

FAILURE OF *CULEX SALINARIUS* TO  
TRANSMIT *DIROFILARIA IMMITIS*  
FROM DOG TO DOG<sup>1, 2</sup>

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There is abundant circumstantial evidence that mosquitoes are vectors of *Dirofilaria immitis* (Leidy) but there are apparently only 2 reports of observations on the actual transmission of the parasite from dog to dog. Kume and Itagaki (1955) used *Aedes togoi* (Theobald) as the experimental vector in Japan, and Bemrick and Moorhouse (1968) used *Aedes vigilax* (Skuse) in Australia. In the United States there is a need

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for information about species of mosquitoes which are actually involved in transmission.

Seeley and Bickley (1974) reported that the Yale Arbovirus Research Unit (YARU) strain of *Culex salinarius* Coquillett supported the development of *D. immitis* to the infective stage. In 1974-75 an experiment was conducted with the aim of demonstrating transmission of *D. immitis* from an infected dog to an uninfected dog by *C. salinarius* females. Laboratory reared YARU strain females were confined in half-gallon cylindrical containers of cardboard or plastic. One end of each container was replaced with plastic screen or cloth curtain material through which mosquitoes could feed when the container was placed against the side of a shaved, unanesthetized dog. One infected dog was Dog D described by Seeley and Bickley (1974). The microfilaremia level ranged from 19 to 70 per 20 mm<sup>3</sup> of blood. Another infected dog, Dog CPR, was obtained from Dr. Robert W. Gwadz, Laboratory of Parasitic Diseases, National Institutes of Health. The infection was experimentally induced by the late Dr. Guillermo Pacheco and was known to be exclusively *D. immitis*. The microfilaremia level ranged from 194 to 200 per 20 mm<sup>3</sup>. During a period of 8 months ca. 3,500 4-day-old females were given the opportunity to feed on an infected dog. An estimated 700 specimens took blood. Of these ca. 230 survived and took a 2nd blood meal on Dog X which was known to be uninfected. Dog X and a control dog had been in a mosquito free environment since birth, and during the course of the experiment they were kept in a screened enclosure or otherwise protected from in-

sects. Eight months after the last experimental feeding, the 2 dogs were euthanized. No evidence of *D. immitis* was found in the blood or hearts of these dogs.

Seeley and Bickley (1974) found that 3.4% of the YARU strain females which fed on infected dogs could be considered capable of transmitting the parasites. The experiment reported here closely paralleled the previous study. If it is assumed that 3.4% of the females which took a 2nd blood meal harbored infective stages of the parasite, then it can be assumed that the uninfected dog was fed upon by 7.8 mosquitoes with infective stages of *D. immitis*. Since it is impossible to observe the filariae leaving the mouthparts of the mosquito while she is feeding under simulated natural conditions, logical assumptions are appropriate. The number of infective mosquitoes and the number of infective-stage filariae per mosquito cannot be ascertained, nevertheless this experiment provides a new kind of evidence that *C. salinarius* is not an efficient vector.

#### Literature Cited

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