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Total polyphenolic content and antioxidant activity of Hydro-Ethanol extracts from cultivated *Helichrysum amorginum* L.

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Abstract

Introduction

The conservation of the rare Greek plant biodiversity throughout its sustainable exploitation is a contemporary challenge. *Helichrysum amorginum* L. is a strictly endemic plant species of Amorgos Island. It is a perennial shrub belonging to Asteraceae family and for the first time it was introduced into cultivation on Amorgos Island [1]. The aim of the current study was to determine the total polyphenolic content and the antioxidant activity of different hydro-ethanol ratio extracts from dried blooming shoots of the cultivated *H. amorginum.*

Materials & Methods

Whole bloomed, dried stems from the cultivated plants of *H. amorginum* were transferred to "KORRES" RnD lab and was cut with a blender in order to become a powder. 5 deferent ratios of hydro-alcoholic extracts were tested: water/ EtOH, 100/0 (w:w) , water/ EtOH 75/25 (w:w), water/ EtOH, 50/50 (w:w), water/ EtOH, 25/75 (w:w) & water/ EtOH, 0/100 (w:w). The extraction process consisted of the following stages: microwave extraction for 30 min, stay for 15 min, microwave extraction for 30 min, static maceration for 24 h. The extracts were obtained after filtration with filters of 40μm. The extracts were concentrated to the point of dry material. The total phenolic content of the obtained extracts were evaluated using the Folin–Ciocalteau method. The antioxidant activity of the extracts was determined by evaluating their radical scavenging ability using the stable DPPH radical [2].

Results & discussion

The results are demonstrated on the table 1

Table 1. Total phenolic content & *IC_{50} values for DPPH*

Hydro-EtOH extract	Total phenolic content (mg GAE/g)	IC50(μg/ml)
N1(W100)	49.6	5626
N2(W/EtOH=75/25)	68.8	3462
N3(W/EtOH=50/50)	87.6	2848
N4(W/EtOH=25/75)	95.4	1710
N5 (EtOH=100)	77.2	6238

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The results indicated that the dry extract of *H. amorginum* derived from the extraction with solvents 25% Water + 75% EtOH performed the higher total phenolic content & antioxidant activity compared to the other 4 extracts from water/ EtOH solvents. The lower values of IC_{50} are related with higher antioxidant activity

Conclusions

Different rations of water/Ethanol solvents are linked with extracts with different characteristics regarding the total phenolic content & the antioxidant activity. In this study, the ratio of solvents 25% Water + 75% EtOH was proved the most effective among other ratios.

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