Buletinul USAMV-CN, 64/2007 (-)
ISSN 1454 –2382

# THE UV-VIS SPECTRAL FINGERPRINTS OF POLYPHENOLS FROM SEVERAL RED GRAPE VARIETIES

**Pop Nastasia, Anca Babeş, C. Bunea**

University of Agricultural Sciences and Veterinary Medicine,
3-5 Mănăştur Street, Cluj-Napoca, nastpop@yahoo.com

**Key words:** spectrophotometry, spectral fingerprints UV-VIS, polyphenols, red grape variety

SUMMARY

The latest studies outlined the important role of polyphenols from grapes and wines, especially from red variety. The polyphenols are those antioxidants compound who favouring the biochemical reactions which protect the cardiovascular system and also have an antiviral and bactericidal effect.[2] The aims of this paper was to determinate the variation of polyphenols content in different parts of grapes with spectrophotometry methods. One of the methods of determination is a spectral fingerprint UV-VIS (190-600 nm).

The researches regarding the UV-VIS spectral fingerprints have been made on four red grape varieties: Merlot, Cabernet Sauvignon, Burgund mare and Muscat Hamburg harvested from two viticulture areas: West Carpathian Area (Timiş - Recaş) and South Carpathian Area (Dealu Mare-Merei). In the Viticulture laboratory of USAMV, the fresh grapes were separated in different mechanical parts (peels, seeds and cluster-rachis). After drying the components of grapes at 65ºC, the samples were grounded and kept in a dry place. The samples used further for analysis was prepared in AGRIAL (Biomedical and Agroalimentary Expertise Laboratory) from USAMV Cluj-Napoca. It was used a Spectrophotometer Jasco V-530 for spectral fingerprint determination. For grape peels, seeds and clusters were taken 0.5 g from grounded sample and extracted for 20 minutes in 10 ml HCl 1% in methanol. The extract obtained was filtered and then was registered the UV-VIS spectrum in the wavelength domain between 190-600 nm [1]. For all samples some dilutions were made in order to obtain the spectrum in the absorption domain wanted.

The spectra showed characteristic peaks of polyphenols (270-280 nm typical for phenolic acids and flavonoids and 535 nm specific to anthocyanins) found in higher quantities in wine grape varieties comparatively to table grape varieties, e.g. Burgund mare (Recaş) and Cabernet Sauvignon (Recaş) against Muscat Hamburg (Recaş). For must samples, a larger number of maxima (270, 340, 380 nm) were observed without significant modifications between the grape varieties. For cluster samples it can be seen one characteristic signal for polyphenols from benzoic acid and flavon-3-ols in the wavelength domain between 270-280 nm. The samples from Merlot from Recaş have the highest concentrations of these compounds and Merlot from Dealu Mare has the lowest value Seed sample analyzed show typical spectrum for polyphenols. Cabernet Sauvignon and Burgund Mare (Recaş) have the highest concentrations of these compounds and to the other samples the values are lowest (but not significant). From quantitative point of view the polyphenols concentrations are bigger almost ten times in seeds. At the table grape variety Muscat Hamburg at all the samples the values was insignificant.

BIBLIOGRAPHY

1. Kammerer, D., A. Claus, R. Carle, 2004, Polyphenol Screening of Pomace from Red and White Grape Varieties (*Vitis vinifera* L.) by HPLC-DAD-MS/MS. Journal of. Agr. Food Chem., 52, 4360-4367.
2. Kontek Adriana, Sarani F. Moutounet M., 1994, Galloylated catechins and procyanidins content in grapes and red wines, Anale ICVV., vol.XIV, pag.425-432.