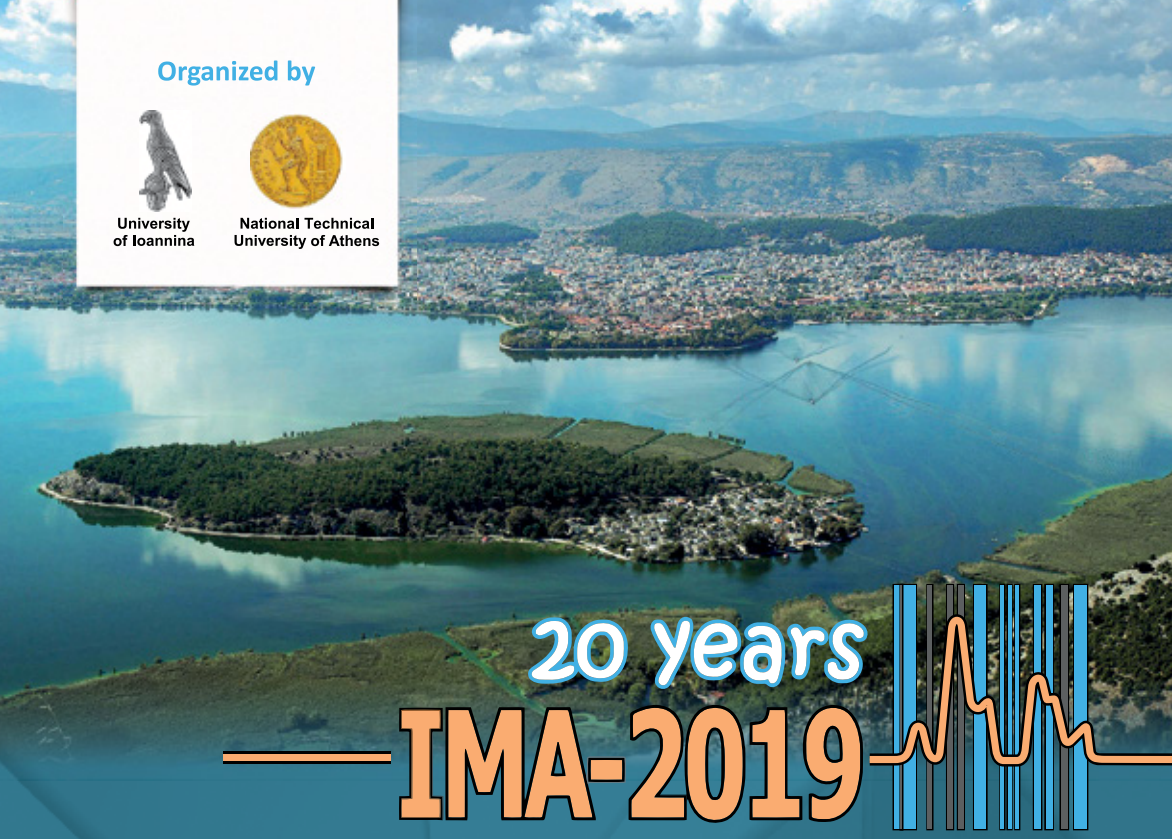

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Abstract Book

OP16 DETAILED PHYTOCHEMICAL ANALYSIS OF AN *ARTEMISIA ANNUA* AND AN *ARTEMISIA ABSINTHIUM* EXTRACT USING A COMBINATION OF NMR AND HPLC/DAD/MS TECHNIQUES

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Artemisia annua (Asteraceae), which has been used for many centuries in Chinese folk medicine for the treatment of fever and malaria, is the only natural source of artemisinin. Artemisinin-based combination therapies have been recommended worldwide as first-line treatment of falciparum malaria [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], NMR methods were implemented for the simultaneous determination and quantification of artemisinin and its analogues and flavonoids in an *Artemisia annua* extract. The analytical results were confirmed with HPLC/DAD/MS measurements. Also an *Artemisia absinthium* extract, selected from wild populations growing in Epirus (Greece), was analyzed and the transformation of its major component in a solution with chloroform-d was observed using NMR spectroscopy.

In this work the combination of 2D $^{1}H–^{13}C$ HSQC with the $^{1}H–^{13}C$ HMBC techniques allows the rapid, systematic, and complete assignments of artemisinin and five of its analogues along with flavonoids, camphor and an aromatic ketone (in total 13 compounds) in a complex diethyl ether *A. annua* plant extract. The identification of 11 compounds was confirmed using LC/DAD/ESI-MS^{n} (camphor and aromatic ketone were not identified). Qualitative and quantitative results obtained using an NMR method are described. The results were found in good agreement with those obtained with the use of the time consuming HPLC-DAD and LC-MS/MS, for the compounds that standards were available.

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