

## Powdery Mildew of Mulberry

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**Experiment No 2:** Study of powdery mildew through sectioning, staining and temporary mounting.

Powdery mildew disease is caused by *Phyllactinia corylea*. It belongs to the order Erysiphales of class Ascomycetes.

**Symptoms:** Initially white powdery patches appear on the lower surface of the leaves which cover the entire leaf surface at a later stage and turn black to brown in colour.



### Symptoms

**Disease cycle:** The pathogen *P. corylea* is an ectoparasite. It obtains nutrients by sending haustoria into the epidermal cells through the stomata. The fungus reproduces by both asexual and sexual methods.

Asexual reproduction takes place by means of conidia. Conidia are hyaline, unicellular and club shaped measuring 70x20  $\mu\text{m}$  borne terminally on septate conidiophores. The liberated conidia disperse through wind current and spread the disease. The mycelium is unbranched, hyaline and forms a mycelial mat sticking to the leaf surface.

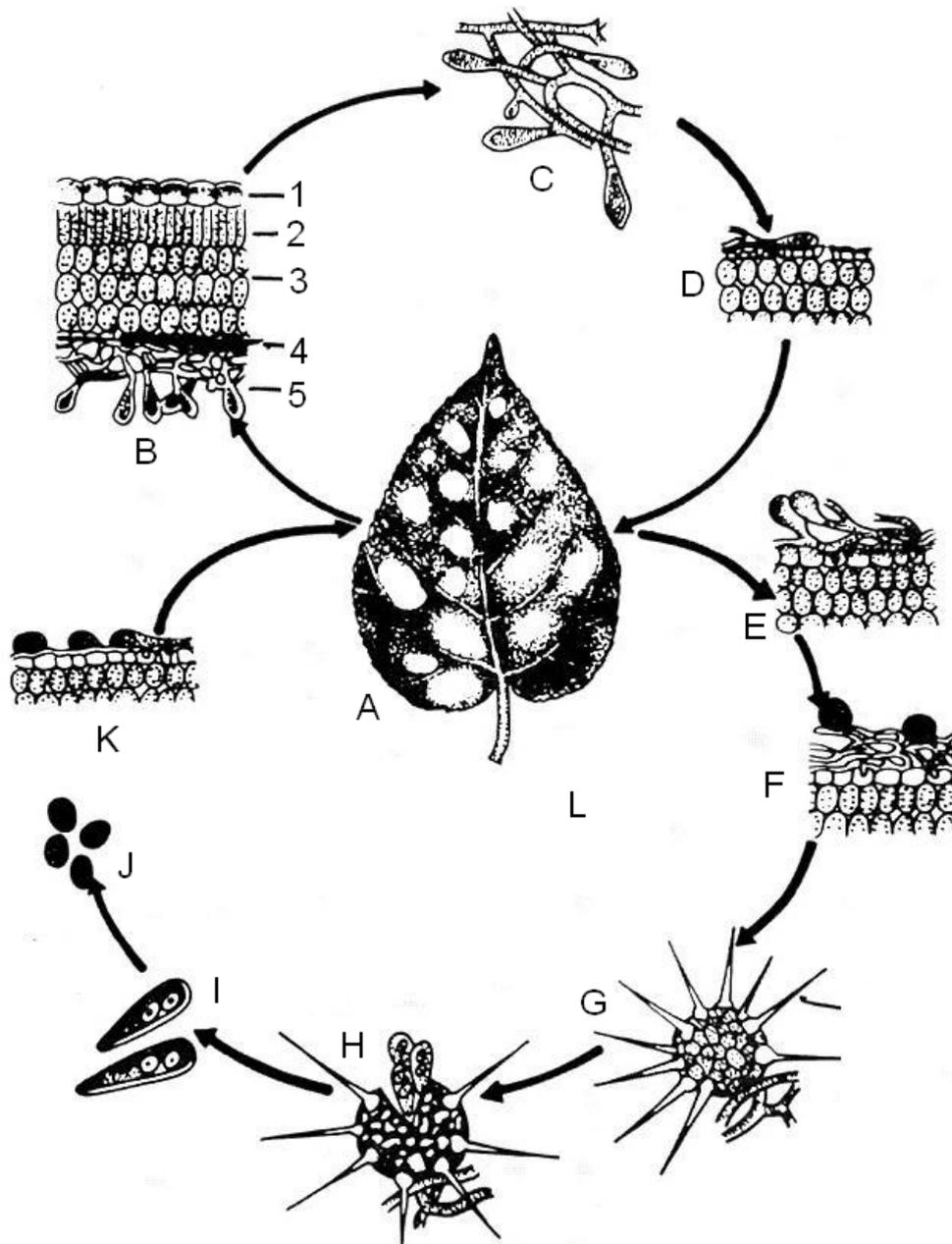
Sexual reproduction takes place by the formation of fruiting bodies called cleistothecia. Cleistothecia are covered with numerous colourless needle shaped appendages. Inside the cleistothecium 5 to 50 asci are present which on maturity are liberated during the favourable conditions by the splitting of the cleistothecia. Each ascus has two ascospores which on germination produce hyphae and spreads the disease through conidia.

The disease is more prevalent in hilly areas during the rainy and winter seasons and in the plains during the winter months.

**Control:** Spraying of Dianocap 0.2 % has been found to be very effective for the control of the disease. Leaves can be used for rearing after 10 days of the spray.

Varietal resistance is known for the disease, Leaves having thicker cuticle and epidermis, less number of stomata and more of leaf hairs (trichomes) are less susceptible to the disease.

Disease cycle of *Phyllactinia corylea*



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|---|-------------------------------|
| A. Mulberry leaf affected by Powdery mildew | E. Ascogonium and antheridium |
| B. T.S. of infected leaf                    | F. Young cleistothecium       |
| (1) Upper epidermis                         | G. Matured cleistothecium     |
| (2) Palisade tissue                         | H. Liberation of asci         |
| (3) Spongy tissue                           | I. Ascus                      |
| (4) Lower epidermis                         | J. Ascospores                 |
| (5) Mycelia with conidia                    | K. Germinating ascospore      |
| C. Mycelia and conidia                      |                               |
| D. Germinating conidia                      |                               |

REFERENCES

1. Anonymous, 1990, Hand book on pest and disease control of mulberry and silkworm, United Nations, Thailand.
2. Anonymous, Diseases and Pests of Mulberry and their Control, Central Silk Board, India.