CONCORSO PUBBLICO, PER ESAMI, A N. 1 POSTO DI CATEGORIA D, POSIZIONE ECONOMICA D1, AREA TECNICA, TECNICO-SCIENTIFICA ED ELABORAZIONE DATI, PER LE ESIGENZE DEL DIPARTIMENTO DI AGRARIA DELL'UNIVERSITA' DEGLI STUDI DI NAPOLI FEDERICO II ED IN PARTICOLARE DEL CORSO DI LAUREA IN VITICOLTURA ED ENOLOGIA (COD. RIF. 2021) INDETTO CON DECRETO DEL DIRETTORE GENERALE N. 439 DEL 30.06.2020 E DEL QUALE E' STATO DATO AVVISO SULLA GAZZETTA UFFICIALE IV SERIE SPECIALE – CONCORSI ED ESAMI N. 53 DEL 10.07.2020

QUESITI ESTRATTI ALLA PROVA ORALE DEL 16 SETTEMBRE 2020

1. Procedure da effettuare prima di imbottigliare e commercializzare un vino bianco dell'annata che ha subito un breve periodo di affinamento in serbatoio di acciaio inox.
2. Tecniche di gestione del cappello di vinacce.
3. Gestione della macerazione delle uve a bacca nera mirata al controllo del carattere astringente dei vini prodotti da uve ricche in tannini.
4. Analisi dell'ossigeno disciolto nei vini imbottigliati.
5. Creazione di grafici istogrammi a partire da dati excel.

Testo in lingua inglese:

1.

II INTRODUCTION

Anthocyanins are natural pigments responsible for the typical vivid red, blue, and purple hues of vegetables, flowers, and fruits, and as such, they play a crucialrole in the ecosystern, by attraCting insects indispensable for pollination and seed dìspersal, Also, they have been broadly employed as safe colorants in the food and textile industries,

The anthocyanin éoloration is the result of the extensive conjugation, across the molecule A. and C rings, of I O *rr:* electrons that are further cross-conjugated into the aromatic B ring (Ftgurc 1). Hence, any chemìcal transformations leading to a disruptìon of the *rr:* electronconjugatìon can causeeither a color 1055 or a rnodìficatìon of the color in: termsof intensity and/or hue, It ha); been demonstrared that antbocyanins undergo substantial structural modìficatìons 0ri the basis of many factors, induding the temperature, lìght, rnetal 10n5, enzymes, oxygen,antioxidants, andpH. 1 In particular, pH is of critical ìmportançe, because different levels of acidity cause anthocyanins to exist in different equilìbrating chernical forrns, At pH levels below 3, anthocyanins exist predorninantly as the flavylìum cation, displaying an intense [ed coloration. As the pH increases above 3, the flavylium cation equilibrates with two dìastereornerìc hemiacetals that are colorless cornpounds, as a consequence of the disruption of the *1Orr:* electron conjugation across the condensedrìngs A and C (Figure 1). The pK, of the flavyliumpseudo·base (hernìacetals) is 2,7. At typical wine pl-f hovering around 3.7, *90* of the anthocyanin pool is present as a colorless carbinol pseudo-base. The two hemiacetals, whìch are the result of a water rnolecule nucleophilic attack at position .2, undergo ring-opening reactions, thus becorning yellowish cis-chalcones that further isomerize into. trans-chalcones (Figure I). As the pH level of the quinone form, takingplaçe at pH levels above 7, leads to the forrnation cf a blue anionìc quìnoidal base.[2-S]

The anthocyanin chemical behavior as a function of pH is the key phenornenon responsible for the typical color of red wines. Thus, frcrn an enological point of view, anthocyanin conc:entrationsand resulting colorations are critically asso-ciated with the red wine commercial value and longevity.[6-s] Anthocyanins in wines are extractedfrorn black grape skin cells during the first phases of the maceratìon+-fermentatìon

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ptocess and undergo numerous reactions with grape phenolìcs, induding themselves, with ferrnentatiori-derived secondary metabolites and with cornpounds produced during wine storage or extracted from barrels.[!"] Theformaaon of new cornpounds via covalent bìndìng of anthocyanins wìth other wine compounds strongly affect wine color. Dependent upon the molecular structure of these anthocyarrìn-derived pigments, color ranges frorn the orange of pyranoanthocyanins, to the blue of flavanyl-vinylpyranoanthocyanins, to the red of the large polymers, such ai; the tanriin-arithocyanin adducts. [10] As expected, the anthocyanin reactìvity in wine depends upon the equilibrating forms that exist at the dìfferent wine pH levels. Beside reactivity, otheranthccyanin chemical properties clearly correlated to pH are their solubility and capability to be ìnvolved in co-pigmentation phenomena. It hàs been reported that the solubility of anthocyanins depends upon their chemical nature and the solvent,[11] but unti! now, no study has investigated their solubìlity under wine-like conditions. CO-pigmentation Is a phenomenon by which the pigments can self-associate or form cornplex associations with either other colorless organic compounds or metallìc ions, thus generatìi1g a change or an incrernent in the color intensity.[12] Anthocyanin co-pigmentation has been widely studied, but data about the…

Per ordine del Presidente
Il segretario
f.to Nicola Gianniello