INTERNATIONAL IBERIAN NANOTECHNOLOGY LABORATORY

Project Title:	*Development of Loop-Mediated Isothermal Amplification (LAMP) on a microfluidic platform for food analysis*
Project Short description	Faster, more accurate and cheaper methods of analysis of food samples are needed in order to provide food industry with tools to control food products and to take fast measures in case a problem or contamination appears in any step of the food chain. Isothermal amplification techniques, which allow exponential amplification of target nucleic acids at a constant and low temperature, have been developed for rapid detection of target DNA sequences. Among them, the loop-mediated-isothermal-amplification (LAMP) technique has attracted considerable interests as a potentially rapid, accurate, and cost-effective method for nucleic acid amplification. At the same time, lab-on-a-chip (LOC) systems integrated with functional microfluidic components have been widely investigated in recent years since they have several advantages over more traditional analytical approaches including low-cost, disposability, low reagent and sample consumption, portability, lower power consumption and the potential for automation and high-level integration. The molecular biology and nanomaterials for food analysis research group from INL is working on the development of new analytical approaches for very specific applications such as detection of allergenic ingredients in food products, authenticity of food products or identification of specific microorganisms. Among our areas of interest, we are exploring the use of microfluidics for the miniaturization of those analytical approaches. The student will collaborate on the evaluation of LAMP in a microfluidic device for food analysis, comparison with other approaches such as qPCR, learn the basis of the production of such microfluidic devices, and contribute to the in-house validation of the developed methodology.
Expected Start/end date	To be established (Duration: 6 months)
Required degree and Background knowledge of students, minimum gradepoint average, etc…	Biochemistry, Food Science and Technology, Biology, Chemistry, Marine Science or similar Laboratory experience with molecular biology techniques and/or microfluidics is a plus

Supervisor at INL

Name:	Marta Prado Rodríguez
Position:	Staff Researcher
email:	Marta.prado@inl.int