

**Poster LSH25**

## **Subcritical Water Extraction of Antioxidant Compounds from *Phagnalon sordidum***

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The search for new antioxidant compounds is an important challenge for pharmaceutical, cosmetic and food industries. Moreover, development of environment strategy for the extraction of these compounds is advised. Subcritical Water Extraction (SWE) is a technique based on the use of water as the solvent at temperatures of 100-374°C and a pressure that is sufficiently high to maintain the liquid state ( $> 4.10^6$  Pa).

In the present study, SWE was investigated as green approach for the extraction of antioxidant from Corsican *Phagnalon sordidum*, a perennial weed widespread in the Mediterranean region. The SWE process carried out at four temperatures (100°C, 125°C, 150°C, 175°C) and at the same pressure ( $6.10^6$  Pa), was evaluated in terms of quantitative and qualitative extracts-phenolic composition using HPLC-DAD and extracts-antioxidant activity using the DPPH and ORAC (Oxygen Radical Absorbance Capacity) assays.

The main concentration of total phenolic compounds (157 mg Eq Gallic Acid/g Dry Matter) was obtained by SWE processed at 125°C. This result was higher than that obtained by a conventional extraction using ethanol maceration (103 mg Eq Gallic Acid/g Dry Matter). The qualitative phenolic composition of the extracts obtained was also studied. Caffeic acid, chlorogenic acid, p-coumaric acid and cynarin were identified and their concentrations varied with the extraction temperatures. Antioxidant activity of the extracts was also determined. Subcritical water extracts exhibited significant anti-radical activities, with IC50 varying from 25.5 µg/mL (125°C) to 31.5 µg/mL (175°C).

In this study, polyphenols from *Phagnalon sordidum* were characterized for the first time. Subcritical water extraction showed a good alternative to conventional methods using organic solvents. Indeed, this process is solvent-free, fast and was efficient to concentrate antioxidant compounds from *Phagnalon sordidum*.