

Vector Species of *Dracunculus medinensis* in West Akim District of southern Ghana

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Abstract

Field studies were performed to identify the vector species of *Dracunculus medinensis*. From these studies, *Mesocyclops kieferi* was implicated as a major vector. The identified possible intermediate hosts species of *Dracunculus medinensis* in the study area in order of importance were *Mesocyclops kieferi* > *Mesocyclops aspericornis* > *Thermocyclops inopinus* > *Thermocyclops spinosus*. An evaluation of the infection potentials of the *Cyclops* species implicated as potential vectors of *Dracunculus medinensis* is recommended. There is the need to carry out a nation-wide investigation to establish the "true" vectors of the worm in the country.

Introduction

Dracunculiasis is caused by the Guinea worm, *Dracunculus medinensis* L., and is endemic in parts of Africa and Asia. The vectors are commonly referred to as *Cyclops*, but *D. medinensis* exhibits a high level of host specificity and only a few species act as vectors in nature. Recent progress in copepod systematics has refined the level of taxonomic resolution of these freshwater copepods and it is now known that the universal vector species, *Mesocyclops leukarti*, does not occur either in Africa or India (Boxshall & Braide, 1991). There is, therefore, the need to record these taxonomic changes, review earlier records and to update the nomenclature of the hosts where possible (Boxshall & Braide, 1991). The study sought to identify and document the vector species of *Dracunculus medinensis* in some communities declared as endemic for Guinea worm disease.

The study villages for vectors of Dracunculiasis and factors that aid in the disease transmission are typical rural communities in southern Ghana, without potable

water supply. The residents, therefore, depend solely on pond water both for drinking and for other domestic uses. These ponds are, however, unreliable sources of water supply, with some drying up during the dry season. The ponds are shallow, and the villagers wade into them when fetching water especially in the dry season. Whilst some of these ponds are periodic streams, the local people dig others. The maximum capacities of these dugout ponds are usually in the neighbourhood of 200–300 m³.

Materials and methods

Study area and features of sampling sites

The study was carried out in three villages (Tiokrom, Dzakpatra and Mepom) in the East Akim District of the Eastern Region of Ghana. Whilst Tiokrom and Dzakpatra are small settlements, Mepom is a sub-urban settlement. Both Tiokrom and Mepom are accessible by main roads while Dzakpatra is quite remote. All the three villages were observed to use water sources that vary seasonally. During the rains, water is collected and stored in pots and basins. In the long dry season (November to