

tions may have been valid, the plants assisted the predator by increasing prey visibility. That is, the predator required less time (compared to control tanks) to find and consume the light-colored prey against the dark-colored plants. In addition, predator-prey encounters were increased because the plants caused the fish to search systematically in plant-filled tanks whereas they swam at random in the plantless tanks.

Previous field and laboratory observations of my own indicated that certain predators such as larval Dytiscidae and *Hydra* spp. use aquatic vegetation as a substrate from which to capture mosquito larvae. Results of field experiments (Angerilli and Beirne, in preparation) indicate that predators are more likely to colonize plant-containing waters than plantless waters. Therefore, the intelligent use of an appropriate combination of predator and plant could assist in the management of mosquito populations in some situations.

THE ISOLATION OF *FUSARIUM OXYSPORUM* FROM A NATURAL POPULATION OF *AEDES DETRITUS* IN ITALY¹

T. P. BREAUD, J. R. CRABBE

US Navy Environmental and Preventive Medicine Unit No. 7, Box 41, Fleet Post Office, New York 09521

AND

G. MAJORI

Instituto Superiore di Sanità, Laboratory of Parasitology, Rome, Italy

During a survey of the mosquitoes of the Campania Region of Italy, we collected several larval specimens of *Aedes detritus* from a roadside ditch which bordered a marsh habitat. Subsequent laboratory examination of 3 of these live larvae revealed rust colored fungal masses protruding from the thorax. The larvae

¹ The opinions or assertions contained herein are the private ones of the authors and are not to be construed as official or reflecting the views of the Navy Department or the Naval Service at large.

were simultaneously infected with *Vorticella* over the entire body.

The infected larvae were killed in warm water and washed 3 times in sterile distilled water. Under sterile conditions individual hyphae were dissected from the thorax and inoculated on Sabouraud dextrose agar containing 50 mgms of chloramphenicol to inhibit bacterial growth. The cultures were then incubated at 25°C and observed for fungal growth. Resultant growth from individual hyphae yielded white cottony fungal colonies. Hyphae from these were passed a second time to Sabouraud dextrose agar to obtain a pure culture for identification. The fungus has been identified as *Fusarium oxysporum*.

Members of the genus *Fusarium* are commonly found in the soil and many are plant pathogens. Macfie (1917) was the first to report *Fusarium* from a culicine. Roberts and Strand (1977) were able to cite only one reference to *Fusarium oxysporum* in the Culicidae. *Fusarium oxysporum* has been previously isolated from natural populations of *Aedes detritus* in France (Hasan and Vago 1972). We can find no previous reference to the isolation of *Fusarium* from Italian species of mosquitoes. Nor can we find any reference to *Vorticella* from Italian mosquitoes.

Interestingly, Hasan and Vago (1972) were able to achieve greater than 50% mortality in *Culex pipiens pipiens* using their strain of *Fusarium oxysporum*. We were unable to duplicate their results with either *Cx. pipiens* or *Aedes aegypti*.

Further attempts to isolate the fungus from the original collection site have all been negative.

ACKNOWLEDGMENT. The authors thank Dr. Paul E. Nelson for kindly identifying the fungus, and Emilio Pierdominici for the help provided in collecting the larval specimens.

References Cited

- Hasan, S. and Vago, C. 1972. The pathogenicity of *Fusarium oxysporum* to mosquito larvae. *J. Invert. Pathol.* 20:268-271.
- Macfie, J. W. S. 1917. Fungal infections of mosquito larvae. *Rep. Accra Lab* (1916): 76-80. (*Rev. Appl. Ent.* B 6:16)
- Roberts, D. W. and Strand M. A. (Editors) 1977. Pathogens of Medically Important Arthropods. *Bulletin World Health Organization*, Supplement No. 1, Vol. 55, pp. 419.