

Partial Purification of Anthelmintic Compounds from *Solanum indicum*

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The increase in helminth infections and their growing resistance to most broad spectrum chemotherapeutics is a major problem of medical and economic significance in the tropical and subtropical regions of the world. An effort is now being directed to discover new anthelmintics of plant origin. Previously we have reported that *Solanum indicum* (SI) fruits exhibit strong anthelmintic activity. Objective of the present study was to partially purify the anthelmintic compound/s from SI fruits using solvent extraction and anion exchange chromatography.

Methanol extract of SI fruits was partitioned using butanol and water. Anthelmintic compounds were partially purified from the butanol extract using DEAE Cellulose-52 at pH 7.0. Bound compounds were eluted from the column with a linear gradient of 0-1 M NaCl at pH 7.0. All fractions were screened using *Caenorhabditis elegans* bioassay and their light absorbance was measured at 214 nm. The *C. elegans* Bristol strain N2 was cultured aseptically and bioassay was carried out in triplicate using 96-well plates. Percentage of dead nematodes was counted under light microscope after 24 h incubation with the fractions at 21 °C. Mebendazole was used as the positive control and an appropriate negative control was also used.

C. elegans is considered the most suitable test organism for preliminary high-throughput *in vitro* screening for broad spectrum anthelmintic activity. Fractions eluted from DEAE cellulose showed anthelmintic activity in four separate peaks based on *C. elegans* assay. Those peaks were eluted at 0.1, 0.28, 0.48 and 0.85 M NaCl. Highest mean death percentages observed at each peak were 53, 59, 37 and 61, respectively compared to the negative control. Fractions showed detectable absorbance only at 214 nm. Total recoveries of compounds showing anthelmintic activity in the four peaks were 13.2% in peak 1, 32% in peak 2, 12.6% in peak 3 and 34.6% in peak 4. The active compounds could not be proteins as the extraction methods used would denature the proteins and may be secondary metabolites which absorb light at 214 nm.

In conclusion, compounds showing anthelmintic activity were partially purified from *Solanum indicum* fruit extracts. It seems that SI fruit contains at least four different anthelmintic compounds. Further studies are necessary to purify and identify these compounds and to find their efficacy against parasitic nematodes.