Head space solide phase micro-extraction GC-MS of volatiles of honeys from different regions, bio-indicators of air and soils pollution

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PURPOSE OF THE ABSTRACT

The volatile composition of seven honeys samples from various regions of Algeria and feeding on different plants have been determined. Headspace solid-phase micro-extraction (HS-SPME) coupled with gas chromatography-mass spectrometry (GC-MS) has been used for the chemical analysis of volatile and semi-volatile compounds in samples. All the experiments were made in saline medium (30% NaCl). In this work different parameters were studied such as extraction temperature (45°C and 55°C), fibre (PDMS and PDMS-CAR) and agitation. The results showed a great diversity in the chemical composition, in total hundred twenty for compounds of different chemical classes are identified, among them, compounds are found for the first time in honey. Analysis of the main components of PCA showed that Becharmonofloral honey for the plant Ziziphusspina-christi (H1) and Ain Dafla multi-floral honey (H5) have a specific composition compared to other samples.

This study demonstrated that honeys can be used as bio-indicators of air and soils pollution since HS-SPME-GC-MS allowed the detection of toxic compounds from some samples studied due to the use of agrochemicals and industrial wastes around.

FIGURES

FIGURE 1

FIGURE 2

KEYWORDS
Honeys | head space, solide phase micro-extraction | GC-MS | pollution

BIBLIOGRAPHY