

ABSTRACT

SEATO Medic Study No. 41 Japanese Encephalitis Virus at Bang Phra,
Cholburi

Project No. 3A 025601 A 811 Military Medical Research Program
S.E. Asia

Task 01: Military Medical Research Program
S.E. Asia

Subtask 01: Military Medical Research Program
SEASIA (Thailand)

Reporting Installation: US Army-SEATO Medical Research Laboratory
APO 146, San Francisco, California

 Division of Medical Research Laboratories

 Department of Medical Entomology

Period Covered by Report: 1 April 1963 to 31 March 1964

Principal Investigator: Major John E. Scanlon, MSC

Associate Investigators: Dr. Sakorn Resitayodthin

Reports Control Symbol: MEDDH-288

Security Classification: UNCLASSIFIED

The objective of this study is to determine the vectors of Japanese encephalitis virus in Southeastern Thailand. Mosquitoes were collected in a horse-baited mosquito trap on a horse farm operated by the Red Cross Society of Thailand in Cholburi Province. Population data were tabulated and female mosquitoes were inoculated into mice for the recovery of viral agents. One additional strain of Japanese encephalitis virus was isolated from Culex tritaeniorhynchus. The most abundant species, Culex tritaeniorhynchus and C. gelidus repeated the seasonal pattern observed in the previous year. The larval breeding sites of all of the important species were plotted, and population data were tabulated for future study.

BODY OF REPORT

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Objective: To determine the presence of Japanese encephalitis virus and other viral agents in mosquitoes at the Bang Phra horse farm of the Queen Saovabha Institute (Red Cross Society of Thailand), at Cholburi, Southeastern Thailand. Japanese encephalitis was detected in horses on the farm by clinical and serological means several years ago. Mosquitoes were also collected for determination of population trends.

Description: Mosquitoes are collected several times a week by means of an animal bait trap (magoon trap), containing a horse. Additional mosquitoes are collected alive in a Walter Reed Army Institute of Research model light trap. Female mosquitoes captured in a satisfactory condition in the traps are ground and inoculated into mice for recovery of virus. Other mosquitoes from the collections are forwarded to the Medical Entomology Department for determination. Larval collections are made at intervals to determine the breeding sites of the important species for possible future control operations.

Progress: From April 1963 to March 1964, mosquitoes were separated from 235 additional bait trap collections and 185 additional light trap collections. There was essentially no change in the species composition from the previous year. The results of the virus isolation program will be found in the report of the Virus Department. In summary, one additional virus was isolated in 1963, again in the month of November. This was an additional strain of Japanese encephalitis virus isolated from Culex gelidus.

The three most abundant species captured in the light trap were: Culex fuscocephalus, C. gelidus and C. tritaeniorhynchus. The peak period of abundance again fell in the period of September to November for all of these species. This is somewhat later than the peak period in Bangkok for C. tritaeniorhynchus and C. gelidus. Almost all of the identifications during the report period were made at Bang Phra, and all of the grinding and inoculation of the mice was done there. The area appears to be very favorable as a study site for Japanese encephalitis, and it is anticipated that the work will be expanded, with a much more detailed examination of the mosquito population in the coming year. Many of the species of mosquitoes found in the area have potential importance in the transmission of diseases other than Japanese encephalitis. Several larval surveys were made during the year, and the breeding sites of all of the important mosquito species were determined.

Summary: An additional strain of Japanese encephalitis was isolated in November 1963, making five virus strains isolated from mosquitoes since the inception of the project. The same species of mosquitoes predominated in the collections as in the previous year, and the population peak was again reached in the months of September to November.

Conclusions: Japanese encephalitis virus is present in the Bang Phra mosquito population during the months of October and November, when the Culex gelidus and C. tritaeniorhynchus populations are at their peak. Isolation of the virus at the same time two years in succession, the background data available on the mosquito populations, and the location of the site make it an excellent one for future expanded study of the arthropod-borne virus situation in Thailand.

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