

INFLUENCE OF MACERATION TECHNIQUES ON THE PHENOLIC COMPOSITION AND CHROMATIC PARAMETERS OF RED WINES FROM INDIGENOUS MOLDOVAN GRAPE VARIETIES

Alexandra Arseni and Rodica Sturza *

^aDepartment of Oenology and Chemistry, Technical University of Moldova, 168, Stefan cel Mare Blvd., MD-2004 Chisinau, Republic of Moldova

**e-mail: rodica.sturza@chim.utm.md*

Abstract. This study investigated the influence of three maceration techniques - conventional maceration-fermentation (MF), cryomaceration (CM) and thermomaceration (TM) - on the phenolic composition, chromatic parameters and physicochemical properties of dry red wines produced from the Moldovan indigenous grape varieties Fetească Neagră and Rară Neagră. Grapes harvested in the 2023 and 2024 seasons were processed under controlled microvinification conditions. Total phenolic compounds (TPC), proanthocyanidins, anthocyanins, chromatic parameters (colour intensity, CI; hue, H) and individual flavan-3-ols were determined using spectrophotometric and chromatographic methods (HPLC-MS). Thermomaceration promoted a more intense extraction of total phenolic compounds and proanthocyanidins in both grape varieties. Cryomaceration produced the most intense colour in Fetească Neagră, while thermomaceration increased the colour intensity in Rară Neagră, inducing a decrease in the blue component, attributable to the polymerization of anthocyanin into more stable pigments. The extraction hierarchy was uniform: conventional maceration-fermentation (MF) < cryomaceration (CM) < thermomaceration (TM). In all maceration techniques, Fetească Neagră presented a higher phenolic potential than Rară Neagră.

Keywords: Feteasca Neagră, Rara Neagră, maceration techniques, total phenolics, HPLC-DAD-MS-ESI+ analysis, wine chromatic parameters.