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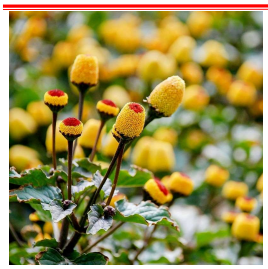

Acmella Oleracea

The potential of *Acmella oleracea* in dermato-cosmetic products – new pharmacological applications

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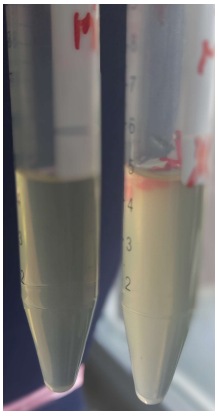
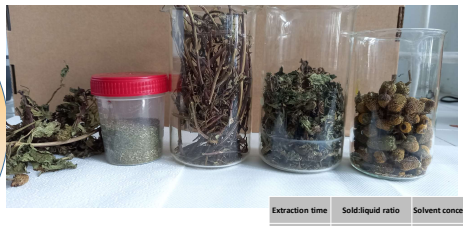
INTRODUCTION

- With remarkable applications in food industry and a strong scientific background in multidisciplinary research reports, ***Acmella oleracea***, from *Asteraceae* family offers o generous range of functional activities which can lead to new pharmacological applications. Already recognized as a strong medicinal plant, with studies that support its health efficient applicability, ***Acmella oleracea*** **does not seem to fulfil its potential and can be ready to be part of new innovative industries, such as dermato-cosmetic field.**
- This study focused on obtaining and characterizing extracts from this plant..
- The extract with the highest polyphenol content will be used in the preparation of new dermato-cosmetic products based on ***Acmella oleracea*** extract in order to protect the skin from oxidative stress.



PHARMACOLOGICAL APPLICATIONS
of *Acmella oleracea*
- Antimalarial
- Antiseptic
- Anti-bacterial
- antifungal
- Analgesic
- Psoriasis
- Scabies
- Gum infections
- Immuno-modulatory
- Antioxidant
- Anaesthetic
- Antipyretic
- Vasorelaxant



METHODS

I. EXTRACTION

The research team used three methods for liquid - solid extraction
✓ Acmella oleracea cultivated in Romania, all parts of the plant included
✓ extraction at room temperature **(MACERATION-M),**
✓ ultrasonic assisted extraction **(UAE)**
✓ the combined method of ultrasonic assisted extraction and maceration **(UAE-M),**
With different constant and variable parameters.
The performances of these methods were evaluated by calculating the extraction yield in the case of the methods applied according to a series of physical parameters: solid/liquid ratio, extraction time, extractant concentration.

II. The **QUANTITATIVE CHARACTERIZATION** of the obtained extracts was done by determining the content of flavonoids and total polyphenols.

Determination of total phenolic content according to in fluence of extraction time and solid:liquids ratio

The total phenolic content was determined following previously described methods (Grochowski et al., 2017; Trifan et al., 2021). Briefly, 50 µL of sample were mixed with 100 µL Folin–Ciocalteu reagent and vigorously mixed. After 3 min, 75 µL of 1% Na_2CO_3 solution were added and the mixture was incubated for 2 h at room temperature in the dark. Then, the absorbance was read at 760 nm and the total phenolic content was expressed as micrograms of gallic acid equivalents (µg GAE/mL).

Determination of flavonoid content according to solid: liquid ratio

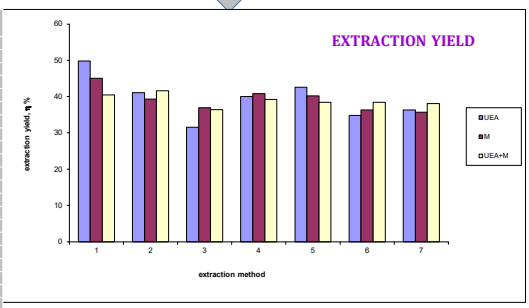
The total flavonoid content was determined using 2ml of probe with 2 ml AlCl3in methanol 2%. The treated probe was kept in dark place for 10 minutes, then the absorbance was read at 510 nm and the total flavonoid content was expressed as micrograms of quercitine equivalents (µg QE/mL).

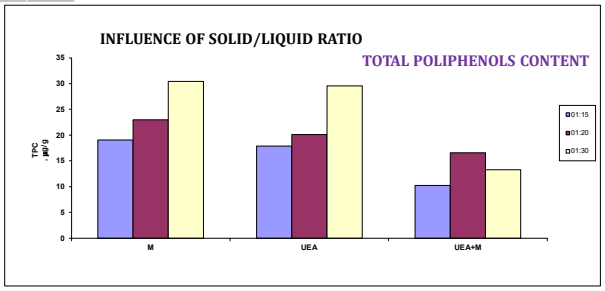
III. **PHYSICAL CHARACTERIZATION and STABILITY TESTS** performed for the two types of multimolecular hyaluronic acid serum formulated for incorporating the selected extract, using standardized protocols for:

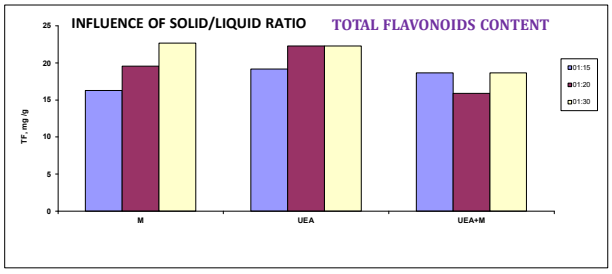
✓ **Centrifugation –** the serums remain intact after centrifugation
✓ **pH =** 5.2 and 5
✓ **Vortex -** the serums remain intact after centrifugation
✓ **Conductometry =** 1.56 and 1.54 ms

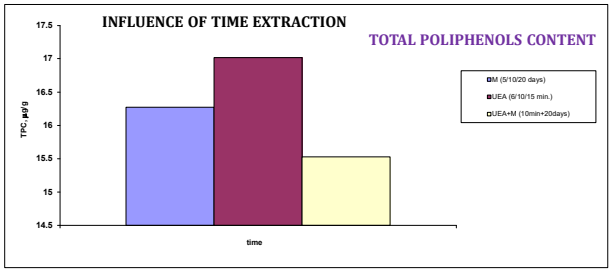
RESULTS

Extraction time	Solid:liquid ratio	Solvent concentration	Probe
15 min	1:15	30%	UEA1
		50%	UEA2
		70%	UEA3
15 min	1:20	50%	UEA4
15 min	1:30		UEA5
6 min	1:15		UEA6
10 min			UEA7
20 days		30%	M1
20 days		50%	M2
20 days		70%	M3
20 days	1:20	50%	M4
20 days	1:30		M5
5 days	1:15		M6
10 days			M7
10 m+20 d	1:20	30%	UEA-M1
		70%	UEA-M2
15 m+20 d		50%	UEA-M3
6 m+20 d			UEA-M4
10 m+20 d	1:30		UEA-M5
10 m+20 d	1:15		UEA-M6
			UEA-M7









CONCLUSION

➢ *Acmella oleracea* is an important natural resource for antioxidant, anaesthetic and anti-inflammatory ingredients, with promising potential for dermato-cosmetic products

➢ The results showed that the incorporation of the natural extract did not negatively affect the stability of the studied dermatocosmetic serum.

➢ These results encourage the development of additional rheology tests, microbiological stability, in vivo tests and preliminary dermatological tests for these preparations.