

Antibiotic and metal resistance of cultivable bacteria in the Antarctic sea urchin

Abstract

In this paper we report the first characterization of cultivable bacteria obtained from the Antarctic sea urchin *Sterechinus neumayeri*. The coelomic fluid was obtained from a pool of sea urchins which was plated onto different media to isolate the bacteria. A total of 42 isolates of psychrotrophic and aerobic γ -Proteobacteria (59.5%), Flavobacteria (33.3%) and Actinomycetes (7.2%) were isolated and sequenced. These bacteria were exposed to heavy metals and antibiotics, where 38 strains were analysed by the minimal inhibitory concentration method. Antibiotic resistance was detected in 44% of cultivable strains, and a further 13% presented co-resistance to antibiotics and heavy metals. The genera of bacteria that showed an increased resistance and co-resistance to metals and antibiotics were *Flavobacterium*, *Psychrobacter* and *Pseudomonas*. Additionally, 30.9% of isolated bacterial strains contained plasmids, which are probably related to resistance and co-resistance to metals. These results indicate that sea urchin-associated bacteria could be reservoirs for antibiotic resistance genes.