

ANTOCYANIC EXTRACTS FROM YEAST WINE WASTE

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Phenolic compounds, especially phenolic acids, tannins and anthocyanins are among the important biologically active components of wines. Of all the phenolic compounds, anthocyanins are of a particular interest because they have many beneficial effects on human and animal health. *In vitro* and *in vivo* studies have revealed the biological potential of these compounds and demonstrated their ability to reduce oxidative stress, to act as antimicrobial substances and to counteract the appearance and progression of many non-transmissible diseases, such as neurodegenerative, cardiovascular, metabolic ones and cancer. In combination with vitamin A and other carotenoids they protect visual function. Anthocyanins and their derivatives have no toxic effect on living organisms, even after ingestion in very high doses.

Since the biologically active substances, including anthocyanins, found out in the fermentation medium, are largely absorbed on the surface of the yeast cells, yeast biomass remaining from wine production, can serve as an important source of these substances.

The purposes of this research were to obtain anthocyanin extracts from the yeast biomass remaining from the production of the autochthonous wines, to characterize them biochemically, and to assess their antioxidant potential. The research was focused on the sediment yeast biomass from the production of white dry wine *Rkatsiteli*, red dry wines *Merlot* and *Cabernet*, offered by the «Cricova» winery.

The extracts were obtained by different methods of destruction of the yeast cell wall, which included the use of the acetic acid and the sodium phosphate buffer solutions, homogenization, different temperatures and biomass-solution ratios. The extracts were characterized by their dry weight, by the content of the anthocyanins, proteins, and carbohydrates, as well as by the activity of the antioxidant enzymes catalase and superoxide dismutase.

Depending on the yeast biomass type and the cell wall destruction method the obtained extracts had the dry weight of 2.2 - 13.3 mg/ml, and contained 3.9 ± 0.3 - 20.7 ± 0.4 mg/g of cyanidin anthocyanins, 3.2 ± 0.2 - $9.7 \pm 0.4\%$ (d.w.) of proteins, 2.2 ± 0.02 - $31.4 \pm 0.3\%$ (d.w.) of carbohydrates, and possessed the antioxidant type catalase activity of 315 ± 2.6 - 524 ± 1.5 mmol/min/mg protein and the superoxide dismutase of 173 ± 5.2 - 457 ± 0.6 U/mg protein.

The valuable biochemical composition and high activity of the antioxidant enzymes such as catalase type and superoxide dismutase of the extracts revealed the perspectivity of using the yeast biomass from wine production as a source of anthocyanin preparations for various fields.

The results of the research permitted to elaborate a procedure of obtaining the anthocyanin preparations from yeast biomass after red wine fermentation, which is currently being patented.

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