6.2.3 Lagenidiasis of Decapod Crustaceans

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A. Name of Disease and Etiological Agent

Lagenidiasis is caused by the motile spores of the marine fungi *Lagenidium. Lagenidium* is from the subdivision Diplomastigomycotina and class Oomycetes. Two key species are *Lagenidium callinectes* and *Lagenidium chthamalophilum*.

B. Known Geographical Range and Host Species of the Disease

1. **Geographical range**
   Found in Virginia, Texas, Florida, Oregon, California, Mexico, Tahiti, and Honduras.

2. **Host Species**
   Occurs in the ova of the blue crab *Callinectes sapidus*, cultured shrimp, Dungeness crab, and American lobster *Homerus americanus*.

C. Epizootiology

Although the complete life cycle for *Lagenidium* has not been worked out, it is most likely the motile zoospore stage which serves as the etiological agent. Mortality can reach 100%.

D. Disease Signs

Lagenidium is an internal parasite of ova and juvenile marine crustacea held under artificial or experimental rearing systems. Septate, irregular hyphae (5 to 12 μm diameter) fill the egg or body of the young crab. Zoosporangia form and penetrate the host wall serving as discharge tubes. The fungus is invasive and causes massive tissue destruction. The only tissue reaction reported is melanized areas associated with the hyphae.

E. Disease Diagnostic Procedures

1. Presumptive Diagnosis

Microscopic observation of stout hyphae inside egg or discharge tubes with vesicles, which protrude the surface of eggs or the gills of juvenile crabs. In sterile sea water, observe the release of biflagellate zoospores from vesicles.

2. Confirmatory Diagnosis

Remove infected ova or gill tissue and place in Cantino's PYG agar or broth prepared in sea water (30 ppt salinity). Hyphae are branched, septate, irregular, and have a diameter of 5 to 12 μm. Vesicles form at the tip of the hyphae and differentiate into zoospores. Zoospores range in size from 9 to 12 μm and contain two laterally attached flagella. Specimen should be shipped immediately for confirmation.

F. Procedures for Detecting Subclinical Infections

No procedures for detecting sub-clinical infections are available.

G. Procedures for Determining Prior Exposure to the Etiological Agent

No procedures for detecting sub-clinical infections are available.

H. Procedures for Transportation and Storage of Samples to Ensure Maximum Viability and Survival of the Etiological Agent

Live or freshly killed fish and eggs are preferable. Samples should be sealed, properly labeled with host species, date of collection, other pertinent data, and packed into cardboard shipping tubes immediately. Specimen should be shipped immediately.

References

Bland, C. E., D. G. Ruch, B. R. Salser, and D. V. Lightner. 1976. Chemical control of *Lagenidium*, a fungal pathogen of marine crustacea. University of North Caroline Sea Grant Program Publication No. 76-02. 38 pp.