B.Sc. 1st semester (Hons)
Dept. of Zoology
Silapathar College

Parasitic adaptation of *Wuchereria bancrofti*

Adaptation may be defined as the fitness of an organism to live in its specific habitat or environment. ***Wuchereria*** is modified morphologically as well as physiologically to live in a particular environment.

A. Morphological Adaptation:

Wuchereria is adapted to parasitic life through: -

i. Degeneration or loss of organs or systems, and

ii. Attainment of new organs.

i. Degeneration:

Locomotory Organs:

As these parasites live for their entire life in the body of a host, the locomotory organs are reduced.

Alimentation:

As the parasites live on digested or semi-digested food of the host, there is reduction in their alimentation and digestive glands. Food is absorbed directly through the general body surface.

Sensory Organs:

Sensory organs are also simple. Complicated sensory structures can also be correlated to sedentary (inactive) life.

ii. New attainment:

For food absorption, protection and attachment, attainment of new structures happens.

Cuticle:

The outer cuticle become highly modified and is so adapted as to resist against the digestive juice, passage of food. The cuticles become thin for food absorption.

Vast reproduction: Reproductive organs show significant development and adaptation to parasitism. There is a vast increase in the reproductive capabilities through greater egg production. In ***Wuchereria***, the interior of the body is mostly occupied by the genital organs.

Wuchereria has digenetic life cycle to complete their sexual and asexual reproduction. Life history usually includes several larval forms for multiplication and for easy and sure transfer from one host to other.

B. Physiological Adaptations:

Osmo-regulation:

The osmotic pressure of the interior of the parasitic worms remains less than or same as that of their host, so that there is no difficulty in exchange of water.

Anaerobic Respiration:

Since ***Wuchereria*** never set free oxygen, its evolutionary adaptation has resulted in a very low metabolic rate which requires a minimum amount of oxygen. So, respiration is anaerobic type and energy is obtained by the fermentation of glycogen.

Anti-enzymes:

Wuchereria secretes anti-enzymes in order to protect themselves from gastric juice and digestive enzymes.