere, the chrom-

osome X being submetacentric, while the primary constriction in the Y chromosome seems to be more precisely in the middle. The Y chromosome has a tendency for negative heteropycnosis in somatic metaphases of the ganglion cells. One pair of the acrocentric autosomes is slightly longer than the three other pairs.

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no other genetic effects on *Drosophila* were studied in detail. We investigated the effects of Edta on aberrations, mutations and crossovers. In all experiments we used the injection application of Edta in 5mM concentration. This treatment caused temporary immobility of flies, which lasted 1-2 hours. If twofold concentration was applied, the toxicity was so high, that lethality immediately after treatment exceeded 90%.

Edta (ethylenediaminetetraacetic acid) showed synergical effect with radiation in the induction of dominant lethals in *Habrobracon juglandis*<sup>1</sup>, and aberrations in the meiotic cells of *Tradescantia*<sup>2</sup>. Edta is known to increase frequency of crossovers in *Drosophila* females<sup>3</sup> but