PP-264 [Beekeeping Technology and Quality]
Characterization of honeys from four natural parks of Calabria (Southern Italy) based on melissopalynology and volatile profile

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Background/Purpose. The plants visited by bees influence honey composition and sensory properties, linking honey to its production area. The conventional method for determining honey's geographical origin relies on melissopalynology; additionally, differences in volatile profiles provide valuable markers for geographical discrimination (Musci, Cirlini, & Caligiani, 2024). This study aims to characterize honeys from four natural parks of Calabria (a wide region in Southern Italy): Pollino National Park, Sila National Park, Aspromonte National Park, and Serre Regional Park, protected areas with unique pedoclimatic and botanical features. The characterization was based on melissopalynological and volatile profile analysis using multivariate statistical tools to evaluate possible correlations among pollen profile, volatile composition, and production areas.

Problem description. Calabria has been recognized as an area with a strong potential for beekeeping, with 47.76% of its land rated as highly suitable for honey production (Zoccali et al., 2017), supported by climate and rich floristic biodiversity. However, the composition of Calabrian honeys, in terms of pollen content and volatile profile, has not yet been described. Methodology. 44 honey samples of different botanical origins (mainly declared as wildflower and chestnut) were collected from the 2023 beekeeping season. Pollen analysis (Louveaux et al., 1978) was performed to identify typical pollen associations. The chestnut honey samples have undergone volatile profile analysis using Headspace Solid Phase Microextraction, followed by Gas Chromatography-Mass Spectrometry analysis (Musci, Cirlini, & Caligiani, 2024).

Results and conclusions. One hundred different pollen types belonging to 41 botanical families have been identified. The pollen spectrum of the analyzed honeys, regardless of their local origin, has characteristics that marked the region: the presence of Castanea is constant across all samples, along with Sulla, Echium, and species belonging to the Oleaceae family. Although the volatile profile of the chestnut honeys appears to consist of compounds which are typical of this honey, minor differences were observed depending on the production area.

Practical implications for beekeepers. The obtained data could be useful for distinguishing honey produced in Calabria from similar products of different geographic origins and serve as a groundwork for developing enhancement strategies in the studied areas.