University of Mosul
Lecture No.:
College of Veterinary Medicine
Date:
Unit of Scientific Affairs
Website:

Lecture title: Family Psychodidae

Lecturer Affiliation: Department of Microbiology, College of Veterinary Medicine, University of Mosul, Mosul, Iraq. **wasenamkad@uomsul.edu.iq**

Summary: Family Psychodidae

Is a family of small, hairy flies .

These flies are often found in areas with damp or decaying

organic matter ,such as drains,sewers

Genus Phlebotomus The common name is sandflies.

Species: There are over 600 species of phlebotomine

Hosts mammals, birds and man

Distribution: worldwide

General Morphological Features of phlebotomus

1. Size & Body Structure

• Small-sized: 1.5–3.5 mm in length.

• Soft-bodied, with a humped thorax.

• Covered with dense hairs (setae), giving a fuzzy appearance.

Protozoa and Arthropoda /part2/3rd year 2024-2025

2- Head

• Large compound eyes, widely spaced.

- Antennae

• Long, segmented (16 segments) with a moniliform (bead-like)

appearance.

• Helps in detecting hosts and environmental cues.

- Mouthparts

In Females: Have well-developed, elongated, piercing-sucking

mouthparts for blood-feeding.

In Males: Have shorter, non-functional mouthparts, as they do not

feed on blood.

3- Thorax & Wings

• Thorax: Arched, supporting weak flight muscles.

- Wings:

• Long, narrow, and pointed at the tip.

• Held at a 45° angle (V-shaped) at rest.

• Covered with tiny hairs, giving them a “dusty” appearance.

- Wing venation: Few strong longitudinal veins with minimal cross-

veins.

4- Legs

• Long and slender, covered with fine hairs.

• Adapted for clinging onto surfaces

5- Abdomen

• Elongated and segmented.

• In females, the abdomen expands after a blood meal.

• In males, the abdomen is narrower and often has external genitalia

for mating.

Life Cycle of Phlebotomus (Sand Fly)

The life cycle of Phlebotomus consists of four stages: egg, larva, pupa, and adult. The complete development typically takes 30–60 days, depending on temperature, humidity, and food availability.

1. Egg Stage

• Eggs are laid in humid, dark environments such as soil cracks, animal burrows, leaf litter, or under rocks.

• Small (about 0.3–0.4 mm long).

• Dark-colored and oval-shaped.

• Number of Eggs: A female lays 30–70 eggs after each blood meal.

• Hatching Time: Eggs hatch into larvae in 6–17 days, depending on environmental conditions.

2. Larval Stage

• White, worm-like body with a dark head capsule.

• Has four larval instars (growth stages).

• Last abdominal segment has characteristic bristle-like hairs (caudal setae).

• Habitat & Diet:

• Found in organic-rich soil, decaying leaves, or animal burrows.

• Feeds on organic material, fungi, and detritus.

• Duration: The larval stage lasts 10–50 days, depending on temperature and food availability.

3. Pupal Stage

• Short, rounded, and immobile.

• Attached to the substrate by the larval skin.

• Duration: Lasts 6–14 days, during which metamorphosis into an adult occur

4. Adult Stage

Adults emerge from the pupae and begin searching for food and mates.

• Small, hairy body (1.5–3.5 mm).

• Long legs and antennae.

• Wings are held in a V-shape when resting.

• Feeding Behavior:

• Females require a blood meal to develop eggs, feeding on mammals, birds, or reptiles.

• Males feed only on nectar and plant juices.

• Lifespan: Adults live for about 2 weeks to 1 month, depending on environmental conditions.

Life cycle

Pathogenesis

-Phlebotomus is the only genus of veterinary importance.

- only the females suck blood.

- They prefer to feed at night, resting shaded areas during the day.

There is some seasonality in activity

- the numbers of flies increasing during the rainy season in the tropics whereas they are only present during the summer months in temperate zones.

-phlebotomine sandflies are important as biological vector for several

pathogens primarily Leishmania spp in animals and man

Control of Phlebotomus sandflies

-Environmental Control by Eliminating Breeding Site

-Chemical Control (Insecticides)

-Biological and Genetic Control