

## DEVELOPMENT OF A DIAGNOSTIC DNA PROBE TO DETECT *SETARIA DIGITATA*: THE CAUSATIVE PARASITE OF CEREBROSPINAL NEMATODIASIS IN GOATS, SHEEP AND HORSES

W. S. S. WIJESUNDERA, N. V. CHANDRASEKHARAN,  
E. H. KARUNANAYAKE\* and S. P. DHARMASENA

*Department of Biochemistry and Molecular Biology, Faculty of Medicine, University of Colombo, Kynsey Road, P.O. Box 271, Colombo 8, Sri Lanka*

### SUMMARY

Two repetitive sequences (IpSdM and IpSdS) have been cloned and sequenced from the genome of *Setaria digitata*. When IpSdM (214 bp) and IpSdS (201 bp) were aligned, a high degree of homology (85%) was observed, indicating that they belong to the same family of repeats. IpSdM represents a complete repeating element while IpSdS consists of two partial repeating elements arranged in tandem. The elements are present in about 10 000 copies comprising 2.8% of the *S. digitata* genome. As a diagnostic probe IpSdM detects as little as 100 pg DNA of both *S. digitata* and *S. labiata-papillosa*. It can also detect a single microfilaria and a L<sub>3</sub> larva making it a valuable tool to monitor cattle and mosquito vector populations in the prevention of cerebrospinal nematodiasis.

**KEYWORDS:** *Setaria digitata*; repetitive sequences; tandem repeats; DNA probes; cerebrospinal nematodiasis.

### INTRODUCTION

The diseases caused by filarial nematodes in human and livestock animals constitute a major health problem in tropical countries. The debilitating effects of these infections severely affect manpower resources in developing countries, most of which have agricultural based economies. For control and/or eradication programmes on filariasis to be effective, it is necessary to gather detailed and accurate data from epidemiological surveys. This would invariably entail the sensitive and specific detection, identification and quantification of the different stages of the parasite in both the vector and the host. Currently the method used is microscopy:

---

\*To whom correspondence should be addressed.