

A Note on the Vector of *Plasmodium juxtannucleare* in Ceylon

by

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Plasmodium juxtannucleare is widespread in domestic fowls in Ceylon but the identity of the vector has not been established according to Dhanapala (1962). He found that *Aedes aegypti*, *Aed. albopictus*, *Aed. togoi*, *Armigeres subalbatus*, *Culex pipiens pipiens*, *C. p. molestus* and *C. p. fatigans* were all refractory to infection.

Bennett and Warren (1966a) working in Malaya, found *C. sitiens* infected with *P. juxtannucleare*. The sporogonic development of *P. juxtannucleare* in *C. sitiens* was studied and it was shown for the first time that the parasite possessed a pedunculated oocyst. *C. sitiens*, however, was found to be "less than ideal as a vector of *P. juxtannucleare*" as a high percentage of experimentally infected mosquitoes showed degenerating oocysts. It was also found that *C. sitiens* was not completely susceptible to infection with the Ceylon strain of *P. juxtannucleare* (Bennett and Warren, 1966b).

Mansonia crassipes has been shown to be a vector of *P. gallinaceum* and *P. circumflexum* in Ceylon (Niles, Fernando and Dissanaïke, 1965; Dissanaïke, Nelson, Fernando and Niles, 1965). Recently *M. crassipes* has been found naturally infected with *P. juxtannucleare*. Several wild-caught *M. crassipes* were in an infective condition showing sporozoites in the salivary glands and mature pedunculated oocysts on the gut wall. A strain of *P. juxtannucleare* isolated in chicks by the inoculation of sporozoites from wild-caught *M. crassipes* is now being maintained in the laboratory.

M. crassipes is a widespread mosquito, being distributed from India and Ceylon almost right through South-East Asia to New Guinea and Northern Australia and across the Pacific to Fiji Islands. It is primarily a bird-feeder and is exceedingly exophilic in behaviour (Niles, 1966). If dissections of *M. crassipes* are more widely carried out—not always an easy matter on account of the difficulty of obtaining material even where it abounds—it may prove to be a potentially important vector of *P. juxtannucleare* and other *Plasmodium* species of avian origin in areas where it has least been suspected.

REFERENCES

- BENNETT, G. F. AND WARREN, McW. (1966 a). Biology of the Malaysian strain of *Plasmodium juxtannucleare* Versiani and Gomes, 1941. II. The sporogonic stages in *Culex* (*Culex*) *sitiens* Wiedemann. *J. Parasit.*, 52, 647—652.
- BENNETT, G. F. AND WARREN, McW. (1966 b). Biology of the Malaysian strain of *Plasmodium juxtannucleare* Versiani and Gomes, 1941. III. Life cycle of the erythrocytic parasite in the avian host. *Ibid.*, 52, 653—659.
- DHANAPALA, S. B. (1962). The occurrence of *Plasmodium juxtannucleare* Versiani and Gomes, 1941 in domestic fowls in Ceylon. *Riv. Malar.*, 41, 39—46.

DISSANAIKE, A. S., NELSON, P., FERNANDO, M. A. AND NILES, W. J. (1965). Studies on Haemosporidia of Ceylon Birds with special reference to Plasmodia. *Ceylon vet. J.*, 13, 65—75.

NILES, W. J., FERNANDO, M. A. AND DISSANAIKE, A. S. (1965). *Mansonia crassipes* as the Natural Vector of Filarioids, *Plasmodium gallinaceum* and other Plasmodia of fowls in Ceylon. *Nature, Lond.*, 205, 411—412.

NILES, W. J. (1966). *Mansonia crassipes*, a Vector of Bird Filarioids in Ceylon. *Ceylon J. med. Sci.*, 15, 41—44.