PhD offer: Soil biodiversity and functioning in vineyards

Doctoral school “Sciences and environment” (University of Bordeaux) in Evolutionary, functional and community ecology

The PhD will be hosted in the research unit SAVE “Santé et Agroécologie du Vignoble” (health and agroecology in vineyards) INRAE-Bordeaux Sciences Agro (Villenave d’Ornon) and directed by Brice GIFFARD – assistant lecturer in Bordeaux Sciences Agro.

Funding (ca. 1400€ net salary per month) between autumn 2021 and autumn 2024 with a doctoral contract provided by INRAE and funded by CIVB (Conseil Interprofessionnel des Vins de Bordeaux) and Bordeaux Sciences Agro. The PhD contract will begin between September and November 2021.

Project description

Biodiversity conservation is nowadays a very important issue for wine production. Soil biodiversity is less known but particularly important because it is associated with many fundamental ecological processes such as organic matter decomposition and nutrient cycling. However, little is known about the effects of wine-growing practices on soil biodiversity, as well as on the ecological functions and the ecosystem services it supports. This PhD project aims to characterize the diversity and activity of several soil taxa and to link abundance and diversity with grass cover management as well as the use of agrochemical inputs. In a second step, we will investigate the relationships between the abundance and the diversity of key groups of the pedofauna (earthworms, microarthropods and microbial diversity), the microbial processes of recycling of the mineral and organic elements (metabolic capacities) as well as associated soil fertility or carbon storage services. Observation and soil sampling will be based on the Bacchus network composed of ca. 40 vineyards and monitored by the UMR Santé et Agroécologie du Vignoble. We hypothesize that the level of disturbance associated with spontaneous vegetation and with lower pesticide use will enhance microbial and macrofauna diversity and abundance, which will be associated with higher levels of decomposition, soil fertility and organic matter storage.

Key-words: microarthropods, soil fauna, organic matter cycle, biological activity, vineyard soils, fertility, pesticides

Degree and skills

Master degree or similar degree in community or functional ecology, agroecology.

Skills and interest in arthropod and microarthropod determination, field work and statistical analyses.

Send your CV and your cover letter to brice.giffard@agro-bordeaux.fr

Applications will be examined until a suitable candidate will be found.