SCIENTIFIC NOTES

OBSERVATIONS ON THE SEA ANEMONE Aiptasia PALLIDA, A POTENTIAL BIOLOGICAL CONTROL AGENT OF SALT MARSH MOSQUITOES.—(Note). Potential utilization and effectiveness of Coelenterata (i.e. hydra) as predators of immature mosquitoes in natural habitats have been reviewed by E. F. Legner (Mosq. News, 1979, in press). Only fresh-water species of hydra have been thus far evaluated. For this reason, laboratory studies were conducted to determine if another coelenterate, the sea anemone Aiptasia pallida (Verrill) (Cnidaria: Anthozoa), could be used as a potential biological control agent of mosquitoes breeding in highly saline environments near mangroves along the southwest Florida coast. Although Aiptasia pallida is similar to hydra in life history, no one has reported its potential for mosquito control.

Cultures of Aiptasia pallida (Fig. 1) were obtained from the Carolina Biological Supply Company, Gladstone, OR. General information concerning culturing, feeding, regeneration, and physiology of this species was obtained with the cultures (Carolina Biological Supply Company, Sea Anemone Culture Kit, 16-2825, 1976).

Sea anemones were cultured in sea water (ca. 18,000 ppm Cl-) obtained from Sanibel Island, FL in 20.9 liter glass aquaria that were aerated and filtered. Sea anemones were maintained at 26-28°C (ambient) and 12-h photophase. Length of individuals ranged from a few mm for immatures to 2-4 cm for adults.

A few hundred larvae and pupae of Aedes taeniorhynchus (Wiedemann) and Ae. sollicitans (Walker) collected from salt marsh habitats were fed to anemones in each aquarium daily. Observations showed that sea anemones...
would engulf larvae and pupae of these species after contacting them with their tentacles and nematocysts; the paralyzed mosquitoes were transferred through the pharynx into the gastrovascular cavity within seconds. This entire process was easily observed due to the transparency of the cuticle around the gastrovascular cavity.

In 1 series of observations 5 medium to large sea anemones were transferred directly from 1 rearing aquaria to 400 ml glass beakers containing 100 (control), 75, 50, 25, and 0% sea water (distilled water) (3 replications/salinity level). Results indicated that sea anemones transferred to 100 and 75% sea water actively preyed upon all Ae. taeniorhynchus larvae introduced into the beakers over a 48 h period. Anemones contracted in 50% sea water and did not feed over the 48 h period; no apparent mortality was noted. All sea anemones died within 48 h when tested in 25% or less sea water.

Sea anemones moved via their pedal discs toward the surface where high concentrations of dead (frozen) mosquito larvae were floating. Numerous anemones were attached to the submerged portion of a plastic hygrometer free-floating in 1 aquarium. This could suggest possible mechanisms for transferring these organisms to a new environment. Anemones were easily removed with a spatula from aquaria or buckets lined with polyethylene bags but they could not be removed undamaged if they adhered to the glass of an aquarium.

Populations in each aquaria greatly increased over a 1 month period when anemones were fed high concentrations of immature mosquitoes. Little or no mortality resulted when the sea anemones in 1 aquaria were not fed for 3 weeks; however, these individuals decreased in size.

The apparent ease in culturing Aiptasia pallida plus its tolerance and possible adaptation to fluctuations in habitat salinity indicate a potential for biological control of mosquitoes in some salt marsh habitats of southwest Florida.—R. LEVY AND T. W. MILLER, JR., Lee County Mosquito Control District, P.O. Box 2237, Ft. Myers, FL 33902.

THE EVERVERSIBLE RECTAL ORGAN OF CERTAIN MIRIDAE (HEMIPTERA) AND ITS FUNCTION¹—(Note). Rectal structures dissociated from the normal functions of excretion are known in Hemiptera; an example is provided by the paired rectal diverticula of some Belostomatidae. This structure stores a noxious inky black fluid that is squirted when the bug is attacked. The organ described below has hitherto passed unnoticed, as far as I am aware.

The mirid Dagbortus olivaceous (Reuter) (Mirinæ) is found on several species of trees in south Florida, most importantly on avocado (Leston 1979, Fla. Ent. 62 (4): 376-9). Last instar larvae were collected at Homestead on 5 January 1979. (I have followed the practice universal outside USA of using the term “larva” for the immature stages of hemimetabolous insects). When the vial of live larvae was tapped, the bugs clung to the vial wall by their perianal organs; the bugs hung free, heads down. After transfer to 80% alcohol some individuals still had the perianal structures extruded.

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