

QUALITY INDICES OF WINE BRANDIES IN DEPENDENCE OF DISTILLATION METHODS USED

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Technological distillation is a process by which a low proof alcoholic beverage is heated in a controlled process in order to separate ethanol from water and other components, with the ultimate goal of concentrating the ethanol into a high proof spirit. The raw material used in the production of the distillate is the technological wine produced through a special technological scheme and the observance of some technological requirements included in the national document SM: 186-2014. The general process by which brandy is obtained from grapes includes the main processes such as: grape → fermentation directly → submerged fermentation with pure culture of yeast → liquid-state distillation → aging in oak barrels.

So, the research has shown that using different distillation methods has a major impact on the wine distillate quality and as a result, according to the study, the quality of the wine distillate obtained based on the discontinuous installation Charente has a higher level than that obtained at the continuous installation VAND-M-01. The physical-chemical indices of the raw material wines destined for distillation fit within the acceptable limits established by the technical conditions. Therefore, in order to improve the quality of the obtained wine distillates, it is essential to make an appropriate choice of the distillation methods and working parameters that need to be used during the wine distillate production.

As a consequence, the quality of the wine distillate using the *Charente* method was identified as being of a higher level than those produced by using VAND-M-01. This result is owing to the fact that by utilizing the VAND-M-01 method, the volatile acidity increases approximately by 6 times and produces wine distillate with a slightly quality downgrade. So, the number of aldehydes obtained by distillation with ordinary installations was 0.11 g/dm³, and in a continuous flow 0.05 g/dm³. The reasons for such experimental data are due to the fact that the distillation process in the first case took longer than was expected and some of the alcohol oxidized due to aldehydes. Moreover, it was established that the higher alcohol content in the distillates that were initially obtained by both methods Charente (3.10 g/dm³) and VAND-M-01 (2.78 g/dm³) correspond to the acceptable limits between 1 and 6 g/dm³.

The composition of volatile components in the heart fractions of wine distillates varied greatly depending on the distillation methodology used, on the separation of the head fractions from the heart and on the final concentration of alcohol in the heart fractions. Increases in the alcohol by volume strength of the heart fractions (from 65

to 75% vol.) resulted in a gradual reduction in the concentrations of volatile compounds such as aldehydes, esters and higher alcohols, as well as in lower levels of methanol, furfural, anhydrous alcohol and acetaldehyde.

Keywords: aroma compounds, distillation methods, grape varieties, physico-chemical indices, wine distillates

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