

**Antischistosomal Effects of *Solanum incanum* and *Carica papaya* Crude Extracts on  
*Schistosoma mansoni* in BALB/c mice**

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**A thesis submitted in partial fulfilment for the degree of Master of Science in Zoology  
(Animal Parasitology) in the Jomo Kenyatta University of Agriculture and Technology**

**2010**

## ABSTRACT

Schistosomiasis is the second most important parasitic infection, after malaria, mainly infecting people in the tropics. Praziquantel is a drug of choice for treatment of schistosomiasis, most of the affected people can hardly afford its cost. However, there have been reports of Praziquantel resistance. Oxamniquine is the only alternative to praziquantel for *S. mansoni* infection but has limited supply because it is expensive hence out of market and also only kills *S. mansoni*. Development of schistosomiasis treatment which is more effective and safe, from reasonably less expensive natural sources is the main consideration, especially for most vulnerable poor communities in endemic areas. This was rationally approached through the study of indigenous traditional plant remedies. The aim of this study was to determine antischistosomal activity of *Solanum incanum* roots and *Carica papaya* seeds extracts in BALB/c mice infected with *S. mansoni*. Schistosome cercaria was subjected to various concentrations of the plant extracts. Worm recovery, pathological, immunological and cercaricidal assays were carried out to measure the antischistosomal activity of aqueous and methanol extracts. Phytochemical screening of *S. incanum* roots and *C. papaya* seeds extracts was done and medicinal phytochemicals were detected which include; alkaloids, tannins, saponins, flavonoids and glycosides. The mice were infected with *S. mansoni* and then treated with two doses of both 150mg/kg body weight of *S. incanum* or *C. papaya* methanol and aqueous extracts or 450mg/kg body weight of praziquantel. Concentrations of plant extracts (5 µg/ml, 15 µg/ml and 30 µg/ml), were used on cercariae *in vitro* (cercaricidal assay). Generally the two plants demonstrated an attack of schistosomiasis mansoni disease at different dimensions: *C. papaya*, demonstrated greater abilities in reducing pathology to the extent where the liver had a few granulomas and in some cases without granuloma. There were elevated immune responses which were significantly

different ( $P < 0.05$ ) from that of Praziquantel, with a high protective immunity. Generally, *C. papaya* destroyed cercariae at the shortest time, 20 minute at the least concentration ( $5 \mu\text{g/ml}$ ). *Solanum incanum* showed more efficacy in reducing worm burden compared to PZQ ( $P < 0.05$ ). The extract with effects close to the drug of choice PZQ was *S. incanum*, since it reduced greatly the number of worms which is quite crucial in schistosomes infection. In conclusion, the ethnic use of seeds of the *C. papaya* and the roots of *S. incanum* has been verified in the study. The effects of worm reduction, cercaricidal, reduction of pathology and induction of immune responses forms a strong basis as potential anti-schistosomal agents. The results of this study, however, calls for further investigations towards development of new antischistosomal remedy. Further studies are required to determine the right dosage, synergistic effects, isolation of the active compound (s) contained in the crude extracts and to establish the mechanism (s) of their action.