PhD Course in "Models and Methods for Material and Environmental Sciences" – XIX Cycle PhD

PhD student: Martina Denami   Tutor: Prof.ssa Anna Maria Mercuri

FLORISTIC BIODIVERSITY AND BEE PRODUCTS FOR A REGIONAL MELISSOPALYNOLOGICAL CHARACTERIZATION

Abstract

This PhD project deals with the melissopalynological approach used to characterize and valorise honeys of a specific Italian region, particularly Calabria. We chose this area because no studies have ever been conducted on its melliferous potential to enhance the quality of local products. Actually, honey is still a product of interest to a niche audience and, although it deserves more consideration, it is not yet of great importance on the market. Actions of valorization are then required.
Given the rich biodiversity of the region, the availability of melliferous sources and their local typicality can be analyzed by studying pollen in honey. An interesting application of honey melissopalynological characterization could be related to obtaining a territorial indication for the Calabria region, as the production area can positively influence the commercial value of the product. More specifically, we will attempt to answer the question: are there pollen spectra in honeys ascribable to their specific production area?

Firstly, a pollen reference collection relating to the botanical species within the entire regional territory will be prepared. Then, honeys from different sub-areas and botanical origins will be subjected to qualitative and quantitative melissopalynological analysis. The latter will allow us to define possible identifying characteristics relating to the region of origin. Since pollen in honey faithfully reflects the floristic composition of the production area, we will be able to monitor, at the same time, the flora foraged by bees and investigate the nectar supply strategies, therefore evaluating the region's biodiversity. Inspections and field visits will be conducted to recognize the more or less nectariferous botanical species in the sampling area. Additionally, similar information existing for honeys from other Italian regions will be considered to evaluate effective differentiation possibilities.
For the characterization study to be more complete it will be necessary to code some honeys' peculiar and recurring traits also from chemical-physical and organoleptic points of view.
Collaborating with an external laboratory, "Piana Ricerca e Consulenza srl", will support data interpretation. This laboratory is equipped with a particular dedicated software, which allows, in addition to facilitating and speeding up the analysis, storing the results in a single database containing, until now, the results of more than 20,000 melissopalynological analyses.