Geophysical Research Abstracts
Vol. 21, EGU2019-8805, 2019
EGU General Assembly 2019

Effect of Ni and black carbon addition on bacterial production, respiration and community composition on aggregates in the barrier reef Lagoon of Noumea (New Caledonia)

Markus Weinbauer (1), Chiaki Motegi (), Yvan Bettarel (), Christophe Migon (), Olivier Pringault (), Jean-Pascal Torréton (), and Xavier Mari ()

(1) LOV, Station Zoologique, Villefranche-sur-mer, France (wein@obs-vlfr.fr), (2) Takuvik Joint International Laboratory Université Laval, Quebec, Canada, (3) Institut de Recherche pour le Développement (IRD) MARBEC, Marine Biodiversity, Exploitation & Conservation, Montpellier, France, (4) LOV, Station Zoologique, Villefranche-sur-mer, France, (5) Institute of Research for Development Location Marseille, Department Marine Biodiversity Exploitation and Conservation, France, (6) IRD-CNRS-CIRAD Joint Office, France&South Africa, (7) Institute of Research for Development Location Marseille, Mediterranean Institute of Oceanography (MIO), France

The barrier reef lagoon of Noumea (New Caledonia) is potentially influenced by Ni and black carbon (BC) rich aerosols (the two latter originating from a Ni power plant). Experiments were performed with lagoon water collected close to the reef crest to assess the effect of anthropogenic influences on bacterial abundance (BA), production (BP), respiration (BR), growth efficiency (BGE) and community composition (BCC) in artificial produced aggregates. In both treatments, BA and VA were not affected or enhanced compared to the unamended control (up to 40% for BA and 180% for VA). BP was not or negatively affected (up to70%). No clear trend was found for BR in the Ni treatment; in the BC treatment BR was enhanced by 63-69%. BGE was reduced in both treatments. The strongest effects on BCC profiles as determined by 16S rDNA denaturing gradient gel electrophoresis were due to incubation time treatment particularly for BC. BP was not or negatively (-38-70%) influenced. A phylotype corresponding to a specific BC band was closely related to Acinetobacter oleivorans DR1. Thus, this experimental study confirms potential anthropogenic influences for the bacterial and viral community on aggregates in the Bay of Noumea.