



## **P2.08 – Supercritical extraction of *Achyrocline satureioides* with cosolvents**

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### **ABSTRACT**

The use of *Achyrocline satureioides* (Lam.) DC extracts for perfumery applications was already investigated with the use of carbon dioxide (CO<sub>2</sub>) as solvent in SFE process. The goal of this present research is to investigate the influence of cosolvents in SFE of *A. satureioides* and explore its aromatic potential through olfatometric evaluation.

The extracts were obtained using a supercritical extraction pilot unit. The temperature and pressure operating conditions were, respectively, 323.15 K and 120 bar. Three solvent conditions were investigate: pure CO<sub>2</sub>, CO<sub>2</sub>+ethanol (2% w/w) and CO<sub>2</sub>+water (2% w/w), all at 2.77 x 10<sup>-4</sup> kg/s flow of CO<sub>2</sub>. GC-MS analysis of the headspace allowed the identification of the volatile compounds present in the extracts.

Olfactometry analysis was performed by a team of seven trained assessors that evaluated the extracts of interest as to their applicability in the perfumery, indicating their intensity according to a provided odor scale.

All samples presented potential use in perfumery. The extract obtained with the use of cosolvents was classified as a high interest for perfumery due to its grade 4 out of 5. The odor of spice, aromatic and sweet herbs was detected in all extracts, but with different intensity. In addition, both cosolvent were classified as “wood”, while the extract with pure CO<sub>2</sub> resulted in a “green” aroma.

In addition, the mathematical model proposed by Sovová (1994) was used to model the experimental extraction data, obtaining relevant mass transfer parameters. The results show that the use of cosolvents has a significant influence in the process of obtaining extracts with aromatic potential of *A. satureioides* by supercritical extraction, both in relation to the process yield as well as the aroma quality of the obtained extract.

*Keywords:* *A. satureioides* , SFE, perfumery, cosolvent, mathematical modelling.