Anthelmintic Efficacy of *Nauclea Latifolia* Extract Against Gastrointestinal Nematodes of Sheep: *In Vitro* and *In Vivo* Studies

I O Ademola,¹,* B O Fagbemi,¹ and S O Idowu²

Abstract

Direct effects of *Nauclea latifolia* extracts on different gastrointestinal nematodes of sheep is described. *In vivo* and *in vitro* studies were conducted to determine possible anthelmintic effect of leaf extracts of *Nauclea latifolia* toward different ovine gastrointestinal nematodes. A larval development assay was used to investigate *in vitro*, the effect of aqueous and ethanolic extracts of *N. latifolia* towards strongyles larvae. The development and survival of infective larvae (L₃) was assessed and best-fit LC⁵₀ values were computed by global model of non-linear regression analysis curve-fitting (95% CI). Twenty sheep harbouring naturally acquired gastrointestinal nematodes were treated with oral administration of ethanolic extracts at a dose rate of 125 mg/kg, 250 mg/kg and 500 mg/kg to evaluate therapeutic efficacy, *in vivo*.

The presence of the extracts in the cultures decreased the survival of larvae. The LC⁵₀ of aqueous and ethanolic extract were 0.704 and 0.650 mg/ml respectively and differ significantly (P<0.05, paired *t* test). Faecal egg counts (FEC) on day 12 after treatment showed that the extract is effective, relative to control (1-way ANOVA, Dunnett’s multiple comparison test), at 500 mg/kg against *Haemonchus spp*, *Trichostrongylus spp* (*p<0.05*), *Strongyloides spp* (*P<0.01*); at 250 mg/kg against *Trichuris spp* (*P<0.01*) and ineffective against *Oesophagostomum spp* (*p>0.05*). The effect of doses is extremely significant; the day after treatment is sometimes significant while interaction between dose and day after treatment is insignificant (2-way ANOVA).

*N. latifolia* extract could therefore find application in the control of helminth in livestock, by the ethnoveterinary medicine approach.