

Título: A SEARCH FOR NOVEL ANTIFOULING COMPOUNDS

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Localización: A SEARCH FOR NOVEL ANTIFOULING COMPOUNDS

Resumen: This Ph. D. dissertation focuses on the search for substances capable of interfering with the adhesion of aquatic organisms to surfaces (biofouling). Particular emphasis has been placed on the early stages of this phenomenon, i.e. microbial biofilm formation.

Therefore, the first thematic section of this dissertation addresses the characterization of a biofilm model with the marine bacterium *Shewanella* algae, which is of environmental, biotechnological and clinical relevance as an emerging pathogen. Thus, physiological, genetic and physicochemical characterization studies have been conducted.

The second thematic section is devoted to the identification of compounds of natural origin that are able to interfere with bacterial intercellular communication or Quorum Sensing, an important extracellular signaling process in the formation of bacterial biofilms. The sources explored were filamentous fungi isolated from different aquatic ecosystems and flavonoids from *Piper delineatum*, a South American rainforest endemic plant.

Finally, the third thematic section addresses the search for antifouling compounds from synthetic chemical libraries. An exhaustive characterization of the antifouling profile of alkyl triphenylphosphonium salts is provided, which was conducted through a broad biological evaluation that included bacteria, fungi, diatoms, macroalgae, crustaceans and an enzymatic model (tyrosinase). Lastly, the elucidation of the mode of action of a series of potent inhibitors of bacterial luminescence is reported.