

2- " Mer, Molécules, Santé" (MMS, EA2160) – "Université Catholique de l'Ouest" (UCO) – 3, place André Leroy, 49000 Angers - France

Human activities development of the Atlantic coast (France) lead to chronic pollution of the environment by a mixture of organic type (pesticides, hydrocarbons, phytosanitary) and inorganic (metals) contaminants. These last years, an environmental regulation with Marine Strategy Framework Directive (MSFD, 2008/56/EC) and OSPAR commission for example, have been developed for the preservation of coastal environments, giving rise to studies of aquatic biomonitoring. The use of biomarkers allows observing the impact of pollutants on coastal species like the marine bivalve *Mimachlamys varia*. Various biomarkers considered as defence biomarkers have been considered in this research to study oxidative stress by Superoxide Dismutase (SOD), detoxication of organic compounds by Glutathione-S Transferase (GST), lipidic peroxidation with Malondialdehyde (MDA), immune processes with Laccase and Metallothioneins (MTs) involved in uptake, storage, and excretion of metals.

Black scallop *Mimachlamys varia* is a filter and sedentary mollusk. Specimen were collected in March 2016 in **13 sites** (see map opposite) contrasted by their level of pollution for a distance exceeding 500 Km in the French Atlantic coast (open area) & in harbour (semi-open area). **Metallothioneins (MTs), SOD, GST, MDA, laccase** which are **biomarkers assays** were measured to compare responses in several tissues (gills, digestive glands, gonads) of organic and inorganic pollutants effects.