

SPECTROPHOTOMETRIC FINGERPRINT IN VIZ FOR SEVEN HYDROALCOHOLIC VEGETABLE EXTRACTS

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ARTICLE INFO	ABSTRACT	ORIGINAL RESEARCH ARTICLE
Article History Received: April' 2019 Accepted: April' 2019 Keywords: Flavonoids, fingerprinting method, spectroscopic methods, vegetable extract. Corresponding author*	<p>In this work, we aimed to determine the spectral fingerprint in VIZ for seven extracts made from hypoglycemic species. Absorbance measurement was performed using a UV-VIS Jasco V-530 Spectrophotometer coupled with a computer, the subsequent processing of the absorption spectra in the VIZ being performed with the Jasco V-500W (V-500 / FP-750) software. Spectral analysis in the VIZ of tinctures reveals the presence of the maximum absorption for chlorophyll a (640-670 nm) and two absorption peaks at λ 530-540 nm and 600-610 nm, attributed to the presence of flavonoids.</p>	

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INTRODUCTION

The first spectrophotometric determinations in UV-VIZ on tinctures, following new criteria for characterization and differentiation, were made in 1968 by recording the absorptions at different wavelengths (220 nm, 225 nm, and 230 nm ... 380 nm) tinctures or liquid extracts diluted with 70° alcohol; at 220 nm. The extractive hydroalcoholic preparations exhibit an extinction of 0.800 in a 1 cm cuvette. Based on the results obtained and using schemes, different tinctures can be identified and their degree of alteration can be determined¹.

The purpose of the paper was to determine the fingerprint in the visible field for a series of seven tinctures: *Acanthus balcanicus* Heywood et I.B.K. Richardson sin. *A. longifolius* Host non-Poiret (*Acanthaceae*), *Carduus acanthoides* L., incl. *C. camporum* Boiss. (*Asteraceae*), *Dorycnium pentaphyllum* Scop. subsp. *herbaceum* (Vill.) Bonnier et Layens sin. *D. herbaceum* Vill. (*Fabaceae*),

Tamarix ramosissima Ledeb. sin. *T. pentandra* Pall. (*Tamaricaceae*), *Tragopogon pratensis* L. subsp. *pratensis* (*Asteraceae*), *Vaccinium myrtillus* L. (*Ericaceae*).

MATERIALS AND METHODS

Preparation of tinctures by the simple percolating method (F.R. X)

The tinctures were obtained by simple percolation, in a vegetable/solvent ratio (ethanol 70o) of 1: 5 (F.R. X). Vegetable products naturally dried and pulverized using a mill-type grinder electrical have been made to the specific sieve degree of fineness IV^{1,2,3}.

The tinctures obtained from hypoglycemic plant products were characterized for the first time in terms of absorption maxima and absorbance in VIZ. The analyzed tinctures do not have UV absorption, the determinations being carried out in VIZ under the following experimental conditions:

- Apparatus: UV-VIS Jasco V-530 Spectrophotometer;

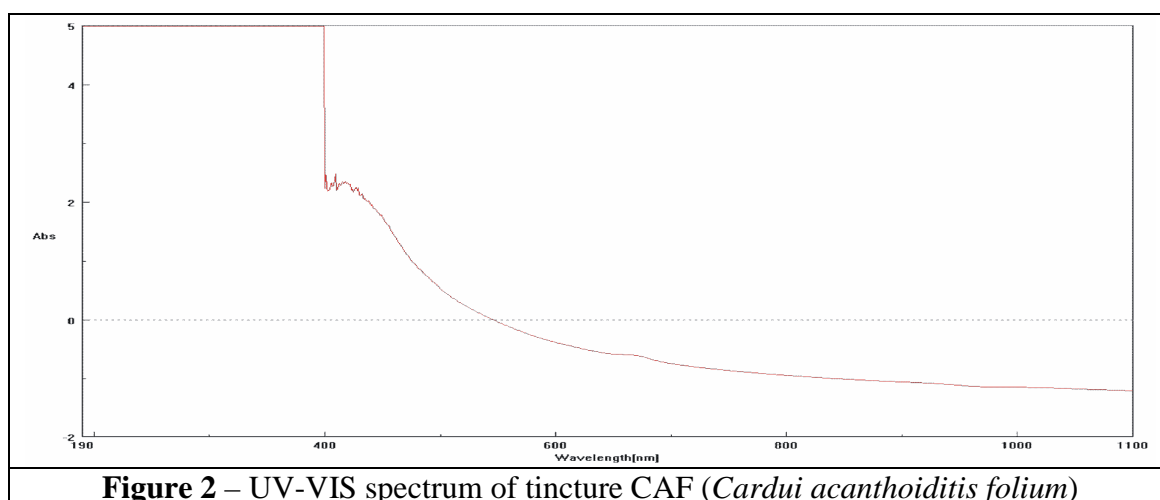
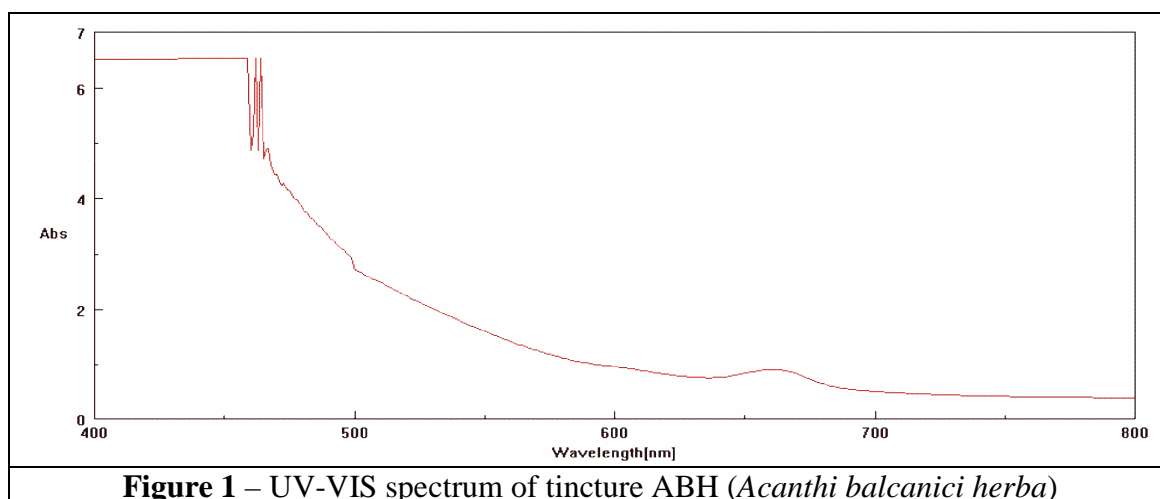
- Working range: 400-800 nm;
- deuterium lamp, UV emission, with λ 190-350 nm;
- a halogen lamp, UV-VIZ emission, with λ 330-1100 nm;
- monofascic (single monochromator);
- silicon photodiode detector (S1337);
- quartz cuvette (path length = 1 cm);
- sensitivity ± 0.5 nm;

Absorbance measurement was performed automatically at λ_{max} by coupling the device with a computer, the subsequent processing of the absorption spectra in the VIZ being performed with the Jasco V-500W (V-500 / FP-750) software. In the determination of the absorption curve for a pure substance added to the solution, specialized work mentions the necessity of choosing the concentration such that the spectrum falls within the area of maximum accuracy

corresponding to the absorbance, between 0.15-0.45¹. For the tinctures analyzed, keeping the same ratio of 1: 5 tincture/alcohol dilution required to maintain appropriate concentrations led to an increase in the absorbance confidence interval for absorption maxima between 0.1-1. Also, the extraction solvent (ethanol 70o) used as a reference does not have its own absorption, being "transparent" in the region where the determinations are performed.

RESULTS AND DISCUSSIONS

Experimental data on spectrophotometric characterization in VIZ of tinctures are presented in **Figures 1-7**. From the spectrum analysis in VIZ of tinctures, the presence of the maximum absorption for chlorophyll a (640-670 nm) and two absorption peaks at λ 530-540 nm and 600-610 nm, probably due to flavonoids, is observed.



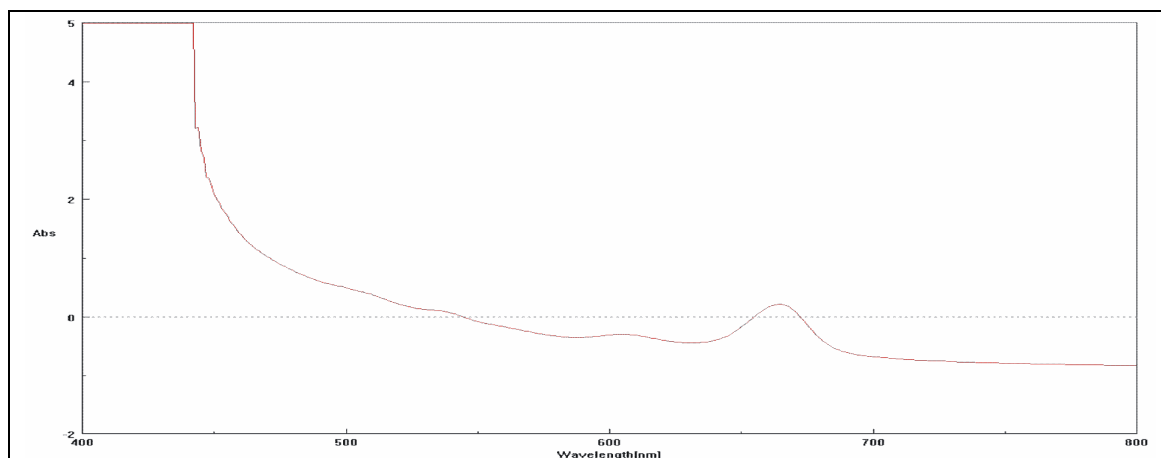


Figure 3 – UV-VIS spectrum of tincture DPH (*Dorycnii pentaphylli herba*)

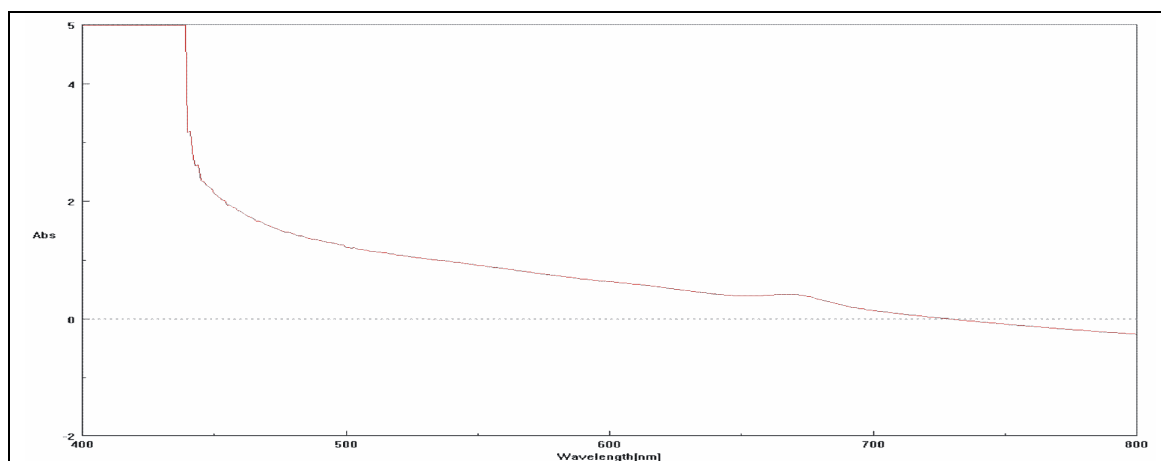


Figure 4 – UV-VIS spectrum of tincture TRFF (*Tamaricis ramosissimae folium et flos*)

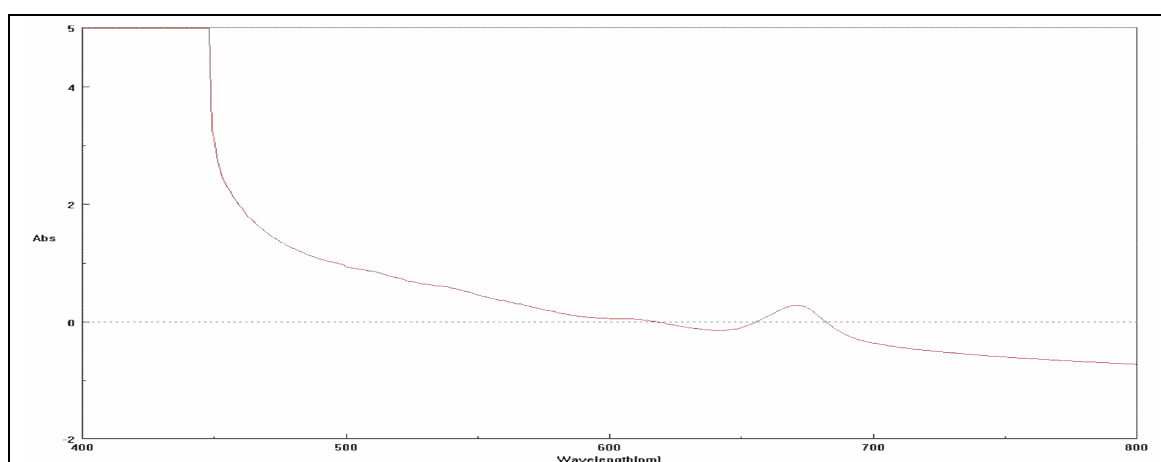


Figure 5 – UV-VIS spectrum of tincture TPF (*Tragoponis pratensis folium*)

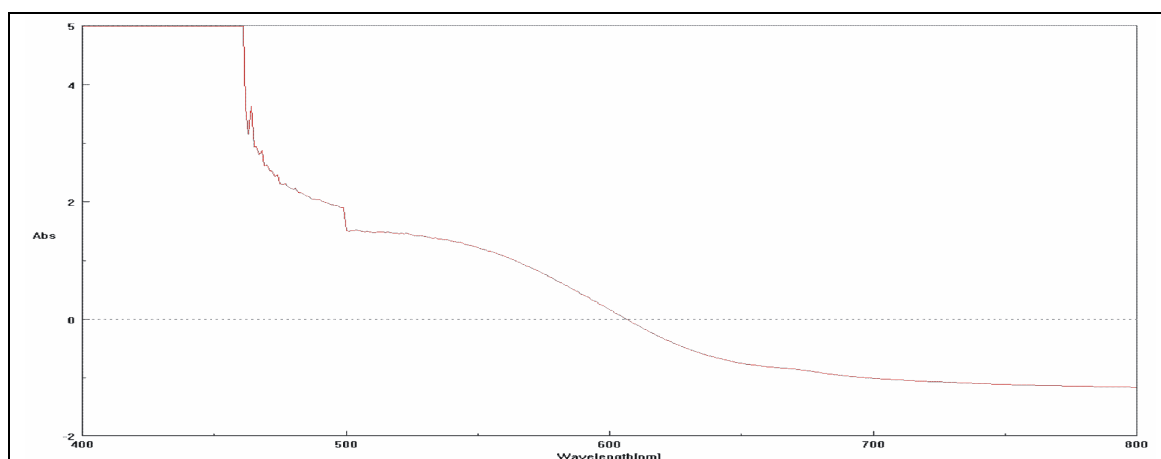


Figure 6 – UV-VIS spectrum of tincture M-fr. (*Myrtilli fructus*)

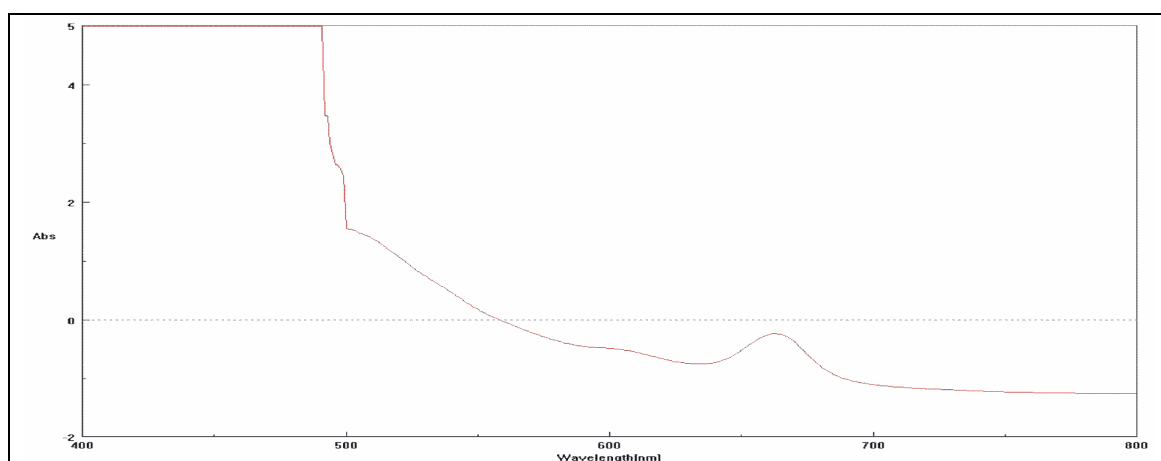


Figure 7 – UV-VIS spectrum of tincture M-fol. (*Myrtilli folium*)

CONCLUSIONS

In order to identify, the tinctures were characterized for the first time in terms of absorption maxima in VIZ. Spectral analysis in the VIZ of tinctures reveals the presence of the maximum absorption for chlorophyll a (640-670 nm) and two absorption peaks at λ 530-540 nm and 600-610 nm, probably due to flavonoids. Because of the flavonoid content, plant extracts can be used as hypoglycemic and antioxidant remedies.

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