

In the last decades more than 250.000 man-made new chemical compounds have been found in the marine environment. Special interest in the organic compounds is growing due to their ecological effects in marine and riverine biota. Most of these compounds are classified as Persistent Organic Pollutants (POPs) by OSPAR convention, UNEP and Stockholm Convention. Environmental quality and its management programs requirements are established by the Water Framework Directive (WFD 2000/60/EC), and allowed concentrations of these organic compounds have been fixed for the following years. Measuring organic compounds in water is not a simple task. Their concentrations in water are very variable and usually at trace levels. For this reason, spot water sampling is not appropriate, as huge amount of water should be sampled and analysed, carrying expensive and long processes. In last years, passive sampling techniques have appeared as an alternative to solve these problems and to give response to the European legislation. These techniques allow measuring labile dissolved concentrations of pollutants in water, mimicking biota uptake. Passive samplers are simple, low cost, can be deployed for long time periods, large volume of water is sampled, time-weighted average concentrations (TWA) are provided and they are less sensitive to disturbances and more reproducible than biomonitors. This study shows the application of the Silicone Rubber passive sampler (SR) in the Oiartzun estuary for measuring Poly Chlorinated Biphenyl Compounds (PCBs) and Poly Aromatic Hydrocarbons (PAHs) in comparison with the concentration of these compounds in the tissues of transplanted mussels and the concentration values obtained by traditional spot sampling. The Silicone rubber sampler consists in small sheets of special silicone deployed in a stainless steel frame. Two sampling sites with different contamination level were selected in the Oiartzun estuary to deploy the samplers. At each sampling point two silicone rubber samplers (used as replicates) and a mussel net (with 50 individuals) were deployed at 2 m depth during one month. After exposure, each sampler was extracted, concentrated, cleaned-up and analysed by GC-MS. Mussels were measured for Condition Index calculations and prepared for chemical analysis by GC-MS. Results obtained showed effective measurements of PAHs concentrations by silicone rubber. As was expected, PAHs values corresponding to more contaminated study site were higher than in cleaner station and, in accordance with mussel tissues concentrations recorded. PCBs concentrations in water column were under the limit of detection by techniques, traditional spot sampling and SR samplers. However, PCBs concentrations were detected in mussel tissues. The use of SR provided helpful information at the site where mussels died due to the high level of contamination (station 1). In general, data obtained in this study show advantages to use SR passive samplers against traditional techniques (spot sampling, biomonitors) in environmental assessment. However, since this study is the first experience of applying Silicone Rubber passive sampler in a Basque estuary. Further studies and experiments have to be performed to get data for comparison and technique validation.