

EXTRACTION OF POLYPHENOLS FROM THE MALBEC AND RARA NEAGRĂ GRAPES POMACE

Iurie SCUTARU, ORCID: 0000-0002-9199-5183
Vadim DRUȚĂ *, ORCID: 0000-0001-5527-6459

Technical University of Moldova, 168 Stefan cel Mare Blvd., Chisinau, Republic of Moldova

*Email: vadim.druta@chim.utm.md

As a result of red grapes processing, a certain share of polyphenols passes into wine and contributes essentially to the formation of its physico-chemical, microbiological and organoleptic properties. However, a considerable part of them remain in the pomace, and the transfer rate depends on the ripening state of the grapes and the technological processes applied. In this study, different important groups of polyphenols were determined in the pomace of the *Rara Neagră* and *Malbec* grapes harvested from Purcari area .

The extraction of the active components was performed using two solvents: hydro-acetonic, with the addition of HCl for acidification (S1, acetone-water-HCl conc. 80:20:1, v/v/v), and hydro-ethanolic (S2, 12% ethanol (v/v)), acidified with tartaric acid (5 g/L). The first solvent is preferred for the extraction of less polar organic compounds and is used to determine the quantitative potential of grapes skin and seeds, the second is a benchmark of the polyphenolic complex, which actually passes into wines under conditions of alcoholic fermentation.

For both *Rara Neagră* and *Malbec*, the extractable contents of phenolic substances and anthocyanins are influenced by the harvest season, by the drying temperature of the pomace and by the extractant used. Total phenolic substances reach the maximum level for extracts in solvent S2 from *Malbec* skin dried at 40 °C, while pigments predominate in *Malbec* extracts dried at 105 °C. The higher temperature causes an essential degradation of the polyphenolic complex: 2.3 times in *Malbec* and about 3.3 times in *Rara Neagră*. The decrease for natural pigments is inhomogeneous: for *Malbec* the maximum value is reached in the case of grape skins dried at 105 °C, and is 1.4 times higher than for 40 °C, while in *Rara Neagră* the situation is reversed – if drying is done at 40 °C their content is 1.6 times higher than at 105 °C. In solvent S1, the extraction of polyphenols from the grape skins treated at 105 °C is favored for *Rara Neagră*. The content of similar products extracted from *Malbec* is slightly higher in samples dried at 40 °C. The trend is also observed for *Malbec* pigments - at 105 °C their content is 2.2 times higher than at 40 °C. Although to a lesser extent (just 1.2 times), this order is similar for *Rara Neagră*.

Both the drying temperature and the solvent influence the extraction of polyphenols from seeds. The total content of phenolic compounds extracted in both S1 and S2 is maximal in the case of *Rara Neagră* seeds, harvested late and dried at 40 °C. On the contrary, for *Malbec* the high drying temperature of the seeds contributes to the higher extraction of polyphenols in both S1 and S2, the effect being considerable (1.6-2.3 times).

It has been shown that actual industrial technologies of wines production from *Rara Neagră* and *Malbec* grapes have contributed to the extraction of only about 10-18% of the polyphenols from grapes. The predominant number of phenolic compounds with important biological and nutritional value is still concentrated in pomace, which should be treated accordingly for the extraction of the desired bioactive substances.

Keywords: extraction, vinification residues, bioflavonoids, pigments, anthocyanins.

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