D-31 Field studies to determine the efficacy of *Bacillus sphaericus* against the vector of filariasis in Sri Lanka

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Bancroftian filariasis is endemic in the South Western coastal belt in Sri Lanka and the principal vector is *Culex quinquefasciatus* which breeds in polluted water habitats. The present method of control is by application of the larvicide, Fenthion, on a weekly cycle. However, as there is a tendency for development of resistance to Fenthion, it was necessary to find another suitable control agent.

This study was undertaken to determine the effect of an alternative control agent, a bio-larvicide (Sphaerimos) against the vector mosquito and to design a suitable strategy for implementation of large scale field trials under local conditions. A formulation of the 2362 strain of *Bacillus sphaericus* (Sphaerimos) was provided by the WHO. Studies were conducted in the test and control areas for a period of 3 years. Baseline data on entomological parameters and microfilaria rates etc. were monitored and the field trials using Sphaerimos were carried out during the baseline year. Based on the baseline date, a suitable strategy was designed for the control of *Cx. quinquefasciatus* using Sphaerimos. 4 rounds of Sphaerimos application per year, at a dosage rate of $20g/m^2$ was carried out. The larval breeding and the adult vector densities were also monitored. In the follow up phase, application of Sphaerimos was terminated but the monitoring of vector densities and the status of infection were continued to evaluate the efficacy of Sphaerimos against the vector mosquito.

The breeding places (drains and soakage pits) recorded over 97% reduction in larval densities by the 14th day after treatment. The impact of Sphaerimos gradually declined with time and by the 10th week post treatment, the percentage reduction in drains was 64.93% while in soakage pits it was 62.13%. There was also a significant annual reduction of adult vectors by 46.12% during the intervention year.

Sphaerimos has a high degree of efficacy against the local strain of *Cx. quinquefasciatus*. It is species specific and also has no apparent lethal effects on non-target organisms. Its application is less labour intensive. Proper timing and frequency of treatments were important criteria for successful control of the larval population.