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Effect of fenthion on the resistance development of Culex quinquefasciatus field populations

Resistance status of *C.quinquefasciatus*, the vector of Bancroftian filariasis, for fenthion was investigated from eight selected areas within and outside the endemic filariasis belt of Sri Lanka, during 1992-1994. Of the populations investigated Dehiwela (Deh), Peliyagoda (Pel), Lunawa (Lun) and Panadura (Pan) populations were exposed to spraying of fenthion at a target dose of 1mg active ingredient per liter at weekly intervals whereas Paradeniya (Pere), Koduwela (Kad), Maharagama (Mah), and Gothatuwa (Goth) populations were not.

Larval populations from both sprayed and unsprayed sites showed a significant resistance to fenthion at LC_{50} levels in comparison to the susceptible PelSS and KadSS strains at 5%level, except for Pera population. Deh population had a significantly hight resistance at LC_{50} and LC_{90} levels 90.074mg/l amd 0.243mg/l respectively) in comparison to both sprayed and unsprayed populations at 5% level. It was a 5.2 fold and 4.6-fold increase of resistance compared to PelSS and KadSS strains respectively at the LC_{50} level. LC_{90} values of other three sprayed populations, Pel, Lun and Pan were not significantly high in comparison to unsprayed populations or with each other at 5% level.

Pera population showed a significantly low resistance at LC_{50} and LC_{90} levels (0.016 and 0.042mg/l respectively)which were in the range of those of the susceptible strains LC_{90} values obtained for both sprayed and unsprayed populations also showed a similar pattern. There was no significant difference in the pooled LC_{50} values of sprayed and unsprayed populations at 5% level. Only Deh population showed a significantly high LC_{50} and LC_{90} values in comparison to the pooled LC_{50} and LC_{90} values of the unsprayed populations. Financial assistance for this study was given by World Health Organization.