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Study Finds Polymerized Grape Seed Tannins Strengthen Marselan Wine Color

Researchers linked higher tannin polymerization to greater vitisin formation, producing redder, more saturated wines with more stable pigments.

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A recent study published in Food Chemistry found that highly polymerized grape seed tannins can strengthen the color of Marselan wine by promoting the formation of vitisins, a group of pigments linked to color stability in red wines.

The research focused on Marselan, a grape variety that has been spreading more widely in recent years but has received limited study for the color characteristics of its wines. According to the study, wines treated with highly polymerized seed tannins showed more vitisin formation than control wines. The researchers identified vitisins as pyranoanthocyanin pigments that help stabilize wine color, an important factor for appearance during production and aging.

The study also reported visible changes in the finished wines. Compared with the controls, the Marselan wines that received the more highly polymerized tannins showed a stronger red hue and higher color chroma, a measure tied to color intensity and vividness. In practical terms, that means the wines appeared redder and more saturated in color.

The researchers said these results suggest that the structure of seed tannins matters, not only their presence. Their findings point to a relationship between higher tannin polymerization and better pigment development in Marselan wine. The work adds to a long-running area of wine science that looks at how tannins and anthocyanins interact during fermentation and maturation to shape the final look and stability of red wine.

In the study’s description, the authors said Marselan wines made with these tannins may gain visual appeal and potentially quality through stronger and more stable color. They also said the approach could be promising for improving color properties in this variety, while noting that more research is needed to refine the effect and examine whether the same pattern holds in other wines.

That caution is important because wine color depends on several factors at once, including grape composition, fermentation conditions, oxygen exposure, acidity, and the timing and type of tannin additions. The new findings do not mean that one tannin choice alone will determine the final result in every cellar. They do, however, offer a more specific signal about which tannin characteristics may matter most when producers are trying to influence color development in Marselan.

For the beverage industry, the findings may be useful because they point to a potentially more predictable way to manage red wine color. If later studies confirm the effect under commercial conditions, winemakers could use the mean degree of polymerization of seed tannins as one factor when selecting enological tannin products to support pigment stabilization and strengthen red tone and chroma. That could be especially relevant for producers aiming for consistency across vintages or trying to improve the visual profile of wines made from newer or less-studied grape varieties.

Marselan itself has drawn increasing attention as plantings expand, making technical information on its winemaking behavior more valuable. Color is one of the most closely watched traits in red wine because it affects consumer perception before aroma or taste are assessed. Stable, intense color is often a commercial target, especially in wines expected to spend time in bottle.

The study adds a focused piece of evidence to that issue by linking highly polymerized grape seed tannins with greater vitisin formation and stronger red coloration in Marselan wine. While the authors said more work is needed to optimize the approach and test broader applications, the results provide new data for producers and wine scientists looking for better control over color expression in red wines.