

Standardization of Virgin Mojito Mocktail Beverages in Sebungkus Indonesia

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ABSTRACT

The food and beverage industry increasingly emphasizes innovation and consistency to ensure consumer satisfaction and operational efficiency. Within this context, mocktails such as the Virgin Mojito are gaining popularity due to their refreshing sensory attributes and health-related benefits, yet inconsistent preparation often reduces customer satisfaction. This study aimed to develop a standardized Virgin Mojito recipe at Sebungkus Indonesia to ensure uniform quality across different preparations. The research employed an experimental design by comparing two formulations—one currently used at Sebungkus Indonesia and one adapted from literature—followed by refinement into a gram-based standardized recipe. Sensory evaluation was conducted by three expert panelists using a hedonic scale across six indicators: acidity, sweetness, aroma, colour, balance, and presentation. The results showed that the Sebungkus Indonesia recipe performed better than the literature-based version, and after refinement, the standardized recipe achieved an overall mean score of 3.66 (“highly liked”), representing a significant improvement from the initial 2.83 (“liked”). The highest increase was recorded in aroma (4.00), while presentation and colour also contributed substantially to acceptance. These findings highlight that precise measurement and process standardization enhance beverage quality, reduce variability, and strengthen consumer satisfaction. The study contributes practically by providing Sebungkus Indonesia with a reliable recipe for consistent service, and theoretically by demonstrating the strategic role of recipe standardization in quality management and competitiveness within the hospitality sector.

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1. INTRODUCTION

The food and beverage industry is experiencing rapid growth, where competition extends beyond product innovation to the delivery of consistent quality. Product standardization has emerged as a critical strategy to ensure operational efficiency, reduce human error, and maintain customer trust, especially in highly competitive hospitality contexts. Standardized recipes not only function as an effective quality control tool but also provide a systematic approach to staff training, enabling uniform product outcomes regardless of the bartender’s experience [1].

Within global consumption trends, non-alcoholic beverages—particularly mocktails—have gained significant popularity among younger generations and health-conscious consumers. Mocktails offer complex flavors similar to cocktails but without alcohol, making them inclusive across demographic groups [2]. Among these, the Virgin Mojito has become one of the most preferred variants, combining mint freshness, lime acidity, soda effervescence, and syrup sweetness into a refreshing sensory experience. Its growing acceptance is linked not only to flavor but also to health-related aspects, including hydration support, natural calming effects from mint, and mood improvement [3].

Despite its popularity, inconsistency in preparation often reduces customer satisfaction. Field evidence from Sebungkus Indonesia revealed that the absence of standardized measurements led to

variations in taste, aroma, and presentation depending on the bartender. This inconsistency potentially undermines customer loyalty and weakens brand image in the long term. Prior studies emphasize that beverage standardization is essential to ensure consistent sensory attributes—such as acidity, sweetness, aroma, and visual appearance—thereby enhancing product quality and consumer satisfaction [4], [5].

Standardization also aligns with broader quality management practices in hospitality, where measurable guidelines foster operational efficiency and customer delight [6]. By converting all ingredients into precise gram-based units and validating through organoleptic testing, businesses can minimize deviations and deliver stable outcomes. Previous research has demonstrated that recipe standardization contributes not only to consistent quality but also to employee performance, training efficiency, and consumer acceptance in foodservice establishments [7], [8].

Accordingly, this study seeks to develop a standardized Virgin Mojito recipe at Sebungkus Indonesia, integrating literature-based formulation and experimental testing through sensory evaluation. The research contributes to both theoretical and practical domains by demonstrating how standardization can enhance beverage quality, customer satisfaction, and brand reliability in Indonesia's competitive food and beverage market. Furthermore, the findings offer broader implications for practitioners aiming to implement effective quality control in non-alcoholic beverage production.

2. METHOD

This study employed an experimental research design to systematically examine the effect of ingredient measurement standardization on the sensory quality of the Virgin Mojito mocktail. The experiment was conducted at Sebungkus Indonesia and the Food Production Laboratory ER8, Universitas Negeri Padang, during July–August 2025, utilizing both practice-based and controlled laboratory settings to enhance ecological and internal validity. Two formulations were compared: the existing recipe used at Sebungkus Indonesia and a literature-based recipe, each prepared using identical tools and raw materials, including spearmint leaves, citrus aurantiifolia (lime), homemade simple syrup, crystal ice, and commercial soda water. All ingredients were weighed in grams to ensure precision and reproducibility, following best practices in recipe standardization for sensory evaluation [9]. The preparation process adhered to standardized culinary procedures, beginning with inventory of tools, precise measurement of ingredients, mixing techniques, and garnishing protocols to minimize variation. Sensory evaluation was carried out through organoleptic testing involving three expert panelists specializing in culinary and hospitality management. Panelists assessed six key sensory indicators—acidity, sweetness, aroma, colour, balance, and presentation—using a four-point hedonic scale, ranging from 1 (strongly dislike) to 4 (strongly like). Data collected were analyzed quantitatively through calculation of mean scores and categorized into predetermined acceptance intervals, enabling statistical interpretation of consumer preference levels [10]. This methodological approach integrates culinary experimentation with rigorous sensory science, which has been widely recognized as effective for developing standardized recipes, ensuring product consistency, and enhancing consumer satisfaction in the hospitality industry [11], [12].

3. RESULTS AND DISCUSSION

3.1. Result

3.1.1. Initial Comparison of Recipes

The first organoleptic test involved evaluating two recipes. The Sebungkus Indonesia recipe achieved mean scores of 2.66 for acidity, 2.66 for sweetness, 3.00 for aroma, 3.00 for colour, 2.66 for balance, and 3.00 for presentation, with an overall average of 2.83 categorized as “liked.” This indicates that the formulation was generally acceptable to panelists, particularly in terms of aroma, colour, and presentation. The detailed results are presented in Table 1.

Table 1. Organoleptic Test Results for Virgin Mojito Recipe from Sebungkus Indonesia

No. Panelist	Acidity	Sweetness	Aroma	Colour	Balance	Presentation
P1	2	2	3	4	3	3
P2	3	3	3	2	3	3
P3	3	3	3	3	2	3
Total	8	8	9	9	8	9
Mean	2.66	2.66	3.00	3.00	2.66	3.00

Source: Processed Data (2025)

In contrast, the literature-based recipe obtained lower scores, with mean values of 2.66 for acidity, 2.66 for sweetness, 2.66 for aroma, 2.33 for colour, 2.33 for balance, and 2.33 for presentation. The overall average of 2.50 placed it at the lower threshold of the “liked” category, suggesting weaker sensory performance compared to the Sebungkus Indonesia recipe, especially in colour and presentation. The detailed results are provided in Table 2.

Table 2. Organoleptic Test Results for Virgin Mojito Recipe from Literature (Fimela)

No. Panelist	Acidity	Sweetness	Aroma	Colour	Balance	Presentation
P1	3	2	3	2	2	3
P2	2	2	3	3	2	2
P3	3	4	2	2	3	2
Total	8	8	8	7	7	7
Mean	2.66	2.66	2.66	2.33	2.33	2.33

Source: Processed Data (2025)

3.1.2. Refinement into a Standardized Recipe

Following the first stage, the Sebungkus Indonesia recipe was selected for refinement by converting all ingredients into gram-based measurements to ensure consistency. The second organoleptic test demonstrated notable improvements, with mean values of 3.66 for acidity, 3.66 for sweetness, 4.00 for aroma, 3.66 for colour, 3.33 for balance, and 3.66 for presentation. The overall mean increased to 3.66, which falls under the “highly liked” category, indicating significant sensory enhancement and consistency. The results are summarized in Table 3.

Table 3. Organoleptic Test Results for Refined Virgin Mojito Recipe (Standardized)

No. Panelist	Acidity	Sweetness	Aroma	Colour	Balance	Presentation
P1	4	4	4	4	3	4
P2	3	4	4	3	4	3
P3	4	3	4	4	3	4
Total	11	11	12	11	10	11
Mean	3.66	3.66	4.00	3.66	3.33	3.66

Source: Processed Data (2025)

3.1.3. Final Standardized Recipe

The final standardized formulation determined through this process consists of: 2 g of mint leaves, 6.5 g of lime, 25 g of simple syrup, 120 ml of soda water, and 100 g of crystal ice. The preparation procedure involves combining lime juice, mint leaves, and simple syrup in a glass, muddling lightly to release essential flavors, adding ice, pouring soda water, and stirring gently before serving.

3.2. Discussion

The results of this study clearly demonstrate that recipe standardization significantly improves the sensory quality and consistency of the Virgin Mojito mocktail. The first experimental stage showed that the Sebungkus Indonesia recipe performed better than the literature-based formulation, particularly in aroma, colour, and presentation. This finding suggests that local adaptations of recipes may be more suitable to consumer preferences, especially when aligned with regional taste expectations. Previous research has emphasized that consumer acceptance of beverages is strongly influenced by cultural taste patterns, highlighting the importance of context-specific recipe development [13].

Following refinement in the second stage, the standardized recipe produced a notable increase in overall mean acceptance from 2.83 (“liked”) to 3.66 (“highly liked”), with the highest improvement observed in aroma (4.00). This indicates that precise measurement of mint and lime quantities enhanced flavor balance and sensory appeal. Aroma, in particular, plays a central role in consumer perception, often shaping initial expectations before taste evaluation [14]. Similar studies have shown that accurate

control of herbal components, such as mint and citrus, contributes significantly to both perceived freshness and consumer satisfaction [15].

The improvements in acidity and sweetness further highlight the critical role of balanced ingredient ratios in determining product acceptance. Sensory science literature has long established that balance between sweet and acidic profiles is a primary determinant of consumer liking in beverages [16]. By adjusting lime and syrup quantities to precise gram-based units, the present study aligns with findings that standardized recipes reduce variation and ensure consistent sensory outcomes [17]. This supports the notion that measurement precision not only enhances taste but also improves operational efficiency and training processes in foodservice environments [18].

Another important finding is the improvement in visual presentation, which reached a mean score of 3.66 after standardization. Visual appeal is widely recognized as a major factor influencing consumer expectations and purchase intention in the hospitality industry [19]. The use of fresh garnish and crystal-clear ice in the standardized recipe contributed to higher presentation scores, echoing evidence that appearance directly impacts perceived quality and brand image in beverages [20].

Overall, the results confirm that recipe standardization is an effective quality management tool in beverage service. Beyond ensuring sensory consistency, it also supports training efficiency for new staff, minimizes human error, and enhances customer satisfaction. These findings are consistent with broader studies in hospitality management that link standardized operating procedures with improved service quality, operational performance, and customer loyalty [21]. For Sebungkus Indonesia, adopting the standardized Virgin Mojito recipe is therefore not only a matter of product improvement but also a strategic measure to strengthen brand reliability and competitiveness in the beverage market.

4. CONCLUSION

This study successfully formulated a standardized Virgin Mojito recipe for Sebungkus Indonesia that significantly improved product quality and sensory consistency compared to the initial formulations. The organoleptic evaluation demonstrated a substantial increase in overall acceptance, with the average score rising from 2.83 (“liked”) in the initial stage to 3.66 (“highly liked”) after standardization, indicating stronger consumer preference across all six sensory indicators. The highest improvement was observed in aroma, sweetness, and acidity, confirming the importance of precise ingredient measurements in achieving balanced flavors, while presentation and colour further enhanced visual appeal and overall perception. These findings underscore the critical role of recipe standardization in minimizing variations caused by individual preparation practices, thereby ensuring operational efficiency, facilitating employee training, and strengthening customer satisfaction. Beyond its practical benefits for Sebungkus Indonesia, the study contributes to the broader hospitality and beverage management literature by illustrating how standardized recipes can serve as a strategic quality control mechanism that enhances brand reliability and competitiveness in a dynamic food and beverage market.

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