

## RESEARCH ARTICLE



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# Assessment of Humoral Immune Responses of Sheep Immunized with Affinity Purified Excretory / Secretory Antigen of *Haemonchus contortus*

S Arunkumar,<sup>1</sup> S Abdul Basith<sup>2</sup> and S Gomathinayagam<sup>3</sup>

Department of Veterinary Parasitology, Madras Veterinary College

Tamilnadu veterinary and animal sciences university, Chennai, India.

Present address:<sup>1</sup> Assistant Professor (email: [arungr@rediffmail.com](mailto:arungr@rediffmail.com).) <sup>2</sup> Professor and Head, Department of Veterinary Parasitology, Madras Veterinary College, Chennai, <sup>3</sup> Professor, Central University laboratory, TANUVAS, Chennai – 51.

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## Abstract

In the present investigation, live adult *Haemonchus contortus* worms were harvested from the abomasums of sheep. *In vitro* culture of adult worms were made in RPMI 1640 medium at a concentration of approximately 50 worms / ml in a culture flask at 37° C for 24 hours and the culture supernatant was used as antigen. The E/S antigen was purified by thiol – sepharose affinity chromatography. The protein content of thiol – purified antigen was 1.6 mg /ml. on western blot analysis, it was demonstrated that the affinity purified antigen showed a single reactive band at 66 kDa. In immunization trial, sheep were immunized with 500 µg of thiol – purified E/S antigen along with montanide as adjuvant on day 0,30 and 60 intramuscularly. Further, the assessment of serum antibody levels in immunized sheep was made at weekly intervals by enzyme linked immuno sorbent assay (ELISA). It was observed that the mean absorbance values were significantly ( $P \leq 0.01$ ) higher up to 20 weeks post immunization in purified antigen immunized group compared to unimmunized control group.

**Key words :** *Haemonchus contortus*, Excretory /Secretory antigen, Thiol – sepharose affinity chromatography, antibody, ELISA, Sheep.

## Introduction

Haemonchosis is one of the most important diseases of small ruminants through out the world. The disease has a cosmopolitan distribution but more prevalent in most sheep raising countries. The parasite inhabits in the abomasums of sheep, bores its walls and feeds on blood.<sup>18,10</sup> It causes great economic losses in sheep industry including decreased weight gain and milk yield.<sup>3</sup> The control of gastrointestinal nematodes in general is at present dependent on the repeated use of anthelmintics and where possible, pastures management. However, clean pastures are not readily available under intensive grazing conditions and, perhaps more importantly, there is an increasing occurrence of parasites resistant to the action of anthelmintics. Further, there are concerns regarding drug residues in meat and the