da Silva Parra, Susana Margarida
University of Trás-os-Montes and Alto Douro
Nationality: Portuguese

Orientation: Integrated Management of the Sea
Specialization Area: Analysis and Environmental assessment
Research Area: 3.6 Pollution and environmental impacts

PhD project: **Microplastics in aquatic ecosystems (estuarine vs freshwater): *Corbicula fluminea* as sentinel species**

Supervisors: Dr. Sandra Mariza Veiga Monteiro (University of Trás-os-Montes and Alto Douro)
Dr. Simone Varandas (University of Trás-os-Montes and Alto Douro)
Dr. Jesús Gago (Spanish Oceanographic Institute)

Summary: Microplastics reflect potential risk for human health due to their ability to persist through the food chain. So, it is very important to understand the fate and behavior of microplastics in the environment. To date, microplastics have been well documented in marine environments worldwide. However, the occurrence of microplastics in freshwater environments is less understood, potentially constituting a major source of this kind of concerning debris. Microplastics have been shown to contain several priority substances, such as de(ethylexyl)phthalate (DEHP), nonylphenol, octylphenol and PAHs (WFT, 2008/105/EC, Annex II), so they could be a promising candidate to fill requirements for European Union's Water Framework Directive. Considering this, the main objective of this work is to *Corbicula fluminea* to monitor the presence of microplastics in aquatic ecosystems (estuarine versus freshwater), identifying the key sources of microplastics. This task aims to contribute to identify the types/polymers of microplastics present along the Douro watershed, contributing to elucidate the sources and pathways of microplastics in freshwater ecosystems. In order to accomplish this, the sampling sites will be chosen considering the land use and the different anthropogenic pressures, namely urban, industry and agricultural inputs. We also intend to assess their biological effects through direct and indirect pathways, including contact, absorption and digestion; to analyze the gastrointestinal contents and search for histopathological and biochemical biomarkers. Using laboratory studies, with *Corbicula fluminea*, we intend to validate the microplastics toxic effects.