

Pebrine

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Experiment No. 11: Identification of pebrine based on external symptoms - Staining and preparation of temporary slides of pebrine spores.

Pebrine is a chronic and disastrous disease of the silkworm *Bombyx mori* L. It is caused by *Nosema bombycis* belonging to family Nosematidae of the order Microsporidia. The pathogen infects the host through feeding of contaminated mulberry leaf (*peros*) and also by rearing infected silkworm eggs (transovarial).

Symptoms: The symptoms of this disease can be observed in all the stages of silkworm viz., egg, larva, pupa and adult.

In the egg stage, poor egg number, lack of adequate adherence to the substratum, lack of egg uniformity, unfertilized and dead eggs, poor and irregular hatching. Sometimes infected eggs cannot hatch out and hatched larvae may also die.

Larvae show poor appetite, retarded growth and development leading to un-uniformity in size. Larvae moult irregularly and show sluggishness. Transovarially infected larvae die before third moult but those which are heavily infected die during first instar itself. The larval body shows wrinkled skin with rustic brown colour and in the moribund (near death) stage they do not rot but remain rubbery. Sometimes black irregular pepper like spots are noticed on larval skin.

The infected pupae are flabby and swollen with lusterless and softened abdomen. Sometimes irregular black spots are noticed near the rudiments of the wing and abdominal area. Highly infected pupae fail to metamorphose into adults.

The moth emergence is delayed and improper. They have clubbed wings with distorted antennae and do not mate properly. The scales from wings and abdominal area easily come off.

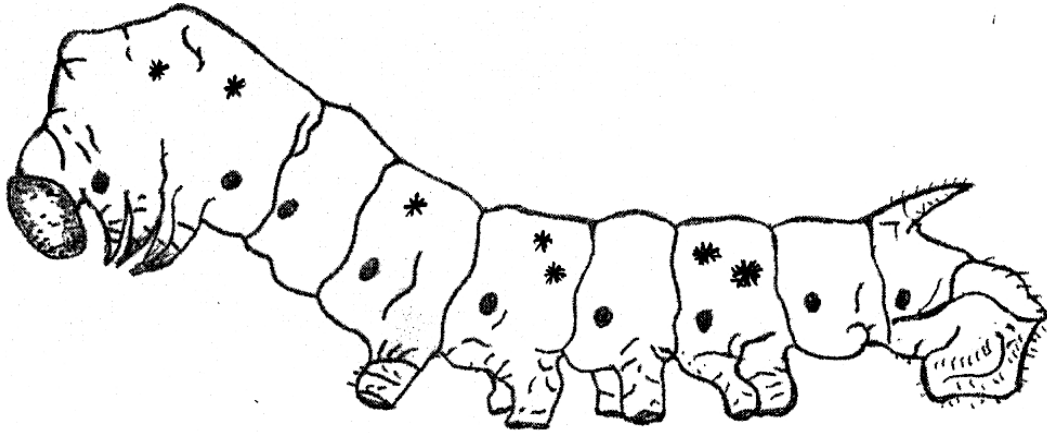
Prevention and control:

1. Use of DFLs prepared by conducting systematic mother moth examination.
2. The other methods are to conduct effective disinfection of rearing rooms, equipments and surroundings. Maintenance of strict hygienic and standard atmospheric conditions during rearing.

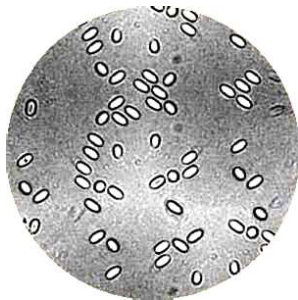
Temporary slide preparation of pebrine spores

1. Make a thin smear of pebrine suspension on clean glass slide.
2. Air dry or flame dry the specimen.

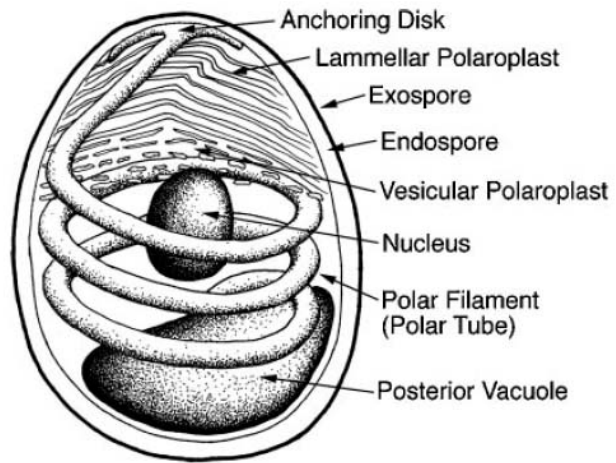
3. Fix the specimen in ethanol/methanol for 1 min and air dry.
4. Stain in Giemsa for 30-45 min (2 drops of stain in 1 ml of distilled water).
5. Wash the excess stain, air dry and observe under 10 x X 40/45 x (400-450 x) magnification.



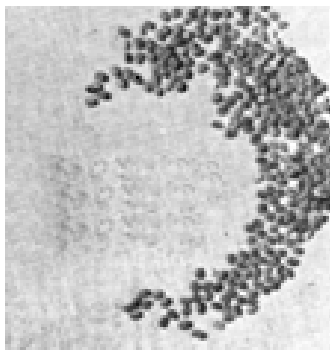
Pebrine infected silkworm



Pebrine spore under microscope



Enlarged Spore



Piled up eggs



Healthy Female and Male Moths



Pebrinized Female and Male Moths

REFERENCES

1. Anonymous, 1990, Hand book on pest and disease control of mulberry and silkworm, United Nations, Thailand.
2. Krishnaswamy, S., Narasimhanna, M.N., Suryanarayan, S.K., and Kumararaj, S. 1976; Sericulture Manuals, Vol. 2, Silkworm Rearing, FAO, United Nations, Rome.
