

# ANTIOXIDANT BIOMARKERS IN LARGE-SCALE MONITORING PROGRAMS: RELATIONSHIPS WITH BIOLOGICAL INDICES.

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Large spatial scale mussel monitoring programs are characterized by a great variability of environmental conditions such as food availability and quality, temperature, salinity. These natural parameters establish considerable differences in mussel biological processes and add some confusion in the analyses of the biological responses to pollution in environmental assessment. The aim of the present study was to determine the variability of several antioxidant biomarkers including catalase (CAT), glutathione transferase (GST), glutathione reductase (GR), and lipid peroxidation (LPO) in a large-scale monitoring program (Spanish Mussel monitoring Program, SMP). From the same mussels several biological indices were measured.

The study area covered more than 2500 km of coastline along the N-NW Iberian Peninsula and is included in the OSPAR Region IV from where 23 sites were sampled. Mussel antioxidant biomarkers were measured in digestive gland. Biometrics included shell and individual organs measurements and the following indices were calculated: CI, condition index, Gill I, gill index, GI gonado-somatic index and HI, hepato-somatic index. Gonadal stage determination and body reserves (lipids and carbohydrates) were also achieved.