Anthelmintic Activity of Noni (**Morinda citrifolia** L.) Seed Proteins

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**Introduction:** The development of anthelmintic resistance has impacted on the success of conventional anthelmintics for the control of gastrointestinal nematodes in grazing goats. Different plant species may provide new candidates that can be explored as alternative sources of anthelmintic compounds. *Morinda citrifolia* L. is reported to have a broad range of therapeutic properties including anthelmintic effects. Most noni is consumed as fruit juice and the seeds are discarded in spite of their unexplored biotechnological potential. This study was undertaken to analyze the biochemical properties of noni seed proteins and evaluate their anthelmintic activity against gastrointestinal nematodes of naturally infected goats.

**Material and Methods:** Three proteic extracts were obtained from defatted noni seed flour using 0.050 M Tris–HCl/0.25 M NaCl, pH 8.5, distilled water (pH 6.0) or NaCl 0.15 M at 4 ºC.

**Results and Discussion:** Crude extracts obtained using Tris-HCl buffer, distilled water and NaCl 0.15 M presented protein concentrations of 4.13 ± 0.17 mg/mL, 0.092 ± 0.005 mg/mL and 0.210 ± 0.024 mg/mL, respectively. The molecular weight distribution pattern (SDS-PAGE 12.5%) of total protein isolate in these methods was the following: extract obtained in Tris-HCl buffer exhibited six protein bands ranging from 15 to 65 kDa, water extract showed two bands at 15 and 65 kDa and NaCl extract exhibited only one protein band at 15.3 kDa. The extract obtained using Tris-HCl buffer also exhibited trypsin inhibitory activity (15.17 ± 4.460 TIU/mgP) as well as proteolytic activity (10.2 ± 0.86 UPA/mgP). In the egg hatch assay for Tris-HCl, water and NaCl extracts, the protein concentration tested (0.1 mg/mL) resulted in 98.2%, 93.39% and 67.82% inhibition of egg hatching, respectively (p<0.05). **Conclusion:** In view of these findings, it is proposed that noni seeds can be used for the isolation of active proteins with potential as anthelmintic drugs.

Keywords: *Morinda citrifolia* L., seed proteins, anthelmintic activity.

Supported by: FUNCAP and CNPq.