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Biography

Monica Butnariu has completed her PhD in 2005 (Banat University, RO), since 2013 is habilitated doctor/Cluj-Napoca University, RO. She is the Professor of University of Agricultural Sciences and Veterinary Medicine of Banat "King Mihai I of Romania" in Timisoara, Romania. She has been serving as an editorial board member of journals and she has peer review activity. So far, she has written several books/book chapters in different areas of Chemistry. She received Romanian Academy Award for chapter Chemical Composition of vegetables and their products in book handbook of food chemistry.

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EXTRACTION OF ESSENTIAL OILS FROM MEDICINAL PLANTS

In antiquity and the middle ages for the extraction of essential oils the method of extraction with animal fats was used, although the history of the orient mention's knowledge by the Arabs of hydro distillation extraction method. In the epochs that marked the beginnings of civilization and epoch modern, the only method, the majority used was the hydro distillation method with water vapor, which is still used today. In the last years, extraction was attempted essential oils with microwave. The method of microwave extraction of essential oils is also a method of hydrodynamics but heating of the medicinal plants/processing mass uses microwave pumping which results in rapid and simultaneous heating. That is, a temperature gradient that is propagating from the inside to the outside of the processing mass is very fast, due to the water molecules existing in the processed medicinal plants. Water is a microwave absorber over other materials, that allow microwaves to pass without absorbing their energy. The non-absorbent material is used to build processing facilities in microwave extraction facilities. The absorption of water from the microwave by water is since water molecules in the electric field of microwave train are electrical dipoles that vibrate with the frequency of incident microwaves. In this situation, water dipoles collide with the molecules of the substances that make up the essential oils, resulting in heat, and thus transform the electromagnetic energy of the microwaves into thermal energy, used for the extraction with water of the essential oils of the medicinal plants.



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