

RESEARCH ON THE BOTANICAL AND PHARMACOGNOSTIC PARTICULARITIES OF THE INDIGENOUS SPECIES *LYSIMACHIA NUMMULARIA* L.

Suciu Felicia¹, Arcuş Mariana¹, Roşca Adrian Cosmin¹, Bucur Laura¹, Popescu Antoanela^{1*}, Badea Victoria²

¹Faculty of Pharmacy, ² Faculty of Dentistry, Ovidius University of Constanţa, Romania

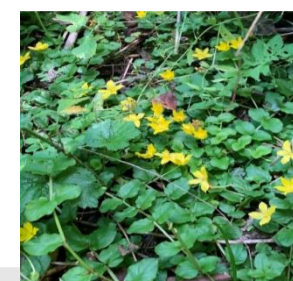


Figure 1. Association with *Lysimachia nummularia* L.

Introduction

The paper aims at a broader study both botanical - morphological and histoanatomical, but especially pharmacognostic and phytochemical of the species *Lysimachia nummularia* L. (Fam. Primulaceae). The idea of this study started from the fact that in the literature, the plant has proven, following scientific research, to be beneficial in various diseases, due to the presence of some active principles with phytotherapeutic potential in the structure of its tissues

In this article we tried a preliminary study aimed at knowing the macroscopic characteristics of both vegetative (root, stem, leaf) and reproductive (flower, fruit, seed) organs belonging to the native spontaneous species *Lysimachia nummularia* L. and preliminary pharmacognostic determinations (chemical analysis qualitative, preliminary quantitative analysis).

Materials and Method

The working material was represented by the plant *Lysimachia nummularia* L., harvested on July 19, 2020, on the edge of Lake Tău-Brazi in the Roşia Montană area.

For the preliminary pharmacognostic determinations, the pharmacognostic analysis was used as a working tool (macroscopic examination, qualitative chemical analysis, determination of drying loss, determination of soluble substances). The pharmacognostic analysis consists of two groups of methods: quantitative methods and qualitative methods. For the pharmacognostic analysis were used the vegetal products obtained from the species *Lysimachia nummularia* L.: *Lysimachiae radix*, *Lysimachiae herba* and *Lysimachiae flores*.

The qualitative chemical analysis is based on the successive extraction of the plant product used, with solvents of different polarities and the identification by reactions characteristic of each group of active principles. Determination of drying loss is a preliminary quantitative pharmacognostic method that represents the degree of humidity of plant products, which must be within certain limits, so as to ensure the preservation of plant products. Determination of soluble substances is the amount of substances that are soluble in a given solvent, per 100 grams of dried vegetable product.

Table I. Results of preliminary determinations

N ^o	Vegetable product	Loss on drying Quantity (g% ± SD)
1.	<i>Lysimachiae radix</i>	8,6043 ±0,5125
2.	<i>Lysimachiae herba</i>	8,54086±0,1070
3.	<i>Lysimachiae flores</i>	7,4941±0,5408

Conclusion

The analysis of the macroscopic characters of the studied species confirms that the plant is *Lysimachia nummularia* L. from the Primulaceae family.

The presence of several groups of active principles in all organs of the species *Lysimachia nummularia* L. leads us to the conclusion that the species is of interest and can be researched for therapeutic recovery purposes.

The values of drying loss show that the vegetable products used correspond to their preservability.

As the largest amount of substances are soluble in 40% ethanol, it determines us in the following research to take extracts obtained in 40% ethanol.

Results

Lysimachia nummularia L., is a herbaceous, perennial plant (Figure 1), spread through meadows and bushes, in forests, streams, wet depressions, through water holes, meadows and on the waterfront, in the plains and hilly regions from all over the country.

From a macroscopic point of view, underground, it presents a rhizome with nodes and internodes, with thin adventitious roots starting from the nodes.

The leaves are opposite. The solitary hermaphroditic flowers, arranged in the axils of the leaves, have floral pedicels the length of the leaves, sometimes even longer. The floral coating is a perianth made of calyx and corolla.

In the roots of *Lysimachia nummularia* L. were identified: volatile oil, sterols (triterpenes), flavonic aglycones, carotenoids, coumarins, tannins (gallic tannins, catechin tannins), flavonosides, coumarins heterozidates, heterozides o, triterpenes, (ortho dihydroxy phenols) ODP, poliosis, polyuronides, saponosides.

The following classes of active principles have been identified in the plant product *Lysimachiae herba*: volatile oil, sterols (triterpenes), flavonic aglycones, carotenoids, fatty acids, coumarins, tannins (Galician tannins, catechin tannins), flavonoids, heterosidium coumarins, heterosides, ODP, reducing compounds, oases, polyoses, polyuronides, saponosides.

Following qualitative chemical analysis, the flowers of *Lysimachia nummularia* L. contain: volatile oil, sterols (triterpenes), flavonic aglycones, carotenoids, fatty acids, coumarins, tannins (gallic tannins, catechin tannins), flavonoids, heteropidate coumarins, ODP, reducing compounds, oases, polyoses, polyuronides.

Table II. Results of preliminary determinations - soluble substances

Crt. no.	Vegetable product	Determination of soluble substances in different solvents	of Soluble substances (g% ± SD) in Dried vegetable product
1.	<i>Lysimachiae radix</i>	Ethanol soluble substances 40%	54,1038±0,4055
		Ethanol soluble substances 96 %	23,5023±0,7913
		Water soluble substances	41,3076±0,6882
2.	<i>Lysimachiae herba</i>	Ethanol soluble substances 40%	62,9067±1,1140
		Ethanol soluble substances 96 %	27,6922±0,4269
		Water soluble substances	54,5582±0,3369
3.	<i>Lysimachiae flores</i>	Ethanol soluble substances 40%	81,4685±1,3784
		Ethanol soluble substances 96 %	53,6120±0,9132
		Water soluble substances	66,6908±1,2166