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Color and pigment composition of Uruguayan red wines made by different winemaking procedures

Gustavo Gonzalez Neves, Guzman Favre and **Diego Piccardo**
University of the Republic, Uruguay

The color and composition of young wines depends mainly on the grape variety and the state of maturity of the berries, as well as on the oenological techniques used in the elaboration and stabilization of the wine. The aim of this study was to evaluate the color and pigment composition of red wines produced by alternative procedures of winemaking and different grape varieties. Wines of Tannat, Syrah and Merlot were made with different procedures. An addition of maceration enzymes (ENZ) and a cold pre-fermentative maceration (CPM) were compared with control wines, produced by traditional maceration (TM). Two batches of grapes (70 kg each one) were employed for each treatment. Color and polyphenolic families were measured by standard spectrophotometric methods. The pigment composition was evaluated using HPLC-DAD (high-performance liquid chromatography with a diode-array detector). Tannat wines had the highest intensity of color, red (a*), anthocyanin content and the lowest luminosity (L*). Maceration enzymes increased color intensity and red color, and decreased the brightness of wines of all varieties. The main impact on color was observed in Syrah, where the color intensity of ENZ wines increased 19.0% with respect to the control. CPM established increases in color intensity and total content of polyphenols, anthocyanins and proanthocyanidins in Tannat and Merlot wines. The concentrations of anthocyanin-derived pigments were not significantly modified by winemaking practices. The anthocyanic profile of the wines showed significant differences between the varieties. Syrah wines had the highest proportions of malvidin and acetylated glycosides, whereas Tannat had the highest proportions of delphinidine, petunidine, coumarylated and non-acylated glucosides. The discriminant analysis of the data showed a significant separation of wines from each variety since the profile of anthocyanins showed the varietal fingerprint, regardless of the processing alternatives. The anthocyanic profile of wines depends mainly on the variety rather than the effect of the alternative winemaking techniques.

Biography

Gustavo Gonzalez Neves is a professor of enology in the department of food technology, faculty of agronomy in the University of Republic, Uruguay. He has completed his doctorate in Food Sciences from ENSAM, University of Montpellier, France in 2005. Before that he did his masters in viticulture and enology from Technical University of Madrid, Spain in 1992. In 1987 he completed his degree in agricultural engineering from faculty of agronomy, University of Republic, Uruguay.

gustavogn.fagro@gmail.com

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