Department of Chemical and Biomolecular Nanotechnology Seminars

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Multiplexed analytical platforms based on the use of antibodies for monitoring pollutants in marine environment

Date
9:30 am
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Location
"Sala de Actos" room
Institute of Advanced Chemistry of Catalonia (IQAC-CSIC)
C/Jordi Girona 18-26, 08034 Barcelona

Abstract
The development of novel methodologies for environmental monitoring sea water contaminants has gained prominence for quality assurance in aquaculture and protect marine biodiversity. The aquaculture industry represents nowadays the 20% of the total fish production with an expected increasing of this percentage in the following years. To ensure food safety and quality it is essential to guarantee environmental health. In this way, the Marine Strategy Framework Directive (MSFD) and the Water Framework Directive (WFD) support the development of new technologies for monitoring pollution and management of good practices in environmental vigilance and food safety.
Immunochemical techniques are based on the use of antibodies as a biorecognition element for the sensitive and specific recognition of the targeted pollutant. These kind of techniques can be use as alternative or complementary tools in analytical chemistry, to lighten the great amount of analysis that have to carry out with less cost. Moreover, allow configurations for on-site monitoring not requiring highly qualified personnel and high-cost equipment.
In this communication we will present the work performed to develop distinct multiplexed immunochemical analytical platforms will be presented. Thus, ELISA, fluorescent microarray and electrochemical sensors have been developed to simultaneously detect the presence of pesticides, antibiotics, hormones, persistent organic pollutants or marine toxins in aquaculture facilities