

Family-  
**CALLIPHORIDAE**

&

**SARCOPHAGIDAE**

## Family- CALLIPHORIDAE AND SARCOPHAGIDAE Characters:

1. Larvae of these families cause the condition known as **non-host specific or wound myiasis**.
2. The mouthpart of adults is adopted for lapping up of food material and none of them are obligatory haematophagous but protein food is essential for development of eggs or larvae in female.
3. Feeding habit of both male and female are same.
4. Flies coming under the family Calliphoridae are general known as **blowflies or Bottle flies**.
5. Flies coming under the family Calliphoridae are **bright metallic** in colour and without any prominent marking on the body.
6. Flies coming under Sarcophagidae are **gray to silver gray** in colour and with prominent marking both on thorax and abdomen.

# Family: CALLIPHORIDAE

# SARCOPHAGIDAE

Genus:

*Calliphora*

*Lucilia*

*Chrysomyia*

*Phormia*

*Sarcophaga*

*C. erythrocephala*  
*C. vomitoria*

*L. cuprina*  
*L. sericata*

*C. bezziana*  
*C. megacephala*

*P. regina*  
*P. terrae - novae*

*S. haemorrhoidalis*  
*S. dux*

Blue bottle  
Steel-blue bottle

Green bottle

Screw worm fly

Black bottle  
Black blowflies

Flesh fly

# Differential character: -

Character	<i>Calliphora</i>	<i>Lucilia</i>	<i>Chrysomyia</i>	<i>Sarcophaga</i>
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1. Popular name	Blue bottle flies	green bottle flies	screw worm flies	flesh flies
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## Character    *Calliphora*      *Lucilia*      *Chrysomyia*      *Sarcophag*

**2. Size** large fly  
about 12 mm in length



medium size  
about 10 mm in length



large fly about 13 mm in length



large fly  
14-15 mm in length



**Character** *Calliphora*    *Lucilia*    *Chrysomyia*    *Sarcophag*

3. **Body colour** Metallic blue    metallic green

A mixture of  
metallic blue  
and green

silver gray to  
gray in colour.



## **Character** *Calliphora*

## *Lucilia*

## *Chrysomyia*

## *Sarcophag*

**4. Thorasic** without any & **abdom** distinguishable **marking** marking or hairs.

without any distinguishable marking but with hair on thorax on dorsal surface.

Thorax with 4 different strips. Abdomen without any prominent hairs on the body.

Thorax with 3 prominent strips. Abdomen checkered and intensity of marking vary with the incidence of the fly. Body cover with prominent hairs.



Character	<i>Calliphora</i>	<i>Lucilia</i>	<i>Chrysomyia</i>	<i>Sarcophaga</i>
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<b>5. Breeding habits</b>	Oviparous prefer to lay eggs on intact exposed skin of animal.	Oviparous prefer to lay eggs on wound of animal or carcasses or soiled skin of animals.	Oviparous always lay eggs on wounds of host.	Larviparous lay first stage larvae on wound of animal or dead carcasses and are capable of dropping the larvae on the particular place even been on winds from a substantial height (about 26 inches).
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Character	<i>Calliphora</i>	<i>Lucilia</i>	<i>Chrysomyia</i>	<i>Sarcophag</i>
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### 5. Breeding habits

Lay eggs in cluster which are light yellow in colour in batches of 150-500 at a time.

Lay eggs in batches of 50-150 at a time

Lay clusters of eggs in batches of 150-500 at a time.

Can lay individual larvae and lay 20-25 larvae in a single laying.



Character    ***Calliphora***    ***Lucilia***    ***Chrysomyia***    ***Sarcophag***

## 5. Breeding habits

Larvae smooth maggot. Pupa barrel shaped and both resemble with *Musca*.



The egg, larvae and pupa resemble with that of *Calliphora*.

Larvae fleshy tubercle on each segment giving it a wooly appearance. Pupa resemble that of *Calliphora*.

Larvae resemble that of *Chrysomyia* i.e. with fleshy tubercle and wooly in appearance



## **Distribution:**

Calliphora found all over the country and very common in hilly area.

*Lucilia, Chrysomyia* and *Sarcophaga* found all over the country

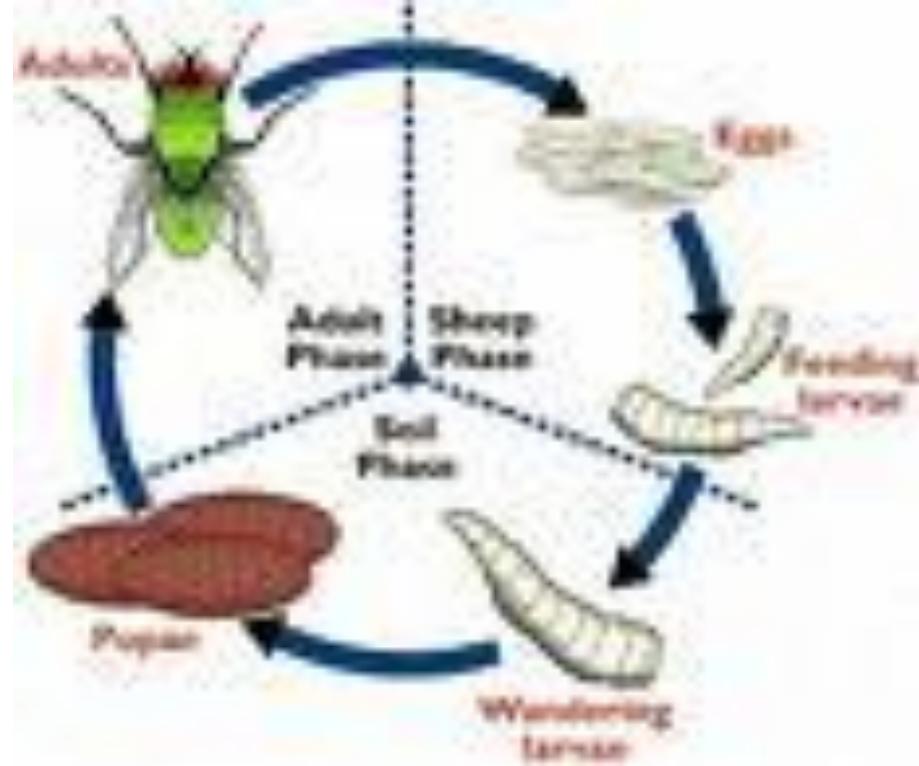
## Life cycle:

In oviparous flies the eggs hatch in about 8-36 hours depending on temperature and species.

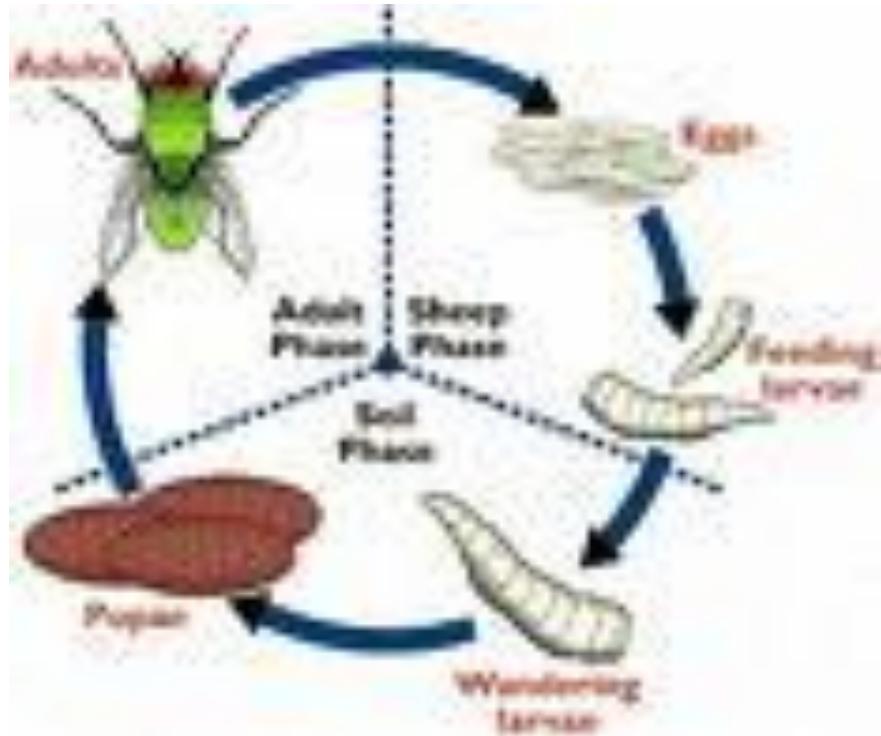
Larvae are a 12-segmented maggot and grossly resemble that of *Musca*.

The larvae moult twice.

Depending on temperature, availability and competition for food the larval stage last for 2-25 days.



This period is immensely proportional with the availability of food i.e. when there is shortage of food and the population of larvae at a particular point or on the body of a particular animal is very high the total amount of food reduce and in that case the larvae completes its life is very short period.



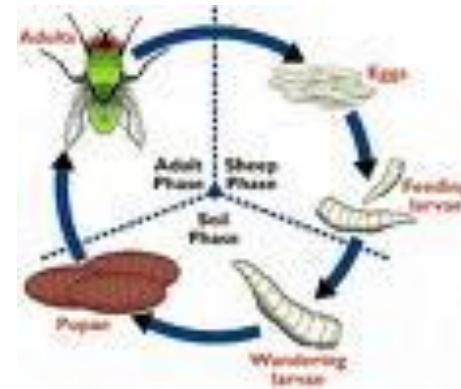
The pupa are comparatively smaller in size and lower in weight and the flies coming out of these pupa are usually very weak and seldom survive in nature,

when fully mature the larvae either drops on the ground or migrates to less hairy and dry part of the host and puped there.

Pupa also resemble that of muscid flies i.e. barrel shaped elongated and dark brown in colour.

Depending on temperature the adult emerges in about 3-30 days.

In very cold climate this flies hibernate in pupal stage for months together.



## **Habit:**

1. Adults live on pollen and nectars of flower, decaying carcasses and vegetable open cut fruits etc.
2. Protein food is essential for development of egg or larvae in females.
3. These flies are very common in meat and fish markets post mortem room, with cut fruits vendors etc.
4. None of these flies are obligatory haematophagous but some of them can also be seen on open bleeding wounds of animals.

## **Pathogenesis:**

1. Larval stages of these flies cause the condition known on wound myiasis or non-host specific myiasis.
2. This condition is a great problem particularly in sheep growing areas where sheep are generally grown for wool and have long coat of wool on their body.
3. The condition cause in sheep by these flies is known as **strike**.



4. Depending on the activity of these flies and their breeding habit blow flies are divided into 3 types:
  1. Primary flies : *Calliphora* and *Lucilia*
  2. Secondary flies : *Chrysomyia* and *Sarcophaga*
  3. Tertiary flies : *Musca*
5. In case of absence of any open wound, the primary flies first lay eggs and generally prepared the ground for the activity of the secondary flies.
6. Tertiary flies are accidental in their activity.
7. The most affected animals are those with heavy coat, long wool such as sheep and also other animals with soiled body and wound.

8. Attracted by the odour of wound or soiled body part, the primary flies come and lay eggs on the affected part or near about.
9. Larvae after hatching, while feeding either open up the wound or cut the skin of the particular area.
10. Attracted by the prepared ground the secondary flies lay eggs or larvae on that part.
11. The secondary flies go deep into the tissue and make long tunnels inside the tissue.
12. The wound become ulcerated and refused to heal.

## **Symptoms:**

1. Animals become rest less and bite towards the wounds.
2. They also refused feeding.
3. The maggot infested wound never heals even after proper treatment, if all the maggots are not removed.
4. The wounds emit the peculiar smell, which is very obnoxious, and have very rough and irregular edges.

## Diagnosis:

1. By symptoms
2. The wound contains numerous maggots, which are
3. buried into the wound with only their posterior end projection outward and difficult to identify.



## Treatment:

1. Clip the wool or hairs around the wounds
2. Remove maggots mechanically.
3. Turpentine oil is a very good repellent of the maggots and may be used for removing the maggots.
4. While removing the maggots caution must be taken so that all maggots are removed, because even the presence of a single maggot may not allow the wound to heal up.
5. After removal, the maggot should be disposed or killed properly.
6. The wound should be clean properly and an antiseptic cream mixed with some non-irritant, non-toxic insecticide such as some organo phosphorus compound or synthetic pyrithroid compound may be used.
7. These insecticide will help in killing the larvae even it left out as well as prevent reinfection as the insecticides also act as larvaicides.

## **Prevention and control:**

It can be achieved by taking the following steps - Since sheath with long wool is most affected preventing measures are-

1. Protection of animals against the flies
  - (a) Proper attention to any wound and
  - (b) Proper cleaning of the animal so that the body parts particularly which are not visible from outside should not remain soiled for long time because they attract the flies for laying eggs or larvae.
  - (c) Dipping and spraying at regular intervals with insecticides.
  - (d) Regular shearing and cutting of wool, particularly in animal with long and thick coat.

2.

## Control of adult flies

- (a) Regular spraying of animal sheds and dipping of animals with insecticides.
- (b) Proper disposal of carcasses particularly in and around of animal sheds which prevent the flies from laying eggs or larvae.
- (c) Trapping of flies by using (light and) meat trap.
- (d) Biological control  
Biological control of these flies have been achieved in some country where order hymenopterans insects are used which lag eggs mainly only on pupal stages of this flies and the larvae that comes out of this hymenopteran eggs cut up the pupa of blow flies (Hyperparasitosis)

- (e) In USA gamma ( $\gamma$ ) irradiated male sterile flies have been used to control this flies as the female mate once in their life time (sterile male release technique)
- (f) Immunological: *Lucilia* sp.

## **Biological control:**

when a biologically active organism or compound is used for controlling of another biologically active organisms then it is called biological control.

**Family:**

**GLOSSINIDAE**

**Genus:**

***Glossina***

**Common name:**

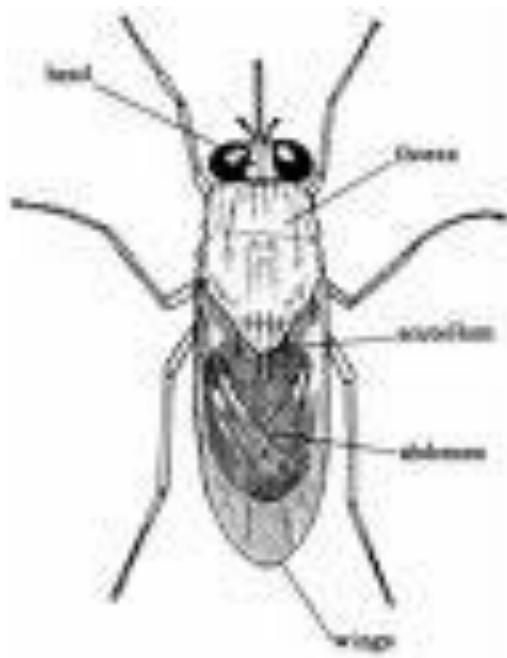
Tsetse flies

**Species:**

*G. morsitans*

*G. palpalis*

*G. longipalpis*



1. These flies are restricted only in African country and are not found in this country.
2. They are very important as vector of African trypanosomiasis causing “Nagana” in animals and sleeping sickness in man.
3. They are viviparous or larvaeparous and lay a fully nature 3rd stage larvae at a time which puped almost immediately



1. A female can lay one larva at a time and can lay up to 15-16 larvae in its whole lifetime and at interval of 9-11 days.
2. They generally mate once only and during this mating sperms are deposited into the recepticulum seminis or spermathica of the female.
3. Different methods of controlling this flies have failed to reduce the population and control the disease transmitted by them.