

TITLE: SCREENING OF THE ANTIBIOFILM AND BACTERICIDAL ACTIVITY OF ALGAE EXTRACTS AGAINST BACTERIA OF THE GENUS *PSEUDOMONAS* ISOLATED IN THE FISH PROCESSING INDUSTRY

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ABSTRACT:

The interest in natural bioactive marine compounds has increased over the years, mainly for biotechnological application. Bacteria of the genus *Pseudomonas* are a problem for the quality and safety of processed foods in the fish industry. Its ability of adhesion and biofilm formation on surfaces is an important food safety issue and represents a critical control point in the beneficiation units. The objective of this research was to evaluate the potential of algal extracts for antibiofilm, antibacterial and binder activities against bacterial strains of *Pseudomonas* spp. Extracts of the marine macroalgae *Dictyota menstrualis*, *Hypnea pseudomusciformis* and *Ulva fasciata*, collected on the Ceará coast, were prepared with organic solvents (acetone and methanol) and water. Bacteria of the genus *Pseudomonas* were isolated from utensils and equipment surfaces inside a fish processing industry in the city of Fortaleza-CE. Among the isolated and purified bacterial strains, twelve were phenotypically identified as species of the genus *Pseudomonas* producing exopolysaccharides and used as indicators of the extracts activity. Acetone extracts of *H. pseudomusciformis* and *U. fasciata*; aqueous of *H. pseudomusciformis* and *D. menstrualis*; and methanolic of *U. fasciata*, inhibited the biofilme formation in the tested strains, but did not present bactericidal action. Biofilm-producing bacteria have greater ability to resist the action of sanitizers normally used in cleaning and sanitizing of contact surfaces in the beneficiation industry. Thus, the results obtained are promising in the search for new substances with efficient action on this type of bacterial structure, and therefore, potential sources in the development of natural products effective in controlling the risk of contamination by industrialized foods.

Keywords: adhesion, antibiofilm activity, contamination, exopolysaccharide

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