USING THE NUCLEAR MAGNETIC RESONANCE METHOD TO IDENTIFY VEGETABLE OILS AND THEIR MIXTURES

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ABSTRACT

The high-resolution nuclear magnetic resonance method presents great opportunities for the identification and screening evaluation of vegetable oils and their mixtures. In recent years, a large number of studies have appeared that have shown that the use of high-resolution nuclear magnetic resonance is a modern effective alternative to traditional methods of instrumental analysis in identifying and evaluating the quality of vegetable oils. At the same time, to optimize the method and improve the accuracy and reliability of the results obtained, it is necessary to continue research and form a data bank for various types of oils and their mixtures. The purpose of this work is to study the prospects and possibilities of using the nuclear magnetic resonance method to identify the most common vegetable oils and their mixtures. 8 samples of vegetable oils of various types and methods of processing, including a mixture of sunflower oil with olive oil, were studied. Nuclear magnetic resonance spectra were obtained and processed for all the samples studied and the correlation of the obtained data with the composition of fatty acids was carried out. The paper proposes a method for analyzing experimental high-resolution nuclear magnetic resonance spectra of vegetable oils. The data obtained has confirmed that the high-resolution nuclear magnetic resonance method can be successfully used for screening analysis of various vegetable oils and their mixtures to identify and determine the presence of foreign substances.

Keywords: spectroscopy, high-resolution nuclear magnetic resonance, screening analysis, vegetable oils, identification methods.