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Obtaining and Characterization of Sugar-Preserved Raspberry Jelly

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Abstract:

Food preservation plays a vital role in extending the shelf life and ensuring the safety and nutritional quality of food products. Sugar-based preservation techniques have been used for centuries to inhibit the growth of microorganisms, preventing spoilage and maintaining food quality. Raspberries are rich in dietary fiber, vitamin C, and other bioactive compounds, making them a highly beneficial fruit for consumption. This study aimed to produce and evaluate a raspberry jelly preserved with sugar, focusing on its sensory properties and chemical composition. Raspberry was selected as the base for the jelly, and the impact of adding different ingredients such as Hugo (a cocktail) was explored. The jelly was evaluated through sensory analysis using a 5-point hedonic scale by 16 participants. Physical and chemical properties such as vitamin C content, moisture, ash, protein, carbohydrates, and energy value were also determined. Results showed that the combination of raspberry and Hugo was well-received, with high scores in taste and acceptability. At the same time, the product demonstrated a favourable nutritional profile with a vitamin C content ranging from 9.16 to 18.5 mg/100g. The study concludes that raspberry-based jellies have high consumer acceptability and dietary benefits, offering the potential for industrial production.

• Introduction

Food preservation plays a vital role in extending the shelf life and ensuring the safety and nutritional quality of food products. Sugar-based preservation techniques have been used for centuries to inhibit the growth of microorganisms, preventing spoilage and maintaining food quality. This project focuses on the development of raspberry jelly using sugar as a preservative, considering the nutritional and sensory characteristics of the final product. Raspberries are rich in dietary fiber, vitamin C, and other bioactive compounds, making them a highly beneficial fruit for consumption. However, their perishable nature necessitates preservation techniques such as jelly making. This study explores the sensory acceptability and physical-chemical characteristics of raspberry jelly, comparing different formulations, including the addition of Hugo, a popular cocktail ingredient, to enhance flavor and consumer appeal.

• Material and method

• Ingredients

- Raspberry jelly: 250 g fresh raspberries, 50 g cane sugar, 2 gelatin sheets, cold water for gelatin hydration.
- Hugo jelly: 120 ml Hugo, 50 g cane sugar, 120 ml hot water, and gelatin sheets.
- Decoration: Fresh raspberries and mint leaves.

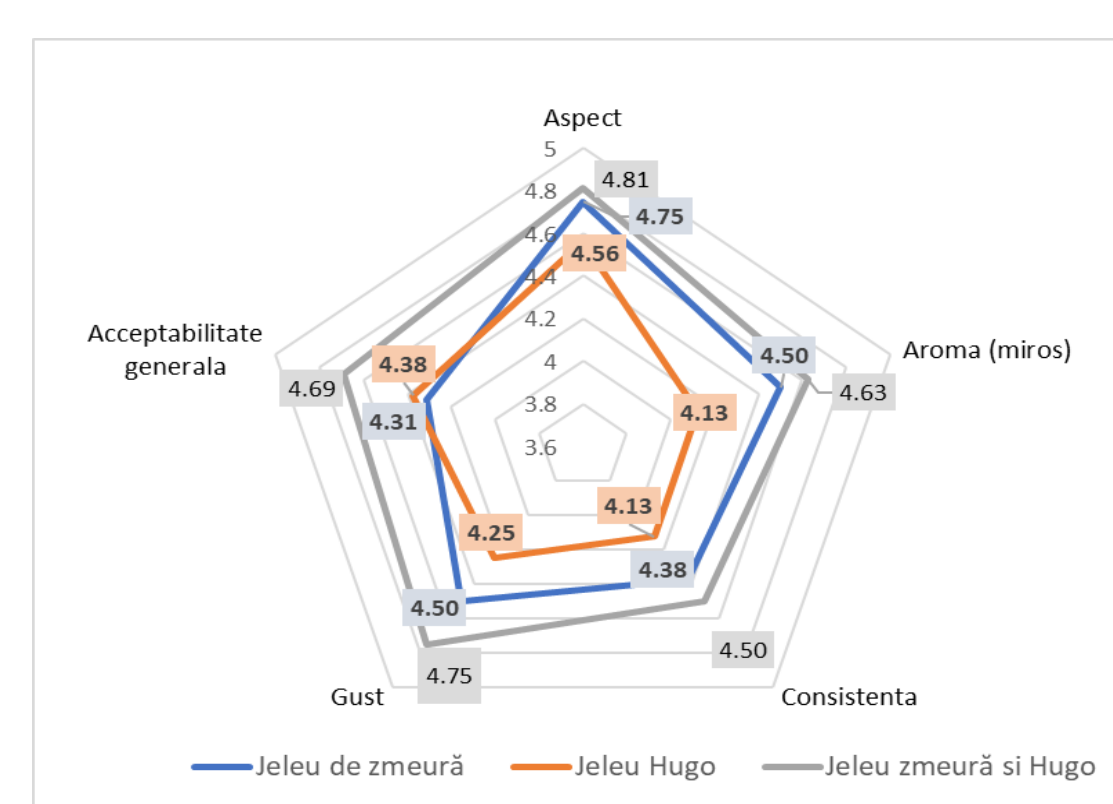
• Production Process

- Fresh raspberries were visually inspected for quality, sorted, and weighed. The raspberries were washed thoroughly, boiled for 5-10 minutes with sugar until achieving a gel-like consistency. Hydrated gelatin were mixed into the raspberry mixture, ensuring proper dissolution. The mixture was strained to remove seeds, then cooled to 80°C before being poured into sterile containers. The jelly was divided into 120 ml containers, capsulated and stored between +2°C and +5°C.

• Results and discussions

Sensory Analysis

The sensory evaluation revealed that the raspberry-Hugo jelly achieved the highest overall acceptability with a score of 4.688, compared to raspberry jelly alone (4.60) and Hugo jelly (4.375). Taste and aroma were significantly enhanced by the addition of Hugo, with a median taste score of 4.750 for raspberry-Hugo jelly, compared to 4.500 for raspberry jelly and 4.250 for Hugo jelly.



Characteristics	Value (g/100g)
Moisture	71,6
Mineral substances	0,32
Proteins	2,1
Lipids	-
Carbohidrates	24,3
Vitamin C	12,3 mg
Energetic value	95,7 Kcal

Conclusions

This study demonstrates that raspberry jelly, especially when combined with ingredients like Hugo, has high consumer acceptability due to its sensory appeal and nutritional benefits. The product's vitamin C content, combined with its pleasant taste and texture, makes it suitable for commercialization. Future studies could explore the scalability of this production process and its potential in broader markets.

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