# EMPIRICAL LEUCINE-TO-CARBON CONVERSION FACTORS FOR ESTIMATING HETEROTROPHIC BACTERIAL PRODUCTION IN SURFACE WATERS OF THE WORLD OCEANS

Bacterial biomass production is a key parameter for evaluating the role of bacterioplankton in ocean carbon cycling. However, bacterial production cannot be directly measured and is typically estimated from the incorporation rates of radiolabelled leucine. The conversion of leucine uptake rates into bacterial carbon production rates requires the use of conversion factors (CFs) which must be empirically determined. Despite the empirical leucine-to-carbon CFs vary widely across environments very little is known about its potential controlling factors. We conducted a set of 10 surface seawater cultures experiments where the growth of the natural bacterial assemblage was promoted by filtration (removal of grazers) or by both filtration and dilution. Sampling stations were located between 30 ºN and 30 ºS, including the Atlantic, Pacific and Indian oceans. CFs varied from 0.13 to 1.47 Kg C mol Leu-1, being higher in the filtrated than in the filtrated and diluted treatment. The abundance of picocyanobacteria explained 60% of the observed variability. Our results further suggest that the composition of bacterioplankton, as assessed by ARISA fingerprinting, may partially explain the observed variation in CFs.