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In the era of globalism, verification of the authenticity of food becomes an essential element of consumer protection against unfair practices of producers. All kinds of adulterations result in lower than expected product quality. This aspect is of particular importance in the case of products characterized by unique sensory properties and high nutritional value. An example of such a product is honey. It is a product of natural origin, valued both for its organoleptic and therapeutic-healing properties.

Due to the fact that the chemical composition of honey, and thus a number of its properties are related to its botanical origin, it is extremely important that the variety declared by the producer is consistent with reality. Currently, the recognized method of verifying the varietal affiliation of honeys is melisopalinological analysis. However, this method is very time-consuming and requires extensive research experience, and its results may be imprecise due to possible pollen contamination of other plants, which may occur at the stage of obtaining and processing honeys by their producers. Therefore, many research centers around the world are working on methods that could replace pollen analysis. In the course of the research, many proposals for alternative methods of varietal classification of honeys were made. However, none of them have been generally recognized by the scientific community. Therefore, there is a need to continue research in this area.

The aim of this PhD thesis was to verify the possibility of using FT-IR spectroscopy for varietal discrimination of honey. The results of the conducted physicochemical tests allowed for the confirmation of typicality of the research medium, and therefore for the positive verification of hypothesis I. In addition, it was confirmed that the comparison of the values of selected physicochemical parameters (free acidity, pH, content of direct reducing sugars, sucrose content, HMF content, proline content, color parameters L * a * b *) between honeys varieties allows for their partial differentiation, which confirms the assumptions hypothesis II. The analysis of the results of research carried out with the use of Fourier transform infrared spectroscopy (FT-IR) allowed to confirm that this method can be successfully used to discriminate selected varieties of Polish honeys. Thus, hypothesis III was positively verified. In addition, these results confirm previous studies on honeys of other varieties and from other geographic regions, as well as complement the limited national data in this regard.