CZU: 547.56:663.221/.222

PHENOLIC COMPOUNDS AND ANTIOXIDANT ACTIVITY OF SOME MOLDOVAN WHITE AND RED GRAPE VARIETIES AT DIFFERENT MATURATION PERIODS

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Viticulture, along with the winemaking, is the main food industry of Republic of Moldova, whose development is in a close relation with the country's economy [1]. Annually, hundreds of thousands of tons of grapes [2] are used to produce wines, juices, jams etc. – a job in which 25% of the working population of the country is involved [1].

Grapes are rich sources of different classes of polyphenols that possess antioxidant activity and are benefic for the humans' health. At different maturation periods, the content of the polyphenols in grapes varies within the grapes' tissues due to the bio-chemical processes that occur during the development of the berries [3].

In this study, the polyphenolic content and the antioxidant activity was determined in two white grape varieties of new selection, Viorica and Riton, and two red grape varieties, Feteasca Neagra and Copceac. All tests were accomplished at three different maturation periods: in unripe grapes, at the veraison and at the ripening. Various eco-friendly extraction methods were used in order to ensure the extraction of the grapes' polyphenols and antioxidants from the constituent parts of the berries: squeezing, ethanol – HCl extraction or thermal extraction. Spectral and analytical methods were applied for the qualitative determination of the particular groups of phenolic compounds. Thereby, the anthocyanins were analyzed by the pH differential method [4], the presence of the proanthocyanidins was established by using the DMACA reagent [5] and total phenolic content was determined through the Folin – Ciocalteu method [6]. The antioxidant assay was performed by utilizing the DPPH free radical [7], thanks to the accessibility and reproducibility of the method. A good correlation between the polyphenolic content and antioxidant activity of the grape extracts was established.

***Acknowledgement*:** This work has been performed under the National Research Project Nr. 20.80009.5007.27 "Physical-Chemical Mechanisms of the Redox Processes with Electron Transfer in Vital, Technological and Environmental Systems".

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Keywords: antioxidant activity, phenolic compounds, grape varieties, grape extracts.