



ELSEVIER

Veterinary Parasitology 81 (1999) 225–233

veterinary  
parasitology

# A sensitive polymerase chain reaction based assay for the detection of *Setaria digitata*: The causative organism of cerebrospinal nematodiasis in goats, sheep and horses

W.S.S. Wijesundera, N.V. Chandrasekharan, Eric H. Karunanayake\*

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

Received 1 July 1998; accepted 28 October 1998

## Abstract

A sensitive PCR assay for the detection of *Setaria digitata* has been developed. Two oligonucleotide primers (17 nt) were designed from a previously cloned and characterized tandemly arranged repetitive sequence of *Setaria digitata*. Using these primers, it was possible to amplify small quantities (100 fg) of *S. digitata* genomic DNA. A simple procedure, using proteinase K and non-ionic detergent NP 40, was followed to process the host blood samples and mosquitoes harbouring L<sub>1</sub> larvae. The sensitivity of the polymerase chain reaction based assay surpasses the microscopic detection and the previously reported oligonucleotide based chemiluminescent detection of microfilariae in infected host blood samples and L<sub>1</sub> larvae in mosquitoes. © 1999 Elsevier Science B.V. All rights reserved.

**Keywords:** *Setaria digitata*; Cerebrospinal nematodiasis; Diagnosis; Nematoda; PCR

## 1. Introduction

*Setaria digitata* is a filarial nematode found in the peritoneal cavity of cattle, buffalo and other ungulates. In these natural hosts, the parasite is considered to be non-pathogenic. However, the transmission of infective larvae (L<sub>1</sub>) to abnormal hosts such as goats, sheep or horses could lead to a serious and often fatal disease called cerebrospinal

\* Corresponding author. Tel.: +94-1-697485; fax: +94-1-689181; e-mail: erick@eureka.lk