Pseudoalteromonas genus as source of antibiofilm molecules

Flore Caudal*[1]

[1]Laboratoire de Biotechnologie et Chimie Marines EMR6076 – Unversité Bretagne Sud – France

Résumé

Bacterial biofilms are complex communities of cells embedded in a self-secreted matrix, which contributes to protection from local environments by providing a relatively impermeable physical barrier to various substances, such as antibiotics1. Biofilms of pathogenic bacteria are involved in many diseases and a major public health issue due to their involvement in antibiotic resistance2. Therefore, searching for new approaches to prevent and/or treat biofilms has become a priority. The unique nature of marine environment makes it a promising source for the discovery of original molecules.

We aimed at evaluating the non-bactericidal antibiofilm activities of culture supernatants (SN) of 14 *Pseudoalteromonas* strains. The effect of these SNs on biofilm formation by clinical strain *Pseudomonas aeruginosa* MUC-N1 was determined under static and dynamic conditions in flow cell chambers. All the tested SNs showed high to very high activities. The most active SNs were from *Pseudoalteromonas* strains PVV3 and PPZ2, and led to MUC-N1 biofilm biovolumes reduced by over 80% (Fig. 1).

Using bioguided purification of the most active supernatant, SNPVV3, and molecular networking, we were able to determine families and nature of the antibiofilm molecules secreted. The cytotoxic potential of this SN and its effect on the virulence of *P. aeruginosa* MUC-N1 were assessed using A549 lung cell lines.

Mots-Clés: Produits naturels marins, Biofilm, Antibiofilm, Pseudoalteromonas

*Intervenant