

Isolation and Characterization of a Lectin from Mucus of *Thalassophryne nattereri* with Antimicrobial Action

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INTRODUCTION: *Thalassophryne nattereri* is the most common species of fish responsible for accidents involving venomous fish. Lectins are proteins which recognize carbohydrates specifically and reversibly and have shown diverse biological activities such as antibacterial activity. **OBJECTIVES:** This study aimed to evaluate the presence of lectin in mucus of the fish *T. nattereri*, as well as isolate, characterize and evaluate its antimicrobial activity. **MATERIAL AND METHODS:** the mucus extract was obtained by shaving the dorsal side of the fish's skin. The extract were evaluated for the presence of lectin through hemagglutinating activity (HA) and was chromatographed on chitin column equilibrated with 0.15 M NaCl. The lectin TnSL was eluted with 1.0 M acetic acid, dialyzed against distilled water and 0.15 M NaCl and was partially characterized by SDS-PAGE, pH and temperature stability. The antibacterial activity of the mucus and purified lectin were evaluated by determining minimal inhibitory (MIC) against bacteria *Enterococcus faecalis*, *Escherichia coli*, *Klebsiella pneumoniae*, *Staphylococcus aureus* and *Serratia marcescens*. The bacterias were isolated from the oral cavity of immunocompromised individuals. **DISCUSSION AND RESULTS:** The chitin chromatography showed a single protein peak eluted with 1M acetic acid with hemagglutination activity (AHE: 790; 2.59 mg of protein). A single protein band of 20 kDa was obtained by 12% SDS-PAGE. TnSL remained active at pH 6.0 to 11.0, with the highest activity at pH 6.0 and was stable until 30°C to 100°C (AH:128 to 512). The mucus of *T. nattereri* showed bacteriostatic activity against all tested bacteria (MIC of 16.25 to 8.125µg/ml). TnSL was one of the active principles, showing bacteriostatic activity against all tested bacteria (MICs from 62.5 to 250µg/ml), with the highest activity against *P. aeruginosa*. **CONCLUSIONS:** In this context, a single chromatographic step results in a lectin with stability at different pH values, a biomaterial of potential antimicrobial application in infection control.

KEYWORD : Mucus, lectin, fish.

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