

S Y N O P S I S

The work reported in this thesis is designed to study the anatomy, histology and histochemistry of cellular elements of haemocoel and the alimentary canal of black flies (Simuliidae: Diptera) and mosquitoes (Culicidae: Diptera).

The first part of the work (Chapters I & II) deals with the study of cellular elements of black flies and mosquitoes. In the present work a system of classification of cellular elements of haemocoel proposed by Rubtzov (1959) is confirmed with reference to Indian Simuliids. Granules containing DNA thought to be symbiotic in nature are detected in granular haemocytes of Simulium using acridine orange as fluorochrome under ultra violet light. The cellular elements of mosquitoes of an urban locality are studied and classified. Anal papillae of mosquitoes are studied with the help of the phase-contrast microscope for detecting the position of haemocytes therein.

Second part of the thesis (Chapters III & IV) deals with the anatomical, as well as histological and histochemical studies of the alimentary canal of mature larvae and adult females of four species of black flies* and two species of mosquitoes**. The alimentary canal of larvae ~~and larvae~~ and adults of the above flies are compared on the basis of morphological, histological and histochemical findings. Adult flies of wild population (i.e. unfed, blood-fed and gravid flies) and experimental population, (i.e. unfed and just-hatched adult) are studied and compared with special emphasis on midgut cells. Simple protein granules are noticed in the epithelial cells of gut of larvae and adults. Mucoproteid granules are detected for the first time in midgut epithelium and salivary glands of unfed adult flies. Pyronin-positive bodies probably corresponding to "ergastoplasm" is noticed in the epithelial cells of cardia (anterior part of stomach) and posterior part of stomach of larvae and unfed adults of black fly for

the first time. Presence of such pyronin-positive structure is also confirmed in mosquito larvae and adults. Pyronin-stained granules are also found in secretory globules of stomach of larvae and in the ingested blood mass of fed fly.

*Simulium (Simulium) rufibasis.

Simulium (Simulium) himalayense.

Simulium (Eusimulium) purif.

Simulium (Eusimulium) ghoosense.

**Culex fatigans and

Aedes aegypti