MICROFOULING COMMUNITY IN BAY OF CARTHAGE (NORTHERN TUNISIA) : PRELIMINARY IDENTIFICATION AND BIOACTIVE PROPERTIES

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Abstract
Marine bio-fouling concerns any immersed structure. In order to specify fouling mechanism, we studied microbial communities and bioactive interactions for biofilms obtained from an experimental disposal.
Keywords: Fouling, Bacteria, Diatoms, Biodiversity

Introduction
In seawater, immersed structures rapidly accumulate colonising organisms that may range from microscopic bacteria to larger larvae or invertebrates. The first stage of this biofouling consists on a biofilm formed by unicellular organisms specially bacteria and microalgae [1]. Thus, we focused on these microfouling communities formed on an immersed experimental system to analyse biodiversity and potential biological activities.

Methods
Bacteria and microalgae were isolated from immersed steel and glass plates disposed in a shallow marine site (Bay of Carthage – northern coast of Tunisia) [2]. *Identification:* Bacteria strains were specified basically on cultural, morphological and biochemical identification while morphological identification of fouling microalgae was realised on the basis of microscopic observations. *Antagonism test :* Disc diffusion method [3] was used to detect the potential antagonistic effect of all isolates against 15 sensitive bacteria including fish and human pathogens.

Results and discussion
A group of thirty one bacterial strains were isolated with predominance of Gram negative (58%) mainly *Aeromonas hydrophila and Pseudomonas vesicularis* (Table1).

Tab. 1. Isolated microorganism from steel and glass plates.

Identified bacteria	Identified microalgae
Weeksella virosa; Shezanella putrefaciens; Chryseobacterium maningosepticum; Brevundimonas vesicularis; Staphylococcus Epidermidis; Aaeromonas hydrophyla; Staphylococcus xylosus; Pantoea spp.; Pseudomonas putida; Chryseobacterium indologenes ;	*Licmophora sp.; L. dalmatica; L. anglica; Nitzschia sp.; N. frustulum; N. palea; N. dissipata; N. longissima; N. angularis; Synedra sp.; S. barbatula; S. pulchella; Grammatophora sp.; G. oceanica; Peronia erinacea; Surirella sp.; Pleurosigma sp.; Fragilaria sp.; Navicula sp*

Besides, 19 different species of microalgae, all diatoms, were identified with dominance of: *Licmophora* and *Nitzschia.*
Antagonism test revealed interesting activities for one specie: *Chryseobacterium indologene*s with large spectrum of activity mainly against *Staphlococcus aureus* (Table 2).

Tab. 2. Antagonistic activity of fouling bacteria *Chryseobacterium indologenes* against pathogenic strains.

Test strains	Inhibition zone (mm)
Escherichia coli O126B16	12
Staphylococcus aureus ATCC 25923	35
Salmonella typhylium	10
E. coli ATCC25922	7
Enterococcus fecalis ATCC 29212	traces

Results obtained were in accordance with previous studies, particularly for the predominance of *Pseudomonas sp.* [4] in the bacterial community and *Licmophora sp.* for microalgae [5].
Further experimentations are in progress for molecular speciation of producers.

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