



## DETECTION OF ALGERIAN HONEY TYPES BY INFRARED SPECTROSCOPY

CHERIGUI Samir<sup>1,2\*</sup>, CHIKHI Ilyes<sup>1,2</sup>, DERGAL Hadj Fayçal<sup>1,3</sup>

*1Laboratory of catalysis and synthesis in organic chemistry (LCSCO) - University of Tlemcen, chemistry, Tlemcen, Algeria.*

*2University Ain Temouchent Belhadj Bouchaib, Chemistry, Ain Temouchent, Algeria.*

*3Center for Scientific and Technical Research in Physicochemical Analysis (CRAPC), Chemistry, Alger, Algeria.*

**Cheriguisamir1992@gmail.com**

### ABSTRACT

Honey is the natural sweet substance produced by *Apis mellifera*. Honey is one of the oldest sweetening foods and is of economic importance. Honey is of great importance both from a nutritional and therapeutic point of view. Honey comes from several sources either nectar honey or honeydew honey, we have focused on this study on nectar honeys. Nectar honey is divided into two types, whether it is monofloral honey or multifloral honey. We collected many different honey samples from different regions of Algeria for study. In this work, we are working to detect multifloral honeys and monofloral honeys from Algeria are using infrared spectroscopy analysis methods. As this technique allowed us to differentiate multifloral honey from monofloral honey, we notice that the difference lies in the fact that multifloral honey has a high intensity in the infrared spectra compared to monofloral honey.

### Introduction:

Honey is the natural sweet substance produced by *Apis mellifera* from plant nectar or secretions from living parts of plants or excretions from plant-sucking insects on living parts of plants that bees pick up. We are interested in this study by nectar honey which is divided into two either monofloral honey or polyfloral honey and we have used Infrared spectroscopy which is an analytical method to detect natural products like honey.

### Objectives:

The objective of this work is to define the type of honey either monofloral honey or polyfloral honey by the infrared spectroscopy analysis method.

### Materials and Methods:

The study in this part we have collected many samples of honey from Algeria in different regions of our country where we have taken more than 25 samples to do the study and analysis. We measured the spectra of honey in Algeria, about 25 of pure honey. Infrared spectra were obtained in the range of 4000–400  $\text{Cm}^{-1}$  with a spectral resolution of 4  $\text{Cm}^{-1}$ . The average spectra were obtained using 32 scans, including subtracting a background scan of the clean diamond.

### Results:

We observe in figure of Infrared spectrum of monofloral honey and the other Infrared spectrum of polyfloral honey where we notice that the spectrum of polyfloral honey is more intense than the spectrum of monofloral honey especially in the peaks 770, 1030, 1430, 1640, 2930 and 3420  $\text{Cm}^{-1}$ .

### Conclusion:

We conclude that we can differentiate between types honeys either monofloral honey or multifloral honey using Infrared spectroscopy because we notice a increase in peak intensity in polyfloral honey compared to the intensity of monofloral honey.

**Keywords:** Honey, Multifloral, Monofloral, Infrared Spectroscopy