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Innovative solutions in the design of a Bitter flavored red wine assortment

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Abstract: The aim of this study is to present some technological solutions for the design and development of a Bitter flavored red wine assortment with particular characteristics, alcohol content 20% vol., sugar 120 g/L and total acidity 3.0 g/L H₂SO₄. Bitter is an aperitif wine made from white or red wine with the addition of sugar, 96% (v/v) food grade ethanol, natural essences of plants and fruits and food coloring. The obtained flavored wine assortment was investigated in terms of sensory profile, quality indices, total phenolic content and antioxidant activity. The techniques accessed for the production of Bitter are recommended for expanding the range of flavored wines with predefined quality characteristics, improved sensory properties and functionality. Obtaining aromatized wines may trigger further investigations to exploit the potential of macerates to add value by providing natural flavors and bioactive compounds.

Introduction

Flavored wine has been continuously evolved over time to meet changes in consumer preferences, with the addition of fruits, herbs and other flavoring materials being shown to enhance the aroma, taste and health benefits of wine.

Material and method

Obtaining the aromatized wine involved two main stages: the preparation of the base wine Merlot and the secondary ingredients such as sugar syrup from sugar and water, hydroalcoholic macerate of plant materials, citric acid solution and the realization of the technological mixture.

The quantities of raw materials required for the preparation of 5 L of Bitter type flavored red wine, calculated on the base of the material balance both total and partial in the main components alcohol and sugar, are given in Table 1.

Table 1. The materials required for 5 L of Bitter type flavored red wine

Materials	Values
Red wine Merlot (mL)	3628
Food grade ethanol 96% ABV (mL)	522
Sugar (g)	635
Macerate (mL)	100
Water (mL)	357
Citric acid (g)	1.71



Results and discussions

Table 2. The quality characteristics of Bitter type flavored red wine

Quality indices	Values
Total acidity (g/L H ₂ SO ₄)	3.0
Alcoholic strength (% v/v)	20.0
Sugar (g/L)	120
Total dry extract (g/L)	138.64
Non-reducing dry extract (g/L)	18.64

The production of the Bitter-type aromatized red wine assortment is distinguished by several aspects that support technological innovation, such as the combination of medicinal plants and fruits, as well as the long-term maceration applied, which ensures obtaining a macerate rich in bioactive compounds from the class of polyphenols.

Conclusions

The techniques accessed for the preparation of Bitter are relatively simple, with a high application potential in winemaking sector. The development of the range of flavored wines with natural extracts brings added value both to producers by diversifying production and to consumers, offering new options of flavored wines, with a distinct sensory profile and improved bioactivity. The designing of new varieties of wines flavored with plant/fruit/spice macerates also represents a new potential market for wine producers.

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