Editorial Board

For Authors

- Authors Declaration
- Instruction to Authors
- Guide for Authors
- Copyright Statement
- Submission

For Reviewers

- Guide for Reviewers
- Reviewers Login

Subscription

Czech J. Food Sci.

C. Socaciu, F. Ranga, F. Fetea, L. Leopold, F.

Duh, R. Parlog: Complementary Advanced Techniques Applied for Plant and Food Authentication

Czech J. Food Sci., 27 (2009): S70-S75

Our studies focus on the characterisation of specific metabolic profiles of some representative plants from Romania (St. John wort, soybean and seabuckthorn berries) and their derived products (oils, hydrophilic and lipophilic extracts) with biomedical and food applications. Four different, complementary methods were applied successively: UV-Vis and FTIR spectroscopy versus chromatography (HPLC-PDA, GC-FID). To investigate accurately the main biomarkers specific to each plant tissue (secondary metabolites) or to final products were determined as useful quality and authenticity indicators: carotenoid pigments, phenolic derivatives and flavonoids, fatty acids and sterols or other specific metabolites. We found that spectroscopy can give direct and ready-to-use preliminary information on the

fingerprint of functional groups in the plant tissue or extracts, while chromatography gives qualitative and quantitative information related to individual molecules which characterise the plant or specific extract. Such complementary methods have a good performance/price ratio and may be used either in agrifood metabolomics research or in laboratories for food and phytopharmaceuticals ' control, in order to evaluate their quality, authenticity/adulteration and traceability in the production and marketing chain (from field to consumer).

Keywords:
St. John wort; soybean; seabuckthorn berries; Romania; UV-Vis and FTIR spectroscopy; HPLC-PDA; GC-FID; fingerprint; food authenticity

[fulltext]