

CONTRIBUTION TO THE KNOWLEDGE OF THE ACTIVE PRINCIPLES IN THE BROWN SEAWEEDS OF *CYTOSEIRA BARBATA* (PHAEOPHYCEAE)

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introduction

The works and studies we consulted show that the brown algae have remarkable laxative, gastric mucous membrane protecting, remineralizing and energizing properties.

This fact convinced us to approach in our study the species *Cystoseira barbata*, a brown alga fairly largely spread along the Romanian shore of the Black Sea.

It is known that this species has a high content of iodine, bromine, potassium salts and alginates and for this reason we considered it necessary to perform a series of thoroughgoing phytochemical studies in order to identify the chemical compounds responsible for the abovementioned effects.



The Romanian Seashore of the Black Sea

materials and method

We have used, as a material for our study, the vegetative apparatus of the species *Cystoseira barbata*, harvested in the month of October at a distance of x meters from the shore and the depth of x meters of the sea-water. After harvesting the material was dried in natural conditions, in specially designed drying devices on silk screens.

In order to perform the global chemical analysis we proceeded to the extraction, successively and selectively, of the active principles in the pulverized vegetal product using a non-polar solvent (ethyl ether), then a medium-polarization solvent (ethanol, methanol) and in the end, water, to obtain the following fractions:

1. Etheric extractive solution (A)
2. Alcoholic extract solution (B)
3. Aqueous extract solution (C)

In the etheric extract were found lipophilic chemical compounds, and in the other two extracts hydrophilic chemical compounds were found.

In order to identify the chemical compounds in the three extracts, each extract was analysed separately, using methods adequate to the physico-chemical properties of each group of active principles.

results and discussion

The global chemical analysis involved the successive and selective extraction of the vegetal products demonstrated:

- in the etheric extract (chart I) were identified:
- fatty acids +
- sterols +++

- in the alcoholic extract (chart 2):
o tannins +
o oze ++
o sterols ++
o polyholozides ++
o reductants +

- in the aqueous extract (chart 3):
o tannins ++
o reductants +

The presence of sterols would justify the use of the vegetal product due to its anti-inflammatory properties.

tabel I

N	Solution	Reaction	Intensity	Identified active principles
1	Etheric extract	Lieberman-Burchard	+	- sterols (irregular)
		Carr-Price	+++	- fatty acids
2	Alcoholic extract	FeCl ₃	+	- catechin-tannins
		Fehling	++	- reducing compounds
		Molish Lieberman-Burchard	+++	- oses - sterols
4	Aqueous extract	Fehling	++	- reducing compounds
		Shayary	+	- catechin tannins



Cystoseira barbata

chart I



chart II

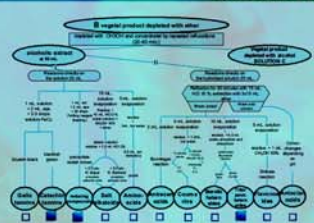
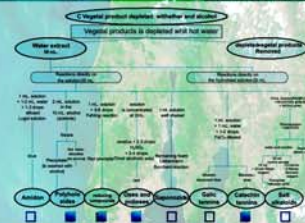


chart III



references

[1] Ciulei I., Istudor V., Palade M., Albuiescu D., Gard C. E., 1995: "Analiza farmacognostica si fitochimica a produselor vegetale" Tehnoplant Company, Bucuresti, vol. I, p. 1 227

[2] Ciulei I., Istudor V., Palade M., Albuiescu D., Gard C. E., 1995: "Analiza farmacognostica si fitochimica a produselor vegetale" Tehnoplant Company, Bucuresti, vol. II, p. 228 426.

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