

## Practical Course for SMEs' Technicians

SAFFIC Project (COLL-CT-2006 - Contract Number 030195)

**Date: Wednesday, 30<sup>th</sup> September 2009**

**Place: Krokos Kozani**

### ATTENDANTS

Prof. Moschos Polissiou	AUA
Assis. Prof. Petros Tarantilis	AUA
Dr. Charalabos Kanakis	AUA
Mrs. Konstantina Astraka	AUA
Mrs. Eirini Anastasaki	AUA
Mr. Eleftherios Petrakis	AUA
Mr. Athanasios Bakatzounis	BAKATZOUNIS
Mrs. Theodora Korka	BAKATZOUNIS
Mr. Nikolaos Patsiouras	KROKOS
Mr. Eythimios Manolas	KROKOS
Mr. Basilios Bantzios	KROKOS

**9:00** Mr. N. Patsiouras welcomes the attendants of the Practical Course, explaining how important the implementation of the new ISO norm in the SMEs is.

**9:05** Prof. M. Polissiou underlines that the modification on the ISO norm doesn't require any new specific equipment, but only some existing laboratory equipment and material with an affordable cost for SMEs.

**9:20** The DVD realized from ITAP and UCLM is presented in the screen, while Dr. Ch. Kanakis focuses on the main points of the determination of safranal and picrocrocin. The chromatographic techniques are the most adequate technique for the determination of these two compounds of saffron. He emphasizes that although these techniques are very sensitive and accurate, they are expensive, time consuming and must be supported by specialised staff. In the case that saffron sector is made up mostly from medium and small size enterprises, affordable and fast techniques are needed. The application of spectroscopy techniques is enforced in order to save time and reagents.

**9:50** A question is expressed for the use of manifold vacuum, because the labs don't require this equipment yet. But Mrs. E. Anastasaki explains this step can be done, as it is shown in the DVD, without the use of the manifold.

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After having discussed the main parts of the spectroscopic determinations, the technicians of KROKOS and BAKATZOUNIS (Eythimios Manolas, Basilios Bantzios, Theodora Korca) and the researchers from AUA (Charalabos Kanakis, Konstantina Astraka, Eirini Anastasaki, Eleftherios Petrakis) were prepared for the practical course in the installations of KROKOS.

**10:15- 13:30** The researchers started with the determination of picrocrocin which needs more time. After the sample started to stir for 1 hour, the determination of safranal took place.

Dr. Ch. Kanakis points that it is crucial to check the temperature of water bath. If the temperature is more than 25 °C, the water must be changed and in order to avoid this situation it is suggested to use ice, while the sonication takes place.

Along with the procedure another point is the calibration of the Uv-vis spectrometer. It is important:

1. the use of blank

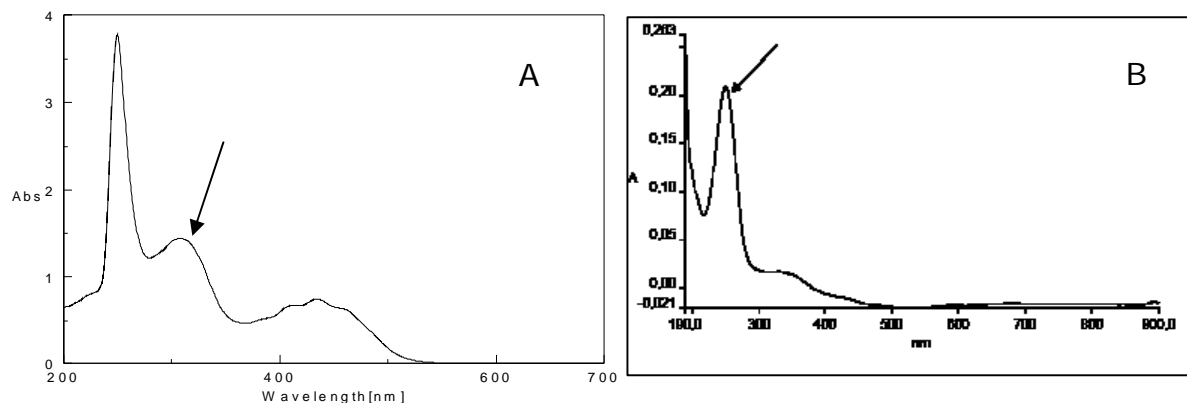
- i) in the case of safranal determination the chloroform solvent is used,
- ii) in the case of picrocrocin determination a system consisting of 12% Acetonitrile in water

2. the baseline correction is adjusted

3. the auto-zero control is necessary before measuring

4. the measurement must be done at the maximum spectrum absorbance

- i) in the case of safranal determination around 310 nm
- ii) in the case of picrocrocin determination around 250 nm



*Figure. Characteristic spectrum of saffron extract for the determination of safranal (A) and picrocrocin (B)*

The technicians didn't face any difficulties in the determination of safranal. They pointed out that it is an easy and fast method.

For the determination of picrocrocin, the technicians worked a lot with the solid phase extraction, because they haven't used it before. They got familiarized with the new step in the determination of picrocrocin with the remarks of the researchers from AUA.

**13:30** Mrs. E. Anastasaki emphasizes that the results for the safranal and picrocrocin content obtained by the new methodologies are more accurate than with the current ISO. She also explains the way of the expression of the results and without having anything else to add the practical course ended.