

TREATMENT OF RED WINES FROM LOCAL AND EUROPEAN VARIETIES WITH ACTIVATED CARBON: THE IMPACT ON CHROMATIC PARAMETERS

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Activated carbons of vegetable origin are allowed by the OIV for use in the wine industry, with the aim of eliminating defects of an olfactory and/or gustatory nature. Also, activated carbons are used to correct the color of white, rosé and red wines. Technological processes, in which activated carbons are used to eliminate defects, can result in uncontrolled changes in the trichromatic characteristics and, thus, in diminishing the organoleptic characteristics of wines.

The aim of this study was to elucidate the impact of treatments with experimental activated carbon AC-C (produced in the Laboratory of Ecology of the Institute of Chemistry of Republic of Moldova) of red wines obtained from old local grapes (Feteasca Neagra, Rara Neagra) and European (Cabernet Sauvignon, Merlot, Pinot Noir) both from different wine-growing areas and produced according to different technologies, on the color parameters, that is represented mathematically according to the Glories, tristimulus and CIELa*b* methods.

AC-C has been shown to predominantly eliminate monomeric anthocyanins, responsible for the vivid red color. In addition to the global decrease in color intensity, there is an increase in color shade, a phenomenon that accompanies the maturation and aging of red wines, correlated with the partial oxidation, oligomerization and polymerization of anthocyanin pigments. Much more sensitive to the changes made as a result of the AC-C action, are the individual CIELa*b* parameters-L, a* and b*, but also the global ΔE , which is correlated with the consumer's ability to perceive color differences.

The effect of AC-C activated carbon on the copigmentation factors of red wines was determined. Among them there are phenolic substances without chromophores in the visible range - cinnamic phenolic substances, non-flavonoid phenolic substances, flavonoids and tannins. Removing of the part of them causes a reduction in color intensity and changes in other chromatic parameters.

The results were compared with those obtained as a result of other technological treatments (cold, PVPP, bentonite, ZrO₂, etc.).

As a result of the current investigation, the development of recommendations for the practical sector has been proposed, aimed at keeping under control the color of wines as an important organoleptic parameter by predicting the influence of activated carbon treatments (as well as other treatments) on the chromatic characteristics and the evaluation of the treatment conditions (quantities), which will not be perceptible by the consumer.

Keywords: red wines, Feteasca Neagra, Rara Neagra, anthocyanins, monomeric pigments, polymers, color intensity, shade, tristimulus, CIELa*b*, organoleptic examination.

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