



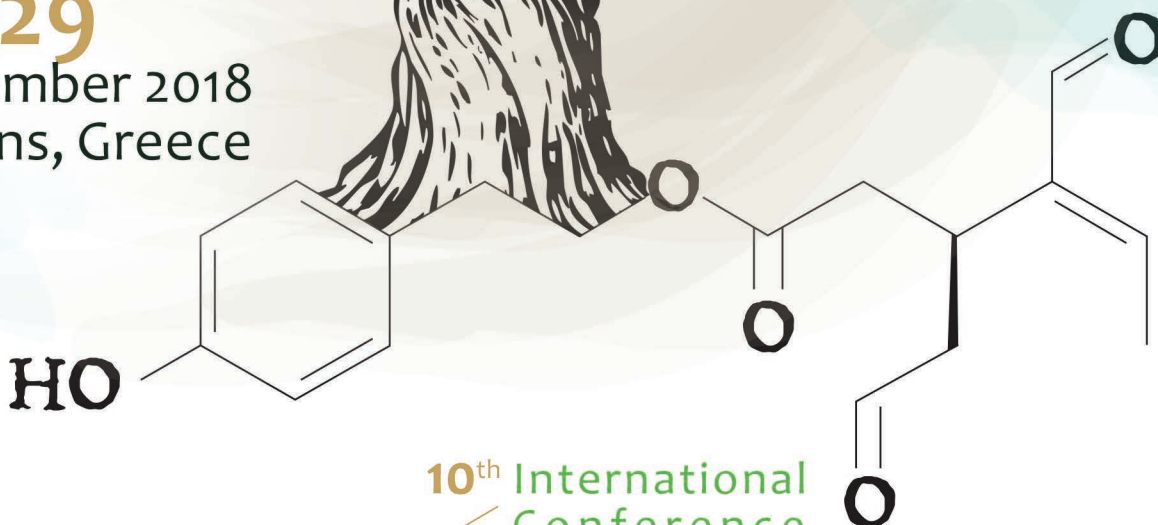
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PS1-F-009

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**HPLC–DAD–MS guided investigations on the Greek cultivated medicinal plants *Origanum dictamnus* and *Thymus vulgaris* (Lamiaceae) reveal new natural products**

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**Simultaneous analysis of flavonoids and artemisinin with its analogues in *Artemisia annua* and real-time monitoring of its interaction with Bcl-2 with in-cell NMR spectroscopy**

Ioannis Gerotheranassis, Vassiliki Kontogianni, Alexandra Primikyri, Marianna Sakka

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**Metabolomic analysis of micromolecular diversity from Caatinga using LC–ESI–MS/MS**

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**Dereplication by <sup>13</sup>C NMR in the presence of high boiling point solvents**

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**Improving the definition of maca products' quality using NMR, HPTLC and HPLC**

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PS1-F-011

## **Simultaneous analysis of flavonoids and artemisinin with its analogues in *Artemisia annua* and real-time monitoring of its interaction with Bcl-2 with in-cell NMR spectroscopy**

Ioannis Gerothanassis, Vassiliki Kontogianni, Alexandra Primikyri, Marianna Sakka

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*Artemisia annua* is a promising and potent antimalarial herbal drug. This activity has been ascribed to its component artemisinin, a sesquiterpene lactone [1]. The ability to detect artemisinin and its known analogues in plant extracts is an especially difficult task since the compounds are present in very low concentrations, are thermolabile, and lack UV or fluorescent chromophores [2]. As a follow-up of our studies on the use of NMR spectroscopy in mixture analysis of plant extracts [3, 4] we report herein a facile and rapid NMR method for the simultaneous determination and quantification of both flavonoids and artemisinin and its analogues in *Artemisia annua* extracts. The analytical results were confirmed with HPLC/DAD/MS measurements. Qualitative and quantitative results obtained using an NMR method are described. Finally, in-cell NMR spectroscopy was employed to probe the binding mode of standard artemisinin and the *Artemisia annua* extracts to the unlabelled Bcl-2 anti-apoptotic protein in living human cancer cells.

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**Keywords:** NMR spectroscopy, mixture analysis, artemisinin, *Artemisia Annua*

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