EFFECTS OF FULLERENE AND NANOSILVER NANOMATERIALS AGAINST BACTERIA ASSOCIATED TO THE BODY SURFACE OF THE ESTUARINE WORM *Laeonereis acuta* (POLYCHAETA, NEREIDIDAE)

Lucas F. Cordeiro, Bianca F. Marques, Luiza W. Kist, Maurício R. Bogo, Gerardo López, Gisela Pagano, Irene C. Külkamp-Guerreiro, José M. Monserrat

This work analyzed growth and biochemical responses of six bacterial colonies isolated from the mucus of the estuarine polichaeta *Laeonereis acuta* (Nereididae), after been exposed to colloidal fullerene (nC$_{60}$) and nanosilver (nAg) alone (0.01, 0.1, and 1 mg/L) and together (0.01, 0.1, and 1 mg/L of nanosilver and 1 mg/L of fullerene added to each nAg concentration), in darkness. Exposures were performed during 24 h and then samples were inoculated on agar during 24 h to analyze colonies growth and after this the material was analyzed biochemically. Colonies growth (tested by wet biomass weight) was inhibited at the 0.01 and 0.1 mg/L of nAg and 0.01 and 0.1 mg/L nAg + constant 1 mg/L of nC$_{60}$ (p < 0.05). Lipid peroxidation damage was significant from the control for the concentrations of 0.01 and 0.1 mg/L of nC$_{60}$ and GST activity was significant from the control group at the concentration of 1 mg/L of both nanomaterials co-exposed (p < 0.05). Although nC$_{60}$ did not induce inhibition in bacterial growth, it induced lipid peroxidation when alone and increased GST activity when together with nAg. Our results indicate that nC$_{60}$ induced some ROS levels in treatments, but it did not induce bacterial growth inhibition. Nanosilver inhibited bacterial growth, although the biochemical measurements suggest this response is not due to ROS generation (MCTI/CNPq, processo 552131/2011-3).

Keywords: bactérias, *Laeonereis acuta*, nanomateriais