Sensational Slime Aquatic Allies against Microbial Foes

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In this study, stingray mucus and extracts of the mucus were assayed for antibacterial activity via disc diffusion method. Extracts and pure mucus exhibited considerable inhibitory activity in response to reaction with resistant gram negative bacteria Strenotrophomonas maltophlia and Enterobacter cloacae. There was less inhibitory antibiotic activity observed in assays against a gram positive bacterium Staphylococcus epidermidis. After collecting and validating data, the mucus components were assessed in pursuit of a source for antibacterial activity, which would allow for reproduction of the antibiotic compound without further sample collection. Throughout this search, various individual colony morphology bacteria isolates native to the epidermal mucus were assayed against the gram negative bacteria strains assayed in the first round of disc diffusion tests. These isolates were also tested by disc diffusion method. Isolates were found to have a profound effect on the bacteria strains as well. A protein analysis, analyzing antibiotic activity with and without proteins was conducted to assay for protein activity as a possible factor in the antibacterial activity. Proteins did seem to have an effect on the overall antibacterial activity when compared to unaltered mucus samples. Freshwater fish mucus, from blue catfish, was also assayed through the same procedure. Antibiotic activity was observed in response to fish pathogen Psuedomonas maltophilia and Enterobacter cloacae. Protein analysis of these samples yielded the same results, little to no activity when protein activity was ceased. A bacterial analysis of this mucus will be conducted later to see if this component may be effective.

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