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

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## 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.



Whole bloomed, dried stems from the cultivated plants of *H. amorginum* were transferred to "KORRES" RnD lab and was cut with a blender. The plant



Figure1 : *H. amorginum* cultivation

The aim of the current study was to determine the total polyphenolic content and the antioxidant activity of different hydro-ethanolic ratio extracts from the blooming shoots of the cultivated *H. amorginum*.

Figure 2: KORRES premises

material with a ratio 1/8, plant/solvents, (w:w), was extracted with five (5) different ratios of hydro-alcoholic solvents. 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

## **Results & Discussion**

The results of the measurements of total phenolic content and  $IC_{50}$  values are demonstrated on the table 1

Hydro-EtOH extractTotal phenolic contentIC<sub>50</sub> (µg/ml)(mg GAE/g)

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 different ratios of water/EtOH as extraction solvents for the same plant material of the bloomed stems of *H. amorginum* are linked with extracts with

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
Table 1 · Total phenolic content & IC values		

Table 1 : Total phenolic content & IC<sub>50</sub> values

N1(W100) N2(W/EtOH=75/25) N3(W/EtOH=50/50) N4(W/EtOH=25/75) N5(EtOH 100)
N0
N1(W100) N2(W/EtOH=75/25) N3(W/EtOH=50/50) N4(W/EtOH=25/75) N5(EtOH 100)
N0
N0</l

different polyphenolic content & antioxidant activity. The extracts N1(W100) & N5 (EtOH=100) were proved the less effective for the antioxidant activity of their final dry extracts



Figure 4: Graph of IC<sub>50</sub> values



The lower values of  $IC_{50}$  are related with higher antioxidant activity. *H. amorginum* extract 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

## Conclusions

- The various ratios of water/EtOH solvents are reflected to significantly different concentrations of polyphenols of the cultivated species of Helichrysum amorginum L
- The ratio 25% Water + 75% EtOH as solvents for the extraction of H. amorginum was proved the most effective regarding the total polyphenolic content & the antioxidant activity of the final dry extracts

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