VECTORS of MALARIA in a HIGHLAND URBAN ENVIRONMENT in KENYA

E. J. Asimeng

Moi University, Faculty of Health Sciences,
P. O. Box 4606, Eldoret Kenya

Abstract Malaria is a major public health problem in Kenya, Africa. In the Lake Victoria region, nearly one third of infant and nearly half of adult deaths are attributed to this vector-borne disease. Malaria contributes to malnutrition of children, complications in pregnancy, and maternal death. The information presented here is the preliminary phase of a malaria intervention project that is based on vector control. The Anopheline mosquito primarily linked to malaria in this region of Kenya is *An. gambiae*, but *An. christyi*, *An. pharoensis*, and *An. pretoriensis* were also found.

Key Words Malaria mosquito Anopheline vector Kenya Africa

INTRODUCTION

Although there have been many anti-malaria campaigns in Africa and other parts of the world, it remains the most important vector-borne disease. Mortality and morbidity from this disease have been reduced in countries such as the United States, Europe, and China, but in tropical Africa there has been no reduction (Zahar 1984, 1985).

Malaria is a major public health problem in Kenya. In areas around Kisumu in the Lake Victoria region, for example, nearly one third of all infant and nearly half of adult deaths are attributed to malaria. The disease also contributes to severe malnutrition in young children, complications in pregnancy and labour, and maternal death. In older children and adults, the disease leads to loss of vitality, general susceptibility to other infections, and reduced work output. Malaria, therefore, is a serious obstacle to socio-economic development.

This presentation is based on the study carried out in Eldoret Municipality over a period of eight months during March to October 1997. Situated within a highland plateau whose altitude ranges from 2100 to 1500 meters above sea level, the study area experiences an unstable form of malaria characterised by a 3-6 month period of transmission a year; thus the transmission is mesoendemic, but occurs in epidemic proportions with cerebral and gastrointestinal complications that are particularly significant in pregnant women and children.

The study represents a preliminary phase of a malaria intervention project through vector control. Specifically, the objective of the study is to characterize larval development sites of the malaria vector in this part of Kenya in anticipation of developing a vector-control strategy that optimizes limited resources.

A larval survey of mosquito breeding was carried out in ten sites comprising swamps within Eldoret Municipality. Intense breeding of Anopheline mosquitoes was observed in a variety of breeding sites — vehicle rut, hoof prints, drains, and borrow pits — in all the swamps.

The Anopheline species identified were predominantly *An. gambiae s.l.* They were recovered from all breeding habitats; however, they showed predilection for man-made situations, particularly shallow sunlit pools, borrow pits, and vehicle ruts. Other Anopheline species encountered were *An. christyi* and *An. pretoriensis*.

An. gambiae is the most dangerous local malaria vector, which is known to rest predominantly indoors after taking a blood meal. Both *An. pharoensis* and *An. christyi* are not considered malaria vectors; adults of the latter are found resting inside houses but the species is mainly a cattle-biter (Service, personal communication). Culicine mosquitoes were not a high priority issue on the agenda of the present study; however, the omnipresence and marked larval densities of these nuisance mosquitoes could not be ignored. They were represented mainly by *Culex quinquefasciatus*. The present study has identified the swampy/marshy environment as a significant source of mosquito production in Eldoret Municipality. A variety of breeding sites exist in this environment that support perennial breeding of mosquitos including *An. gambiae*, the most important malaria vector of global significance.

ACKNOWLEDGMENTS

REFERENCES

Zahar, A.R. 1984. Vector bionomics in the epidemiology and control of malaria. Part I. The WHO African region and the southern WHO eastern Mediterranean region. Section I. Malaria vectors of the Afrotropical region, general information. Section II. An overview of malaria control measures and the recent malaria situation. Mimeographed document VBC/84.6 and MAP/84.3. Geneva: World Health Organization. 109 pp.

Zahar, A.R. 1985. Vector bionomics in the epidemiology and control of malaria. Part I. The WHO African region and the southern WHO eastern Mediterranean region. Section III. Vector bionomics, malaria epidemiology, and control by geographic areas. (A) West Africa. Mimeographed document VBC/85.1 and MAP/85.1. Geneva: World Health Organization. 225 pp.