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PHARMACEUTICAL FORMS BASED ON CHELIDONIUM MAJUS L

Olimpia Dumitriu Buzia[1], Ion Gianina Mihaela[2], Earar Kamel[1], Tiutiuca Carmen[1]*, Batir Marin Denisa[1]*, Zetu Irina[3], Debita Mihaela[1], Stoian Valerian Ionut[1], Mardare Nela[2]

1 Dunarea de Jos University, Faculty of Medicine and Pharmacy,35 Al. I. Cuza Str., 800010, Galati, Romania
2 College of Pharmacists, 27 Galati Str., 810388, Galati, Romania
3 „Gr.T.Popa" University of Medicine and Pharmacy, Faculty of Dental Medicine, Discipline of Orthodontics, 16 Universitatii Str., Iasi, Romania

Corresponding authors:*email tiutica_carmen@yahoo.com, denisa.batir@ugal.ro

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Abstract

Given the abundant amount of hollyhock in the environment, given the special propertiesof the plant, used both internally, in hepato-biliary disorders and externally in various dermatological diseases, we set out to achieve a physical-chemicaland technological study. of this plant

We obtained a soft extract from the plant Chelidonium majus L., which we dosed by the volumetric method, in order to determine the quantitative chelidonine

From the soft extract of Chelidonium majus L, we made 4 ointments with different concentrations in the active substance; we determined the organoleptic properties, the pH, the display capacity, the stability in time of the ointments at different temperatures.

The obtained results justified us to affirm the important role of this plant in the topical treatments of various dermatological diseases.

***Key words**: Chelidonium majus L, soft extract, ointments.*

Introduction

Fig.1 Rostopasca **Fig.2 Rostopasca**

Chelidonium majus [fig.1,2], the greater celandine, is a perennial herbaceous flowering plant in the poppy family Papaveraceae. One of two species in the genus Chelidonium, it is native to Europe and western Asia and introduced widely in North America. [1] Chelidonium majus L. has been known since antiquity, being mentioned in the works of Paracelsius, Dioscorides, Pliny. Dioscorides calls it the "Swallow's Grass," because it blooms when the swallows arrive in May and dries out when they leave for warm countries.

The whole plant is toxic in moderate doses because it contains a range of isoquinoline alkaloids; use in herbal medicine requires the correct dose. [2]

The main alkaloid present in the plant and root is coptisine. Other alkaloids present include methyl 2 '- (7,8-dihydrosanguinarin-8-yl) acetate, allocryptopine, [3] stylopin, protopine, norchelidonine, berberine, chelidonine, sanguinarine, chelerythrin [4] and 8-hydroxyhydrosanguinarin. [5]. Sanguinarine is particularly toxic with an LD50 of 18 mg per kg body weight (IP in rats). [6] Caffeic acid derivatives, such as caffeoylmalic acid, are also present.

Fig.3 Latexul din Chelidonium majus

The characteristic latex [fig.3] also contains proteolytic enzymes and phytocystatin chelidostatin, a cysteine protease inhibitor. [7] It is a traditional folk remedy for warts in France and the United Kingdom.

It is used in the preparation of a range of standard treatments for warts and skin conditions. [8]

Along with other plants [9,10,11] it has anti-inflammatory and antioxidant properties - alkaloids and flavonoids found in celandine make this plant a powerful natural antioxidant. Antioxidants help the body fight free radicals.

It has an important role in reducing eczema - the application of rosehip sap on the affected areas can help treat atopic dermatitis, reduce redness and itching.

Due to its antibacterial properties, celandine is used in various skin conditions caused by gram-positive or negative bacteria .It is used successfully in acne and another general clinical entity[11-17].

Chelidonine attenuates airway inflammation by suppressing IL-4 and eotaxin-2 in asthmatic mice. Chelidonium can improve allergic asthma in mice, so it may be a future component of antiasthmatic treatment. [Institute of Traditional Medicine &Biosience, Daejon University, Republic of Korea, 2009].

Chelidonine and homochelidonine have morphine-like action, are depressants of the myocardium, have narcotic and sedative action on the central nervous system.It also relaxes the smooth muscles of the coronary arteries and large vessels The fresh plant is no longer officially used.

There are no dose-finding studies, and reported clinical trials are characterized by considerable heterogeneity.

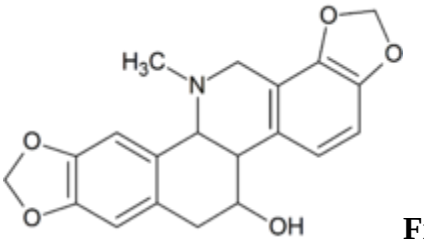
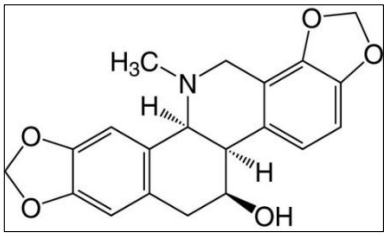
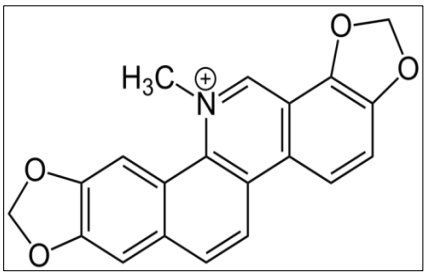


Fig.4 Chelidonina



Along with chelidonine [Fig4], other alkaloids are: homochelidonine, sanguinarine [Fig.5], chelerythrin, oxychelidonine, chelidimerine, berberine [Fig.6], coptysine, tetrahydrocoptizine, stilopin, protopins [Fig.7], sparteine, chelidonic acid[Fig.8], saponozide, carotenoid, etc



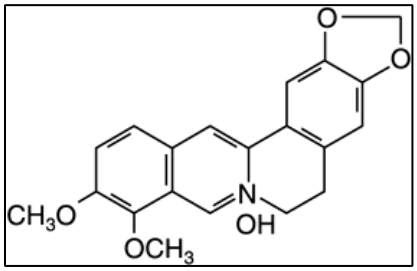
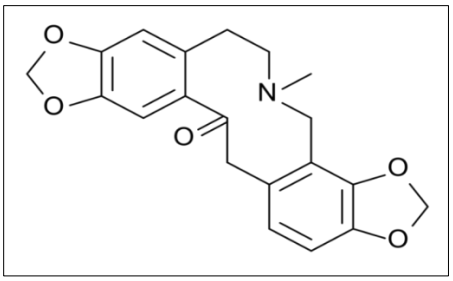


Fig.5 SanguinarinaFig6 Berberina



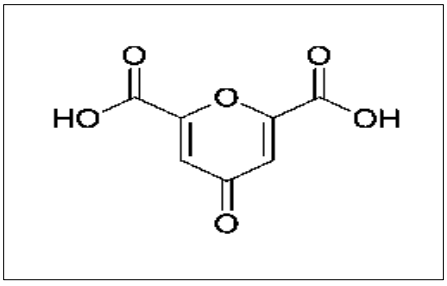


Fig.7 Protopina **Fig.8 Acid chelidonic**

Materials and methods

Substances used: aerial parts of Chelidonium majus L. obtained from Fares, alcohol, distilled water. glass clock, Erlenmeyer flasks, glass flasks, filter paper, scales, burette, electric hob, water vessel, glass rod, burette

Materials used: glass funnel, filter paper, plastic spatula, glass rod, Berzelius glass, brown glass bottle, patent and electric hob.

Method: repeated maceration, followed by concentration on the water bath. The hydroalcoholic extract was obtained by repeated maceration according to FRX. After obtaining the maceration, we started to prepare the soft extract by subjecting the extractive solution (200g) to the concentration by distillation at a reduced pressure without exceeding the temperature of 50 ° C. I concentrated the extract until a viscous mass was obtained.

For dosing chelidonine, we used: 0.10 g soft extract of Chelidonium majus L., 5ml alcohol, obtained from 3.37 g alcohol and 1.63 g distilled water, sodium hydroxide 300 g / l, obtained from the mixture of 6 g of sodium hydroxide with 14 g of distilled water, 0.01 mol / l sulfuric acid, obtained by dissolving 0.0196 g of sulfuric acid in 20 ml of distilled water and 0.02 mol / l of sodium hydroxide, obtained by dissolving 0.16 g sodium hydroxide in 200 ml distilled water and methyl red as an indicator solution. The method used was volumetric dosing. I determined the pH using the colorimetric method.

To obtain the 4 pharmaceutical forms of ointment we used: Vaseline, lanolin, cetyl alcohol, glycerin, distilled water, sodium lauryl sulfate, soft extract of Chelidonium majus L.conform[Tab.1]

Name	Ointment**A**	Ointment **B**	Ointment**C**	Ointment **D**
Soft Extract of Chelidonium majus L.	***2,5 g***	***1 g***	***0,5 g***	***0,5 g***
Simple Ointment	***2,5 g***	***4 g***	***4,5 g***	**-**
Base ointment III	**-**	**-**	**-**	***4,5 g***

Tab.1 Forms of the 4 types of ointments

From the point of view of the control of the pharmaceutical forms, we realized, according to FRX: organoleptic control, homogeneity, determination of pH, rheology and stability.

Results and discussion

I dosed chelidonine as follows: from the soft extract I took 0.1 g of the sample for dosing, which I mixed with 5 ml of alcohol and 10 ml of sodium hydroxide 300g / l, then I concentrated on the water bath.up to about 5 ml.I added 10 ml of 0.01 mol / l sulfuric acid and filtered.When filtering, I applied methyl red indicator solution and the excess sulfuric acid 0.01 mol / l was titrated with sodium hydroxide 0.02 mol / l until the equivalence point was reached, respectively until I obtained a yellow coloration.

Following the volumetric dosing, according to FR X for titration we used 6.3 ml of 0.01 mol / l sulfuric acid, so we will have the following calculation:

1 ml sulfuric acid 0.01 mol / l
…… ..0.00706 g

chelidonine6.3 ml sulfuric acid 0.01 mol / l …… x g chelidonine

X = 6.30 * 0.00706 / 1 = 0.00445 g chelidonine in 0.1 g sample (soft extract) taken.

Then in 5 g of soft extract I will have: 5 g * 0.00445g / 0.1 g = 0.2225 g chelidonine.

I made the 4 pharmaceutical forms of ointment, which I later analyzed in order to establish the conditions of stability.

The prepared ointments have a homogeneous appearance, the color is specific to the components depending on the amount of extract used, it has a characteristic odor, according to FRX. To check the homogeneity, we spread on a thin layer of glass each of the 4 prepared ointments, in order to examine them with a 4.5 X magnifying glass. They did not show drops or particle agglomerations.
The determination of the pH for each ointment resulted in the following approximate values: Tab.2

Tab.2 The pH values of the 4 ointments

Name	**ointment A**	**Oinlment B**	**Ointment C**	**OintmentD**
pH	5.8	5.8	6.00	6.00

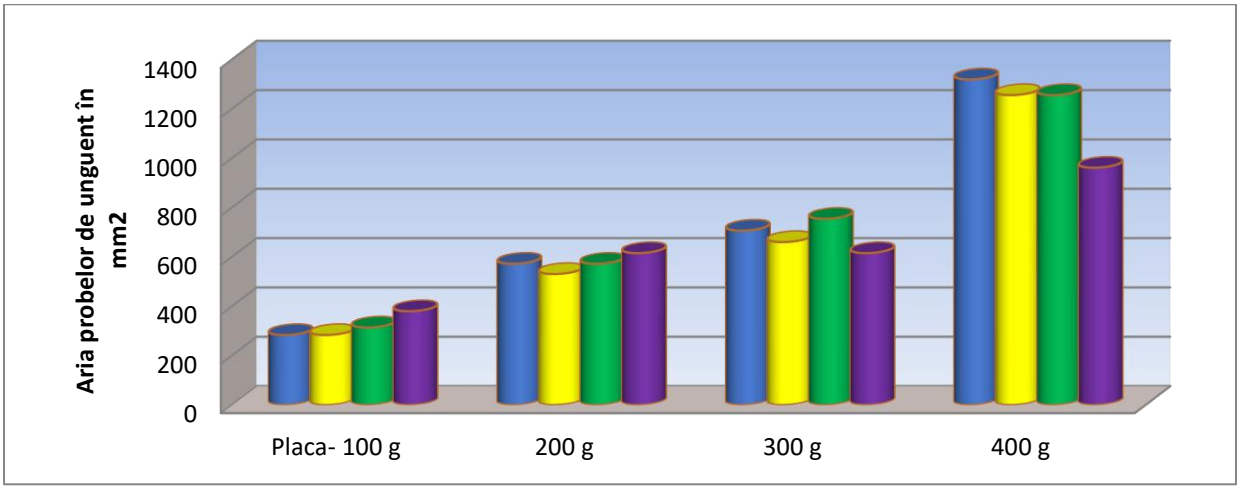
I realized the display capacity with the Ojeda Arbussa device as follows: We have two equal glass plates with a side of 11 cm. Under the first plate is placed a millimeter paper with 5 concentric circles with a radius of 1 cm, Starting with the first circumference, the perpendicular diameters are graded in mm, which intersect in the center, where the first circle is drawn. circle 1g of ointment. We bring the second plate with a known weight (69.5g). After 1 min intervals, weights are placed on the upper plate of the extensiometer weights in ascending order: 100.200.300 and 400g.

The area of the circle is $\pi \times R2$ and I will calculate for each diameter measured in part as follows: d1 = 19mm, d2 = 19mm, d3 = 20mm, d4 = 22mm. Under the 100g plate. For example UNG A R = 9.5 and we have Ao = 3.14 × 9.52 = 238.38 mm2. The results are in [tab.3] We repeated the determinations after two weeks and after one month, and the results obtained were favorable to ointment A;after a month, ung.D, lost its consistency.

Tab.3 Samples subject to weights of 100,200,300,400g and the value of surfaces

Applied weight	Applied weight Samples analyzed			
	Ointment A	**Ointment B**	**Ointment C**	**Ointment D**
100 g	283,38	283,38	314,00	379,84
200 g	572,26	530,66	572,26	615,44
300 g	706,50	660,18	754,38	615,44
400 g	1319,58	1256,00	1256,00	961,5

Tab.4 Variation of the stretching surface depending on the applied weight



Following the measurements and calculations performed, we found that UNG A has the highest tensile capacity and UNG D the lowest The influence of temperature on ung prepared ointments.A, UNG.B, UNG.C and UNG.D is presented in tab.5

Tab.5 Influence of temperature on samples(Where "-" influences and "+" does not influence)

	The samples analyzed			
	Ointment A	Ointment. B	Ointment. C	Ointment D
It's hot	-	-	-	-
At room temperature	-	+	+	+
In a cool place	+	+	+	+

The influence of light on prepared ointments A, B, C and D are highlighted in Table 6

Tab.6 Influence of light on samples (Where "-" influences and "+" does not influence)

	Influence of light on samples			
	Ointment. A	Ointment B	Ointment C	Ointment D
Light	-	-	-	-
Darkness	+	+	+	+

Conclusions

We obtained a soft extract from the plant Chelidonium majus L., which we dosed by volumetric method, having an alkaloid content expressed in Chelidonine 0.2225g%. Methods for the quantitative determination of concentrations of active substances in pharmaceutical forms can be extended, methods can be used which detect small concentrations in active principles, such as methods based on screen-printed electrodes modified with carbon nanofibers or gas chromatography .We made 4 ointments of different concentrations, having as active substance soft extract of Chelidonium majus L., which in terms of quality were compliant with FR X, having a homogeneous appearance, a pH between 5.4-6.00 .

Due to the multiple actions of the chelodonium majus extract, another pharmaceutical form can be made, with the extract, embedded in nano particles, in the structure of a liposome, in order to obtain an effect over a longer period of time, which will determine a better patient compliance.

The ointments obtained will be kept in a cool place, away from light, in tightly closed containers.

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