THE IDENTIFICATION OF AN ADULTERATION CASE FOR VEGETABLE OILS

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SUMMARY

Fats and oils are extremely important food products and accordingly much attention has been given to their analysis. Adulteration of vegetable oils is of concern of both commercial and health reasons. In the vegetable oils area the main markers of authenticity are: fatty acid, sterols, tocopherols and triglycerides (W. Kamm, 2001, C. Socaciu, 2005).

The aim of the present study is the identification of an adulteration case for soybean oil with rapeseed oil by measuring the sterols and fatty acid composition through chromatographic method (GC). Regarding the sterols composition, rapeseed oil contain brassicasterol which is one of the sterols that are present in a very small concentration in the other vegetable oils, in fig. 1 being represented the GC-MS chromatogram of total sterols content. In graphic 1 is represented a comparison of sterol content for the analyzed oils. Regarding the fatty acids composition, soybean oil has a high concentration of linoleic acid (C18:2) and rapeseed oil a high concentration of oleic acid (C18:1) (Graphic no 2).

Presence of brassicasterol, together with an auxiliary marker: linoleic acid has proved to be a very conclusive marker of authenticity for a common adulteration of soybean oil with rapeseed oil.

BIBLIOGRAPHY

2. Socaciu C., 2005, UV-VIS Spectrometry applied for the quality and authenticity evaluation of edible oils from Romania, Buletin USAMV-CN 61: 295-300