ANTIBACTERIAL ACTIVITY OF VENOM AND SKIN MUCUS OF SCORPAENA PLUMIERI (SCORPIONFISH)

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INTRODUCTION AND OBJECTIVES: Scorpaena plumieri is a one of the most common venomous fish found along the Brasilian coast. Venom and skin mucus of this specie were source of lectin, carbohydrate recognition proteins, that have been ascribed a role in innate immunity. Protease inhibitors exhibit a versatile role in biological systems and have been proposed as antimicrobial agents. This work investigates the antibacterial activity of lectin preparations from venom and skin mucus of S. plumieri and the presence of trypsin inhibitor. MATERIALS AND METHODS: The venom of S. plumieri was obtained by the dorsal and anal spines which were removed, minced, and homogenized with distilled water and the skin mucus was obtained by shaving the dorsal side of the fish. The samples were evaluated for the presence of lectin through hemagglutinating activity and presence of trypsin inhibitor. The antibacterial activity of the venom and skin mucus against Enterococcus faecalis, Escherichia coli, Klebsiella pneumoniae and Staphylococcus aureus were evaluated by determining minimal inhibitory (MIC) and bactericide (MBC) concentrations. RESULTS: Venom (1.5 mg/mL of protein) and skin mucus (3.5 mg/mL of protein) showed trypsin inhibitor activity of 31.1% and 86.31% and specific hemagglutinating activity of 5.33 and 146, respectively. The venom was bacteriostatic against all tested bacteria (MIC from 93.75 to 187.5 µg/mL) and antibacterial activity was not detected to skin mucus. CONCLUSIONS: venom of S. plumieri is a candidate for the isolation of lectin and trypsin inhibitor for evaluation of antimicrobial activity.

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Key Words: lectin; scorpionfish; trypsin inhibitor