Analysis of the exploratory behavior of marine biofoulers on surfaces with different chemistries

G.H. Sendra[1]*, S. Maleschlijski[2], A. Di Fino[3], N. Aldred[3], A. Clare[3], L. Taixe[4], B. Rosenhahn[4], M. Callow[5], J. Callow[5], G. Swain[6], M. Grunze[1, 2], A. Rosenhahn[1, 2]

[1]Applied Physical Chemistry, Ruprecht-Karls-University Heidelberg, Im Neuenheimer Feld 253, D-69120 Heidelberg, Germany
[2]Institute of Functional Interfaces, Karlsruhe Institute of Technology, PO Box 3640, D-76021 Karlsruhe, Germany
[3]School of Marine Science and Technology, Newcastle University, Newcastle upon Tyne NE1 7RU, UK
[4]Institute for Information Processing (TNT), Leibniz University Hannover,Appelstr. 9A, Hannover, Germany
[5]School of Biosciences, University of Birmingham, B15 2TT Birmingham, UK
[6]Florida Institute of Technology, 150 West University Blvd., FL 32901 Melbourne, USA

*E-mail: sendra@uni-heidelberg.de

Abstract

In this work we present two techniques to study the surface exploratory behaviour of marine biofoulers: digital inline holographic microscopy (suitable for algae and bacteria) and stereoscopy imaging (suitable for barnacle cyprids). The latest was adapted for underwater in situ measurements. Both techniques have been applied to the assessment of different surface chemistries. We also present new observations on the swimming patterns of *Ulva* linza on surfaces with different hydration.