Both OPNM *D. mettleri* strains were maintained in potato-saguaro food with pieces of senita cacti for strain "type A" and pieces of saguaro for "type B" to stimulate female oviposition (Castrezana, 1997). Later, in March 2001, *D. mettleri* males from both OPNM strains were used in a no-choice test with *D. mettleri* females from Superstition Mountains, Arizona (33.38°N, 111.37°W), a stock established in March 1997. Data on the time to copulation are presented in Table 2.

The analysis of variance for the time until copulation did not differ between couples ($F_{4,133}$ = 1.5798, P = 0.18). However, a problem following copulation was detected in the OPNM (A) strain. 21.4% of *D. mettleri* OPNM (A) males got stuck after mating with their own females. Nonetheless, in less than two minutes, all pairs were separated. On the other hand, eight of ten pairs (80%) had this problem when the female was from Superstition and the male was from the OPNM (A) strain. Moreover, in six cases the males were unable to break away from the female and both individuals died after three hours. The remaining two pairs produced fertile offspring.

Unfortunately, because of difficulties associated with maintaining *D. mettleri* in the laboratory, the strains used in the present note were lost and access to senita basin area in Organ Pipe National Monument is currently prohibited. Nevertheless, the failure to detach following copulation was also observed in another *D. mettleri* population collected from senita in San Ignacio, Baja (28.03°N, 113.40°W). So, it is possible that a number of important changes occurred in *D. mettleri* flies while using the highly toxic senita cactus. In fact, recently, important molecular differences between OPNM (A) and OPNM (B) were discovered from studies of DNA vouchers. Perhaps in the future, detailed ecological, behavioral, and molecular studies will reveal the extent of differentiation between *D. mettleri* that breed in different host species.

References: Castrezana, S., 1997, Dros. Inf. Serv. 80: 92-93; Heed, W.B., 1977, Proc. Entomol. Soc. Wash. 79: 649-654; Heed, W.B., 1978, In: *Proceedings in the Life Science. Ecological Genetics: The Interface.* (Brussard, ed.), pp.109-126, Springer-Verlag, Berlin; Heed, W.B., and R.L. Mangan 1986, In: *Genetics and Biology of* Drosophila, vol. 3e (Ashburner, M., H.L. Carson, and J.N. Thompson, jr., eds.), pp. 312-345, Academic Press, London.

Studies on the Nucleolar Chromatin Threads (NCT) of *Drosophila immigrans* Sturtevant and *Drosophila repleta* Wollaston collected from Kumaon region, India.

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Introduction

The nucleolus in giant cells of larval salivary glands of *Drosophila* reveals typical thread like structures which have been shown to be DNA in nature (Barr and Plaut, 1966). Very likely these DNA threads are looped out from the main chromatin and contains the r-DNA sequences in the manner the DNA loops out in the puffs (Chowdhry and Godward, 1979). However, an interesting feature observed about these threads in *Drosophila* is that the pattern of the thread like connection in the matrix of the nucleolus is not constant. The pattern varies not only within the species (Barr and Plaut, 1966), but within the same species there is a considerable degree of variation in the morphological configuration of the threads.

Materials and Methods

The samples of different strains of *Drosophila immigrans* Sturtevant for the study of chromosomal polymorphism were collected from different parts of Kumaon region *viz.,* Kausani (Bageshwar district), Dunagiri (Almora district) and Nainital. Meanwhile, *D. repleta* Wollaston was also collected from Dwarahat for the study of Nucleolar Chromatin Threads (NCT) in polytene chromosome from salivary gland chromosomes. The flies of this species were collected by exposing fermenting fruits as baits. The flies thus collected were sorted out and single females were transferred in glass vials containing usual laboratory food medium, assuming that it is already inseminated in the nature. The stock culture from single female for each species was thus established in the laboratory.

The slides of salivary gland chromosomes were prepared as suggested by Ashburner (1967). The larvae were grown on the laboratory food medium. The slides were examined with a Wild-Leitz research microscope.

Types of Nucleolar Chromatin Threads (NCT) in *Drosophila immigrans* Sturtevant

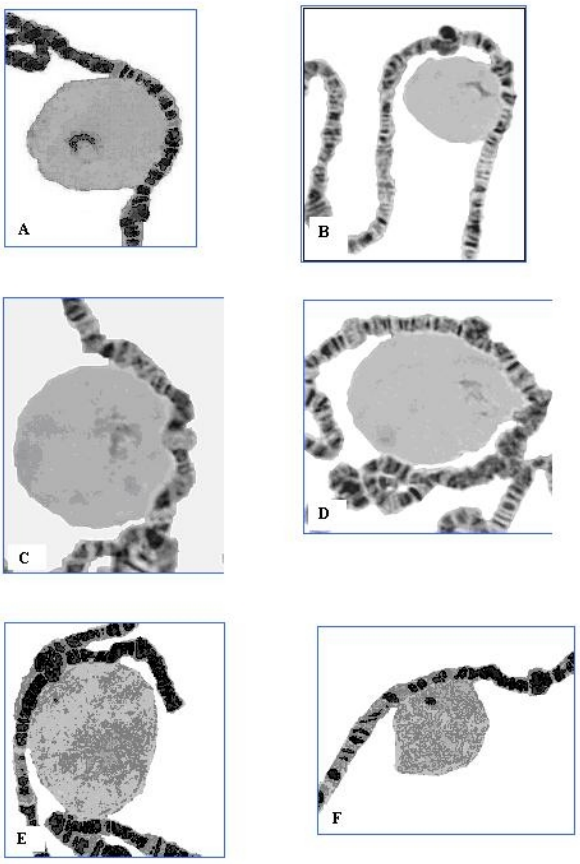


Figure 1. A-F, showing different types of Nucleolar Chromatin Threads.

Six types of Nucleolar Chromatin Threads were observed in *Drosophila immigrans* collected from different geographical localities in Kumaon region are as follows:

Type I (Figure 1A)

Thread not visible, branched with light granules and forming a dark semilunar structure.

Type II (Figure 1B)

Thread not visible, highly branched and scattered throughout the Nucleolar mass with a large darkly stained body.

Type III (Figure 1C)

The thread is condensed and positively stained with a number of darkly stained granules concentrated towards the periphery of the nucleolus.

Type IV (Figure 1D)

More than one thread, ramified and with less condensed granules concentrated at the point of origin.

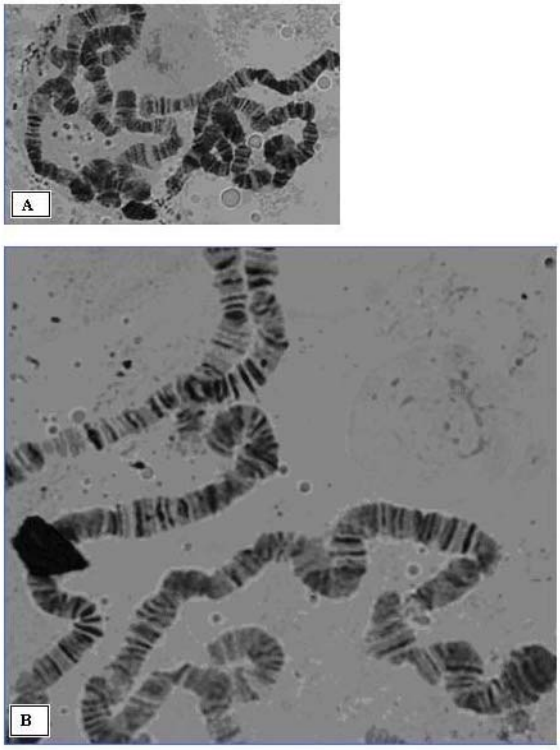
Type V (Figure 1E)

Thread not visible, ramified and scattered throughout the nuclear mass but more condensed and prominent in the center.

Type VI (Figure 1F)

Thread small, ramified, darkly stained with a round chromatin mass at the point of origin.

Types of Nucleolar Chromatin Threads (NCT) in *Drosophila repleta* Wollaston



Two types of Nucleolar Chromatin Threads (NCT) were observed in *D. repleta* collected from Dwarahat in Kumaon region which are as follows:

Type I (Figure 2A)

Thread not visible, ramified and scattered throughout the nucleolus with granules concentrated towards the periphery of the nucleolus.

Type II (Figure 2B)

Thread very thin, ramified and scattered throughout the nucleolus with small light granules.

References: Ashburner, M., 1967, Chromosoma 21**:** 389-428; Barr, H.J., and W. Plaut 1966, J. Cell Biology 31: C17-C22; Chowdhry, A., and M.B.E. Godward 1979. *The Nucleus* 21(3).

Figure 2. A-B, Types of Nucleolar Chromatin Thread (NCT) present in *Drosophila repleta*.

Genetic ablation of antennae or basiconic sensillia reduces *Drosophila melanogaster's* ability to perceive odors from the fruit of *Morinda citrifolia.*

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Abstract

Drosophila use a variety of sensory organs to detect odorants in their environment. While recent work in *Drosophila melanogaster* has increased our knowledge of how these organs detect odorants, our understanding of how these organs function in an ecological context is limited. Here, I use several developmental mutations that ablate sensory organs in flies to see which are critical to *D. melanogaster's* ability to perceive odorants from the fruit of *Morinda citrifolia*, which is the primary host of *D. sechellia*. I show that basiconic sensillia on antennae are particularly important to perceiving this fruit, although tarsal receptors may also play a role.

Introduction

Today we know that odor and taste perception in flies occurs via antennae, maxillary palps, proboscis, and tarsi (reviewed in Hallem, *et al*., 2006). In the antennae, odorants pass through