

**Poster LSH38**

## **Supercritical CO<sub>2</sub> Extraction of Essential Oil from Endemic Corsican Plants; Comparison of Oil Composition and Extraction Yield with Hydrodistillation Method**

Adil MOUAHID, Cyril DUFOUR, Elisabeth BADENS

Aix Marseille Université, CNRS, Centrale Marseille, M2P2 UMR 7340, 13451, Marseille, FRANCE

✉adil.mouahid@univ-amu.fr

Essential oils and compounds of interests are generally extracted from plants by using hydrodistillation or organic solvent methods. The extraction method using supercritical CO<sub>2</sub> (SC-CO<sub>2</sub>) is a good alternative to the two previous methods as it has the advantages to work at temperatures close to ambient and shows no toxicity to human and the environment. The aim of this study is to investigate the ability of supercritical CO<sub>2</sub> extraction to extract new molecules of interest and/or increase the extraction yield from Corsican endemic plants: *Romarinus officinalis*, *Juniperus communis ssp nana*, *Helichrysum italicum* and *Pistacia lentiscus*. Extraction experiments were performed on samples weight between 6 and 10 g at 300 bar, 313 K with a CO<sub>2</sub> flow rate of 0.41 kg.h<sup>-1</sup>. The extraction yields were calculated from the sample loss mass, the extracted oils were analyzed by GC-MS. The extract obtained using the two methods shows that the extraction yields obtained by SC-CO<sub>2</sub> extraction were higher than those obtained by hydrodistillation. Indeed when hydrodistillation provides extraction yields of about 2%, it was possible to obtain an extraction yield of about 12% for *Juniperus communis ssp nana*, about 8% for *Romarinus officinalis* and *Helichrysum italicum* and about 5% for *Pistacia lentiscus* with a CO<sub>2</sub>/sample mass ratio of 30. Moreover, by the SC-CO<sub>2</sub> extraction method a higher quantity of compounds of interest like verbenone (34.2%), ferruginol (18.34%) or elemol (9.6%) was obtained in the essential oil recovered respectively from *Romarinus officinalis* and *Juniperus communis ssp nana*.