



Effect of black carbon on viruses and bacteria in coastal marine waters

R. Cattaneo (1), A. Malits (1), G. J. Herndl (2), F. Rassoulzadegan (1) and M.G. Weinbauer (1)

(1) Observatoire Océanologique de Villefranche sur Mer, France, (2) Royal Netherlands Institute for Sea Research NIOZ, The Netherlands (cattaneo@obs-vlfr.fr Fax +33 4 93 76 38 34)

Black carbon (BC) is an increasing source of particulate matter in the ocean, however, its role for marine microbes is not well studied. Using a model BC, we found that viruses and bacteria attached to black carbon particles and that the abundance of free viruses decreased with BC concentration. As BC sinks, this could result in an increased removal of microorganisms from surface waters. We are currently working on a method to assess the abundance of attached viruses. Bacterial production increased with increasing BC concentration, probably as a combined result of reduced viral lysis rates and use of BC as substrate. UV exposure of BC (as simulation of atmospheric transport) stimulated bacterial production as well. These data suggest that bacteria can use BC as carbon source and that BC can change the interactions between viruses and their hosts. Thus, BC should also affect processes in the microbial food web.