Journal of Applied Biosciences 88:8211– 8222

ISSN 1997–5902

Detection of proteins induced in the haemolymph of *Biomphalaria pfeifferi* infected with *Schistosoma mansoni*.

Okonjo Edward[1], Yole Dorcas[1], Eric Korir[2], Nguu Edward[2], Anyango Beatrice[3] and Ogoyi Dorington[4]

[1] School of Biological Science and Technology, Technical University of Kenya, P.O. Box 52482, 00200, Nairobi, Kenya

[1] School of Biological Science and Technology, Technical University of Kenya, P.O. Box 52482, 00200, Nairobi, Kenya

[2] Department of Biochemistry, University of Nairobi, P.O. Box 30197, 00100, Nairobi, Kenya

[3]School of Agri-business, Jaramogi Oginga Odinga University of Agriculture, Science and Technology, P. O. Box 210 - 40601 Bondo – Kenya.

[4]Department of Biochemistry and Biotechnology, Technical University of Kenya, P.O. Box 52482, 00200, Nairobi, Kenya

Corresponding author email: dogoyi@gmail.com

Original submitted in on 19th December 2015. Published online at www.m.elewa.org on 30th April 2015 http://dx.doi.org/10.4314/jab.v88i1.2

ABSTRACT

Objectives: Snail-schistosome interactions in relation to immunological, and biochemical changes induced in the host's tissues by the developing intramolluscan stages of the parasite form an integral part in understanding the biology of infection. This study focused on determining whether there are induced proteins in an infected snail haemolymph and to determine the cross reactivity of the proteins with antibodies raised against the cercariae and worm antigens.

Methodology and results: Proteomic analysis was carried out to analyze differentially expressed proteins. This was done by separation of proteins by SDS-PAGE and 2D electrophoresis on infected snail haemolymph. Later western blotting was done to check for cross reactivity of induced proteins and antibodies. The protein profiles in SDS-PAGE revealed a complex mixture of polypeptides some of which were induced or suppressed on specific days during the infection period. Separation of haemolymph proteins by 2D electrophoresis analysis revealed a progressive increase of expressed proteins during the parasite's developmental period in the snail, however there was no specific trend in distribution of the acidic or basic proteins. Finally, haemolymph proteins from infected snails and the control (uninfected) snails were not recognized by antibodies raised against *S. mansoni* antigens namely Soluble Worm Antigen (SWAP) and Soluble Cercariae Antigen (SCA).

Conclusions and application of findings: Snail- schistosome interaction leads to suppression and induction of proteins. This is important in understanding stage specific interactions of the parasite during intramolluscan development. Lack of cross reactivity was an indication that these proteins could not be used as immunogens for vaccine design.

Key words: Schistosomiasis, Biomphalaria *pfeifferi*, haemolymph, induced proteins