



PEBRINE-O-SCOPE

A Microscopic Image Analysis Solution for Pebrine Disease Detection

► A Sub-project under the eAgriEn Program ◀

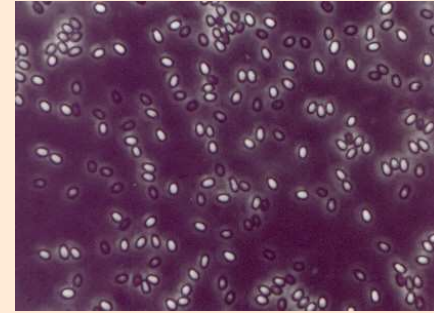


Implementing Agencies:
C-DAC, Kolkata & PRADAN, Jharkhand
100% Funded by Tata Education Trust (TET)



About Pebrine Disease

- ❑ Caused by a microsporidian parasite *NosemaSp*
- ❑ Infections of the disease range from chronic to highly virulent and can result in complete loss of crop.
- ❑ Any of the stages like larvae, moth or faeces can be affected by this pathogen.
- ❑ The disease causes due to transovarial (through egg) transmission from mother moth to the progeny
- ❑ If a section of cocoons or silkworm larvae have found to be affected by Pebrine disease then all the eggs/ mother moths have to be burnt immediately, otherwise, the disease will affect the whole section rapidly.



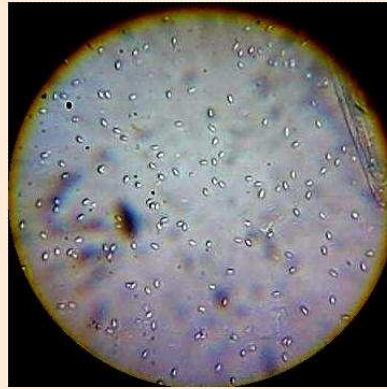
Pebrine Spore (under high-end microscope)

Characterizing Features of Pebrine

- ✓ Dumble Shape
- ✓ Size (Area & length)
- ✓ Length and Width Ratio
- ✓ Shininess/ Brightness

Problems with manual observation

- ❑ Process is tedious & laborious.
- ❑ Require experienced manpower.
- ❑ Lack of authenticity.
- ❑ Not free from human error.



Pebrine after image processing



Microscope with camera interface

System Features

- ✓ Low cost student microscope with 600X magnification used for analysis.
- ✓ Digital camera with co-axial attachment for image acquisition.
- ✓ PC/ Laptop interfacing using USB port.
- ✓ Graphical user interface, image zooming for ease of operability.
- ✓ Warring with infectious grade.
- ✓ Image analysis with report generation.
- ✓ No external power source required for camera operation.

System operation

- ❑ Existing sample preparation methodology should follow.
- ❑ A standard microscope should be used. Magnification will be minimum 600 X.
- ❑ Slides containing moth larvae slurry will be placed manually under the microscope.
- ❑ Digital camera will be attached with the microscope using USB cable.
- ❑ A PC will be connected with the digital camera acquire the Images of the object that will be seen in the PC monitor, online.
- ❑ Developed software will detect the probable/ suspected spores.



Software Screen Shot for Pebrine Detection

Benefit

- ❑ Increase transparency and authenticity.
- ❑ Identification of pebrine in large PC monitor is easier.
- ❑ Reduce dependency on experienced manpower.



Centre for Development of Advanced Computing, Kolkata Centre

Plot-E2/1, Block-GP, Sector-V, Salt Lake Electronics Complex, Bidhan Nagar, Kolkata - 700 091

Telephone: 91 33 2357 9846/3581/3950/5989/4258 Fax: 91 33 2357 5141 Website: www.cdackolkata.in