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COMPARISON OF FORTIFIED, SFURSAT AND PASSITO WINEMAKING TECHNIQUES FOR THE ENHANCEMENT OF THE OENOLOGICAL POTENTIAL OF THE BLACK GRAPE CULTIVAR MOSCATO NERO D'ACQUI (VITIS VINIFERA L.)

One of the key factors of the economical development of viticulture and wine industry in specific limited areas is the exploitation of ancient, local grape varieties. Therefore, in recent years the growing interest to rediscover minor varieties, previously cultivated, has promoted many studies. With this regard, the focus of this study was the *Vitis vinifera* L. cultivar Moscato nero d'Acqui, nowadays found only in old vineyards in the Acqui zone (North-West Italy). In particular, the aims of this work were: i) to investigate secondary metabolites profile of the grapes, and ii) to evaluate the attitude to the production of special wines. The Moscato nero d'Acqui grapes contain an interesting profile of secondary metabolites. The content of anthocyanins is low (314 mg/kg) but their profile is characterized mainly by trisubstituted anthocyanins, especially malvidin and its derivatives (about 50%). The aromatic composition is essentially characterized by terpenes: geraniol and nerol are the monoterpenes showing the highest contents, both in free and glycosidic forms. On the basis of the grape chemical characteristics, three types of special wines were produced and analyzed: fortified (from fresh grapes), sfursat (dry wine) and passito (sweet wine). With this aim, the grapes were subjected to a withering process under the same controlled conditions (16-18 °C, 55-70 RH%, 0.6 m/s air speed) until 27 and 36 °Brix for sfursat and passito wines, respectively. To some extent, the dehydration process affects the concentration of anthocyanins, total flavonoids, proanthocyanidins and flavanols reactive to vanillin in the skins, as well as aroma compounds in the glycosidic form. This effect may be due to the sum of the two opposite effects of concentration and oxidation of these secondary metabolites during the dehydration process. The phenolic content of the wine reflects those found in the grapes: sfursat and passito wines present higher contents of anthocyanin, total flavonoids, proanthocyanidins and flavanols reactive to vanillin than those of the fortified wine that is produced from fresh grapes. Therefore, the determination of the anthocyanin concentration shows the effectiveness of grape drying technique in bringing a greater quantity of red color substances and in decreasing the presence of orange notes. Both free and glycosidic aromatic components of the three wines are characterized mostly by terpenes. Wine concentrations of linalool and citronellol in free forms increase with respect to the quantities found in the grapes, however their respective concentrations of glycosidic forms showed a decrease. The aroma of the passito and the sfursat wines is characterized by a higher concentration of citronellol and 2-phenyl-ethanol in free form, which may give notes of rose and citrus. On the basis of the results obtained so far, this variety has a clear potential for the production of special wines, in terms of final hue, color intensity and aroma.

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