DEVELOPMENT OF DNA PROBES TO DISTINGUISH ANOPHELES CULICIFACIES COMPLEX

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Anopheles culicifacies is the only known established vector of malaria in Sri Lanka. A.culicifacies is represented by a complex of at least four sibling species A, B, C and D. In Sri Lanka, so far, only species B has been identified. The existence of another sibling species in Sri Lanka cannot be ruled out since species B has proved to be a poor vector of malaria in India and also since malaria is endemic in many regions of Sri Lanka. Furthermore, the analysis of polytene chromosomes, the current method used to distinguish this complex, is tedious and difficult.

We have isolated four DNA fragments from a genomic library of A.culicifacies (B), that distinguishes species A from B and C. One fragment (340bp) has been further characterized. This fragment is present at a very high copy number in the genomes of species B and C but, at a very low copy number in species A. The genomes of all other Anophelenes tested do not contain this fragment. The specificity and sensitivity of this probe as well as preliminary field assays indicate that we have developed an efficient and reliable tool which could be used in the field to identify sibling species A of the A.culicifacies complex.