Marine biofilm communities colonizing antifouling paints in the Mediterranean Sea

Mercedes Camps, Gérald Grégori, Agnes Bouchez, Aude Barani, Brigitte Le Berre, Christine Bressy, Yves Blache, Jean-François Briand

14th International Symposium on Microbial Ecology

THE POWER OF THE SMALL

19 – 24 August 2012 – Copenhagen (Denmark)

MARINE BIOFILM COMMUNITIES COLONIZING ANTIFOULING PAINTS IN THE MEDITERRANEAN SEA

Mercedes Camps[1], Gérald Gregori[2], Agnès Bouchez[3], Aude Barani[4], Brigitte Le Berre[3], Christine Bressy[1], Yves Blache[1] & Jean-François Briand[1]

[1] MAPIEM-EA 4223-Biofouling & Substances Naturelles Marines, Université du Sud Toulon-Var, La Valette-du-Var, France
[2] UMR 7294 MIO- Aix-Marseille University, Mediterranean Institute of Oceanography, 13288 Marseille cedex 09, Marseille, France
[3] INRA-UMR CARRTEL-RITOXE, Thonon-Les-Bains, France
[4] PRECYM UMR 7294 MIO- Aix-Marseille University, Mediterranean Institute of Oceanography, 13288 Marseille cedex 09, Marseille, France

*E-mail: briand@univ-tln.fr

When immersed in sea water, any substrate would be rapidly colonized by micro and then macroorganisms (Wahl, 1989). This complex and sequential natural process called biofouling induces economical and ecological prejudices, especially talking about ship hull or aquaculture nets (e.g. Schultz et al. 2011).

In situ biofilm communities of antifouling coatings immersed in Toulon harbour (France, North-Western Mediterranean Sea) were studied. Immersion was performed in July during one month in order to get mature biofilms beyond pioneer stages (Briand et al. 2012). Complex biofilm communities were described, in term of both abundance and diversity, using flow cytometry, inverted microscopy and PCR-DGGE on six different coatings in triplicates, including coatings with biocides (…) and without bioicides (…). Coatings without biocides (including the reference) showed higher densities than biocidal paints, whatever the group of microorganisms (bacteria, cyanobacteria, pico- and nanoeukaryotes, diatoms). Significant variations for both abundance and diversity were observed between the coatings depending on the microorganism groups. Despite each antifouling coating included a cocktail of biocides, some of them seemed to display specific toxicity.