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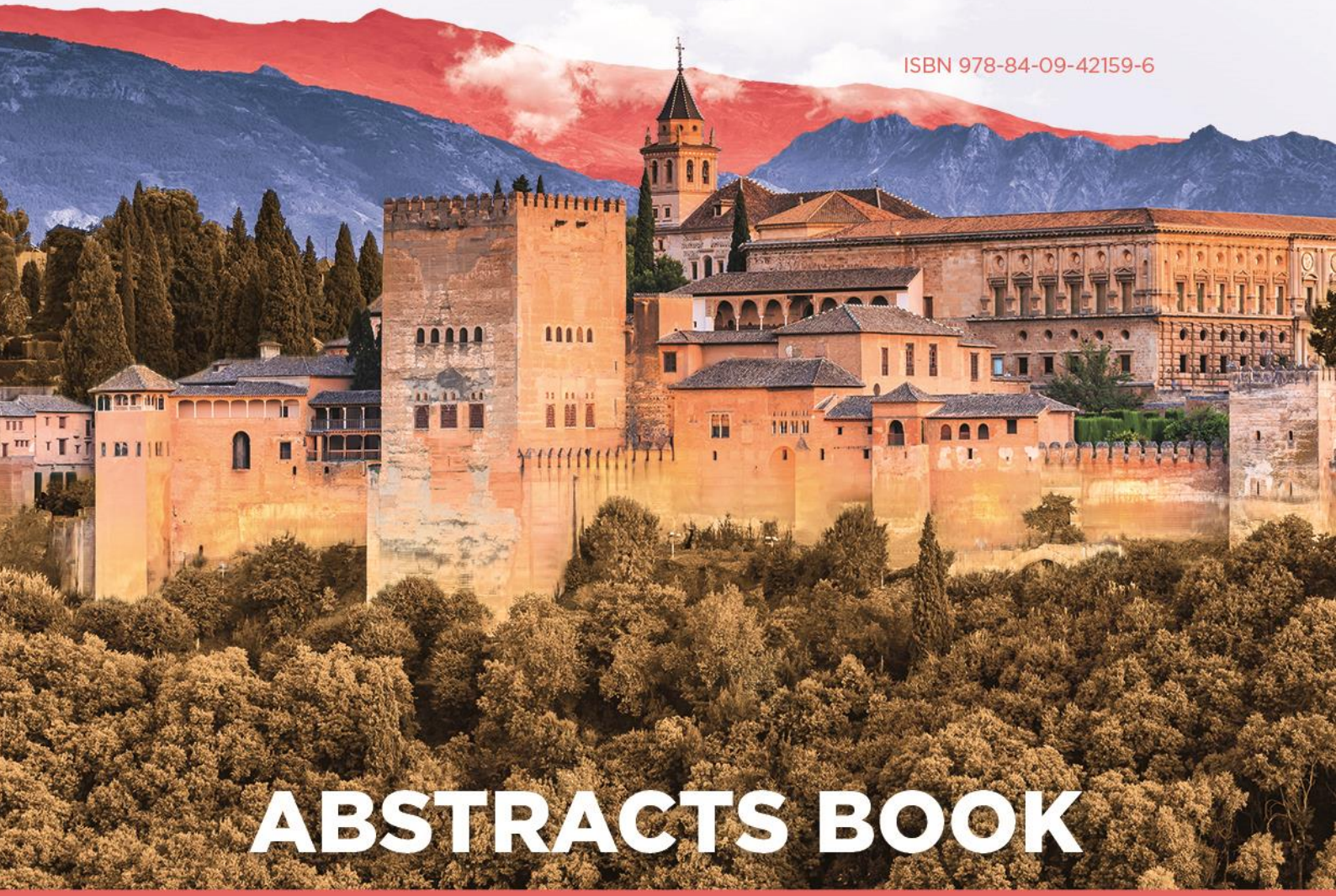

ABSTRACTS BOOK

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APPLICATIONS OF INTEREST IN THE FIELD OF FOOD METABOLOMICS

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The emergence of Food Metabolomics has opened up new frontiers and possibilities for scientists to dig deeper into the food composition. Qualitative and quantitative determinations of food metabolome offer insights into the content of the food analytes and details about some other valuable additional features (quality, authenticity, safety, health benefits…). This had for a long time seemed technically challenging and almost impossible, but can now be done thanks to the advent of sophisticated analytical techniques and the application of powerful chemometric tools. Moreover, methodologies capable of monitoring compounds from different chemical classes in a single run, are being developed in an attempt to broaden the coverage of methods while reducing the time and cost of analysis.

This contribution will pay attention to applications of interest related to the determination of relevant minor compounds from olive derived matrices and avocado (pulp and other avocado tissues). Both targeted and non-targeted profiling approaches, along with fingerprinting methods involving the use of powerful chromatographic methods coupled to MS techniques have been applied to the evaluation of endogenous metabolites from olive- or avocado-derived matrices in metabolomic studies.

Regardless of the food or plant matrix, the applications of Food Metabolomics could be classified into six main areas, although it is admittedly difficult to include all possible applications in these categories: (a) characterization studies, (b) food safety, quality and authentication (mainly assurance of botanical or geographical origin), (c) agro-technological and industrial research (study of the influence of applying different agro-technological parameters on the final composition of the food), (d) evaluation of the results of breeding programmes at metabolic level and selection of specific varieties to be included in them; (e) valorization of different by-products, and (f) health and nutrition investigations.

This lecture will describe selected applications in two of the areas in which we have worked the most during the last years, trying to cover different analytical tools and Metabolomics approaches and examples belonging to several of the mentioned categories. The contribution will logically conclude by defining key messages and identifying the main analytical challenges, future trends and needs in the olive and avocado sectors.