AMINO COMPOUNDS CONTENT VARIATION IN PLANTS OF THE CARDUEAE SPECIES FROM SARDINIA AND CORSE

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The cardueae are a common species grown spontaneously in the Mediterranean landscape and are traditionally employed as food, raw or cooked, and for medicinal purposes, such as for the treatment of gastrointestinal and urogenital disorders. In this work, five Cardueae species were collected from Sardinia and the Corse islands, namely plant samples belonging to the Carduus (*C. argyroa* Biv., *C. cephalanthus* Viv., *C. nutans* subsp. *macrocephalus* (Desf.) Nyman and *C. pycnocephalus* L.) and *Ptilostemon* (*P. casabonae* (L.) Greuter) genera. Studies on the phytochemical composition of the extracts obtained from these species are focused on the profiling of polyphenols (i.e., flavonoids and phenolic acids). However, there is no data regarding the amino compound profiling of such species. In this work, the extracts obtained from the five Cardueae species were employed to elucidate the amino compounds qualitative and quantitative content and to improve the knowledge of these little-studied plants. For this purpose, samples were submitted to a derivatization step and a consequent analysis by high performance liquid chromatography-tandem mass spectrometric (HPLC-MS/MS) was applied [1]. In this derivatization-targeted approach, diethyl ethoxymethylenemalonate (DEEMM) was employed as the derivatization reagent, the reaction was quenched with hydroxylamine (NH_2OH), and the analysis was carried out through HPLC-MS/MS in neutral loss scan mode (NLS), due to the characteristic fragmentation pattern of DEEMM-derivative precursor ion, which corresponds to the loss of a neutral ethanol molecule $[M+H-46]^+$. The difference among the samples from different species and locations was evaluated, based on the semi-quantification of 33 detected amino compounds (amino acids and biogenic amines), by a principal component analysis (PCA), and a partial least-squares discriminant analysis (PLS-DA).

References

1. Maciel, L.S.; Marengo, A.; Rubiolo, P.; Leito, I.; Herodes, K. Derivatization-Targeted Analysis of Amino Compounds in Plant Extracts in Neutral Loss Acquisition Mode by Liquid Chromatography-Tandem Mass Spectrometry. *J. Chromatogr. A* **2021**, 462555, doi:10.1016/j.chroma.2021.462555.

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