

Marine Bacterial Extract Activity Against Pathogenic Biofilms

Trentin, D. S.^{1,2}, Gorziza, D.F.¹, Fraga, F.B.F.F.¹ e Macedo, A.J.^{1,2}
Centro de Biotecnologia¹ e Faculdade de Farmácia²
Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil

Biofilms constitute an important microbial virulence factor and they are formed when planktonic bacteria attach to a surface and develop microcolonies embedded in a self-produced protective exopolysaccharide matrix. This organization and maintenance are coordinate by signaling molecules, in an intercellular communication system, called *Quorum sensing* (QS). Studies point that approximately 80% of infections are caused by bacteria living in communities, and this life-style might be up to 1000 fold more resistant to antibiotics than planktonic cells. In this context, the problematic of antimicrobial difficulties to treat biofilm infections make fundamental the search for new effective alternative therapies. Bioactive compounds, including those that are able to alter QS system modulating biofilms, have been found in marine environment. This study aim to obtain non-antibiotic alternatives to combat biofilms by interference in chemical communication through anti-QS compounds or by enzymatic attack to exopolysaccharide matrix. As producer source of compounds, 160 bacteria associated to marine sponge from South of Brazil were isolated. Antibiofilm activity of metabolites produced by isolates were assessed by crystal violet method, using *Pseudomonas aeruginosa* ATCC27853 and *Staphylococcus epidermidis* ATCC35984 as pathogenic biofilm bacterial model. From 20 bacterial extract tested, one was able to inhibit at least 80% of *S. epidermidis* biofilm formation. Extract purification is in progress and points to potential new compound with antibiofilm activity and eventually a new anti-*quorum sensing* mechanism.

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