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Nutritional profile and mineral content of *Sonchus asper*: a Wild Edible Plant from the Mediterranean area

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Agrobiodiversity as part of overall biodiversity can be defined as the variety of living forms within agricultural ecosystems and is strongly linked with diversity in food and agricultural production and, thus, with nutrition and human health. In addition to the diversity of common crop species, Mediterranean agrobiodiversity resources also include Wild Edible Plants (WEPs)¹. *Sonchus asper* is considered a wild edible plant and is popularly known as spiny sow thistle. This species of European origin, but found on other continents, is traditionally harvested by local people from nature, to be consumed mainly sautéed with sauces and broths of the well-known Mediterranean diet². The unrestrained collection of wild plants can cause serious environmental problems as well as health problems for the consumer, since these species grow spontaneously to maintain themselves and are not managed or cultivated, so there is no reproducibility in the nutritional contribution. Thus, the objective of the present study was to characterize the nutritional profile, mineral content, and energy of the leaves of two wild spiny sow thistle (SA1 and SA2), grown on different medium, using AOAC methods. The content of crude protein (AOAC, 991.02), total fat (AOAC, 989.05), total dietary fiber (AOAC, 991.43), ash (AOAC, 935.42) and carbohydrates (by difference) were evaluated. The mineral content was measured using atomic absorption spectrophotometry and the energy was calculated according to the equation: energy (kcal per 100 g) = 4 x (g protein + g carbohydrate) + 2 x (g total dietary fiber) + 9 x (g fat). In all nutritional parameters, wild *Sonchus asper* samples showed different values. In total fat, SA1 presented the highest amount (5.6 g/100 g dw) while SA2 presented 2.8 g/100 g dw. In terms of carbohydrates, SA2 showed twice the concentration when compared to SA1. In terms of crude protein and total dietary fiber, SA1 shows promising concentrations (15.96 and 41.6 g/100 g dw, respectively), while SA2 contained namely 11.86 and 37.45 g/100 dw. Regarding ash, the leaves of SA2 showed values lower than SA1. Although SA1 presented the highest concentrations of total fat, crude protein, total dietary fiber, and ash, the SA2 sample presented the highest energy contribution (304.5 kcal/100 g), possibly due to the significant presence of carbohydrates. The mineral content also showed great differences between SA1 and SA2, mainly with regard to the concentration (mg/g of dw) of manganese, with the sample SA1 showing a content of 30% higher when compared to SA2. For potassium, copper, and zinc, the sample SA2 showed the highest concentrations, on the other hand, SA1 showed high concentrations in the content of sodium, calcium, magnesium, and iron (9.4, 10.5, 3.2, 0.2 mg/g of dw, respectively). This distinct nutritional profile of the two wild thistles is possibly caused by the quality of the soil, since the primary metabolism depends on the edaphoclimatic conditions in which the plant grows, namely light, salinity, and temperature³. The preliminary results obtained point out the great differences in the nutritional value of spiny sow thistle, highlighting the need to implement an adequate cultivation system that enhances this species functional macro and micronutrients.

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References:

1. E. Chatzopoulou, M. Carochi, F. Di Gioia, S.A. Petropoulos. *Appl. Sci.* **10** (2020) 9144.
2. G.X. De Paula Filho, T.F. Barreira, H.M. Pinheiro-Sant'Ana. *Int. J. Food Sci.* (2022) 4181656, 9 pages.
3. S. A. Petropoulos, et al. *Antioxidants* **8**(8) (2019) 293.