Evaluation of Plant Bioactive Compounds Activity and Stability by Spectroscopic Methods

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Plants are a very important source of bioactive compounds with applications in various domains, from health and wellness, cosmetics and pharmaceutics, to food packaging and agriculture. The large variety and complex composition of bioactive principles derived from plants offer important advantages compared with their synthetic counterparts (Stoleru and Brebu, 2021). However, they also have some limitations, such as susceptibility to loose of activity due to oxidative, thermal or light- induced degradation. Therefore they are rarely used directly and carriers are often used or they are added to inert matrices to induce them bioactivity. Compatibility and interactions between the natural compounds and the carrier/matrix affect their bioactivity and bioavailability (Stoleru et al., 2021). Spectroscopic methods are useful tools for characterisation of the materials containing natural compounds. They can offer information on the fixation and stabilization of compounds in matrices and also on their release behaviour. Changes in bioactivity can be also determined. Incorporation of bioactive principles and their related bioactivity will be presented for plant derived products such as essential oils, cold pressed vegetal oils, and dried solvent extracts used in food related applications.

**Keywords:** spectroscopy, bioactive principles, food applications

**Acknowledgements:** Elena Stoleru gratefully acknowledges receiving funding from the Romanian Ministry of Research, Innovation and Digitization, CNCS/CCCDI-UEFISCDI, through grant PN-III-P1-1.1-PD-2019-1101, contract number PD 31/2020.

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