

Comparative Study: The Effect of Dry Shake and Wet Shake on Residual Taste in Pussyfoot Beverages

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ABSTRACT

The beverage industry has experienced increasing diversification in non-alcoholic product offerings, with mocktails gaining popularity due to evolving consumer preferences for healthier alternatives. Among the sensory attributes that influence consumer acceptance, aftertaste plays a critical role in shaping the final perception of beverage quality. This study aimed to compare the effects of dry shake and wet shake techniques on the aftertaste characteristics of the Pussyfoot mocktail. A quantitative experimental approach was employed, involving descriptive organoleptic testing with three trained panelists evaluating five aftertaste indicators—duration, type, intensity, balance, and comfort—across beverages prepared using each shaking method. The results revealed that the dry shake technique produced a longer aftertaste duration and greater intensity, whereas the wet shake method yielded higher balance and comfort ratings, with both techniques generating similar flavor types dominated by sweet and sour notes. These findings highlight that preparation methods significantly affect certain sensory dimensions of mocktails, providing practical implications for beverage practitioners to tailor shaking techniques according to desired flavor outcomes. Future studies should incorporate larger sample sizes and advanced sensory profiling methods to enhance generalizability and deepen understanding of technique–flavor interactions.

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1. INTRODUCTION

The beverage industry represents a dynamic and rapidly expanding segment of the global culinary sector, contributing significantly to national economic growth. In Indonesia, the food and beverage industry accounted for approximately 34% of the creative economy's Gross Domestic Product (GDP) in 2023, highlighting its strategic importance in the country's economic structure [1]. This growth is partly attributed to the industry's adaptability, as demonstrated during the COVID-19 pandemic through innovative product and service strategies [2]. Shifts in consumer lifestyles toward healthier choices have also stimulated demand for non-alcoholic beverages, with mocktails emerging as a particularly popular option [3].

Mocktails are non-alcoholic drinks designed to replicate the taste, aroma, and presentation of cocktails while using natural ingredients such as fruit juices, syrups, spices, and ice [3]. Their appeal extends beyond ingredient quality to encompass the overall sensory experience, including visual presentation, aroma, texture, and taste. Among these sensory attributes, aftertaste—the lingering flavor perceived after swallowing—is a critical determinant of consumer satisfaction, as it shapes the final impression of the beverage [4]. Aftertaste is influenced not only by ingredient composition but also by preparation techniques, particularly mixing methods [5].

In mixology, shaking is a primary technique for blending ingredients, chilling the beverage, and controlling dilution, while also promoting aeration and emulsification [4], [6]. For recipes containing emulsifiers such as egg yolk, the shaking method plays a vital role in producing the desired mouthfeel and aftertaste. Two widely recognized techniques are the dry shake (shaking without ice) and the wet shake

(shaking with ice) [5]. The dry shake method, performed before chilling, activates the emulsifying properties of egg yolk—primarily due to lecithin—resulting in a smooth, stable foam [4]. Conversely, the wet shake method mixes and chills the drink simultaneously, affecting both the temperature and the balance of flavors [6].

The Pussyfoot mocktail, which blends citrus juices, grenadine syrup, and egg yolk, exemplifies how ingredient composition and shaking methods can interact to influence sensory attributes. This drink combines sweet and sour notes with a smooth texture, where the choice of shaking method may alter the aftertaste profile. While anecdotal knowledge in bartending suggests that dry shaking produces more stable foam and stronger aftertaste intensity, and wet shaking yields a more balanced and refreshing flavor, empirical comparisons remain scarce [5], [7].

Given the lack of systematic studies directly comparing these two techniques in relation to aftertaste, this research seeks to fill the gap by experimentally analyzing the effects of dry shake and wet shake methods on the aftertaste characteristics of Pussyfoot beverages. Findings from this study are expected to provide evidence-based recommendations for beverage practitioners, enabling them to optimize product quality and enhance consumer sensory experiences.

2. METHOD

This study employed a quantitative experimental design to compare the effects of dry shake (X_1) and wet shake (X_2) techniques on the aftertaste (Y) of Pussyfoot beverages, conducted under controlled laboratory conditions at the R8 Laboratory, Department of Tourism, Universitas Negeri Padang, on August 1, 2025. Aftertaste was operationalized into five sensory indicators—duration, type, intensity, balance, and comfort—evaluated through descriptive organoleptic testing by three trained panelists with prior experience in sensory analysis. The beverage formulation consisted of orange juice, lemon juice, lime juice, grenadine syrup, egg yolk, and ice cubes, with the dry shake technique performed without ice to activate egg yolk emulsification before chilling, and the wet shake technique executed with ice to achieve simultaneous mixing, chilling, and dilution [8], [9]. Panelists' assessments were recorded using a structured sensory scoring sheet, and data were processed using the percentage calculation method as outlined by Sugiyono [10], enabling a comparative analysis of aftertaste characteristics between the two preparation techniques.

3. RESULTS AND DISCUSSION

3.1. Result

3.1.1. Aftertaste Duration

The assessment of aftertaste duration was conducted to evaluate how long the flavor sensation of the Pussyfoot beverage persisted on the tongue after consumption. The results showed that the dry shake technique produced a more prolonged aftertaste, with two panelists (66.7%) perceiving it as “enough” and one panelist (33.3%) as “very long,” indicating stronger flavor retention. In contrast, the wet shake technique resulted in a shorter aftertaste, as two panelists (66.7%) rated it as “not long” and one panelist (33.3%) as “enough.” These findings suggest that the absence of ice during the initial mixing phase in the dry shake method may enhance emulsification and flavor binding, thereby extending flavor persistence, whereas the inclusion of ice in the wet shake method may cause dilution, reducing aftertaste longevity [11], [12].

Table 1. Aftertaste Duration Assessment Data

Indicator	Assessment	Dry Shake	%	Wet Shake	%
Aftertaste Duration	Very Long	1	33.3	-	-
	Long	-	-	-	-
	Enough	2	66.6	1	33.3
	Not Long	-	-	2	66.6
	Not Very Long	-	-	-	-
Amount		3	100	3	100

3.1.2. Aftertaste Type

The evaluation of aftertaste type was performed to identify the flavor characteristics that persisted on the tongue after consumption of the Pussyfoot beverage. The results revealed that both the dry shake and wet shake techniques produced similar aftertaste profiles, with all panelists (100%) reporting dominant sweet and sour notes. Additionally, one panelist (33.3%) in each method detected an astringent nuance, suggesting the presence of subtle secondary flavor perceptions. These findings indicate that the shaking method did not significantly influence the qualitative nature of the aftertaste, as the dominant flavor profile remained consistent across both techniques, which aligns with previous studies suggesting that ingredient composition often has a greater impact on aftertaste type than preparation method [13], [14].

Table 2. Aftertaste Type Assessment Data

Indicator	Assessment	Dry Shake	%	Wet Shake	%
Aftertaste Type	Sweet	3	100	3	100
	Bitter	-	-	-	-
	Sour taste	3	100	3	100
	Savory	-	-	-	-
	Astringent	1	33.3	1	33.3
Amount		3	100	3	100

3.1.3. Aftertaste Intensity

The assessment of aftertaste intensity aimed to determine the strength of flavor sensation persisting on the tongue after consuming the Pussyfoot beverage. The findings indicated that the dry shake technique generated a more pronounced and varied intensity, with equal distribution among “very strong,” “strong,” and “enough” categories, each reported by one panelist (33.3%). In contrast, the wet shake technique resulted in weaker flavor persistence, as two panelists (66.7%) rated it “not strong” and only one panelist (33.3%) rated it “strong.” These results suggest that the dry shake method enhances flavor intensity, possibly due to improved emulsification and aeration that concentrate flavor compounds, whereas the wet shake method, through simultaneous mixing and dilution with ice, may reduce flavor strength [15], [16].

Table 3. Aftertaste Intensity Assessment Data

Indicator	Assessment	Dry Shake	%	Wet Shake	%
Aftertaste Intensity	Very Strong	1	33.3	-	-
	Strong	1	33.3	1	33.3
	Enough	1	33.3	-	-
	Not Strong	-	-	2	66.6
	Not Very Strong	-	-	-	-
Amount		3	100	3	100

3.1.4. Aftertaste Balance

The evaluation of aftertaste balance sought to determine the degree to which the lingering taste harmonized with the overall flavor profile of the Pussyfoot beverage. The findings indicated that in the dry shake technique, two panelists (66.7%) rated the aftertaste as “balanced,” while one panelist (33.3%) perceived it as “not balanced.” In contrast, all panelists (100%) in the wet shake group rated the aftertaste as “balanced,” suggesting a higher consistency in flavor harmony. These results imply that the wet shake method may better integrate and equalize flavor components, likely due to simultaneous mixing and chilling that promote uniform taste distribution, whereas the dry shake method—although beneficial for texture and intensity—may occasionally yield less balanced flavor perceptions [17], [18].

Table 4. Aftertaste Balance Assessment Data

Indicator	Assessment	Dry Shake	%	Wet Shake	%
Aftertaste Balance	Very Balance	-	-	-	-
	Balance	2	66.6	3	100
	Enough	-	-	-	-
	Not Balance	1	33.3	-	-
	Not Very Balance	-	-	-	-
Amount		3	100	3	100

3.1.5. Aftertaste Comfort

The aftertaste comfort evaluation aimed to determine whether the lingering flavor sensation of the Pussyfoot beverage was perceived as pleasant or unpleasant. The results showed that the dry shake technique produced varied responses, with one panelist (33.3%) rating it as “very comfortable,” one (33.3%) as “enough,” and one (33.3%) as “not comfortable.” In contrast, the wet shake technique demonstrated more consistent positive evaluations, with one panelist (33.3%) rating it “very comfortable,” one (33.3%) as “comfortable,” and one (33.3%) as “enough.” These findings suggest that the wet shake method may better deliver a stable and enjoyable aftertaste experience, likely due to its ability to balance flavor distribution and moderate intensity, whereas the dry shake method—while potentially enhancing intensity—may lead to divisive perceptions of comfort among consumers [19], [20].

Table 5. Aftertaste Comfort Assessment Data

Indicator	Assessment	Dry Shake	%	Wet Shake	%
Aftertaste Comfort	Very Comfort	1	33.3	1	33.3
	Comfort	-	-	1	33.3
	Enough	1	33.3	1	33.3
	Not Comfort	1	33.3	-	-
	Not Very Comfort	-	-	-	-
Amount		3	100	3	100

3.2. Discussion

The comparative analysis of dry shake and wet shake techniques in preparing the Pussyfoot beverage revealed notable differences in aftertaste characteristics across the five sensory indicators: duration, type, intensity, balance, and comfort. In terms of duration, the dry shake method produced a longer-lasting aftertaste, with flavor retention ranging from “enough” to “very long,” whereas the wet shake method tended to yield shorter persistence. This outcome may be attributed to the absence of ice during the initial mixing phase in the dry shake process, which enhances emulsification and flavor compound retention [21]. Regarding aftertaste type, both techniques produced similar flavor profiles dominated by sweet and sour notes with minor astringent undertones, indicating that ingredient composition, rather than shaking method, primarily determines flavor type [22]. For intensity, the dry shake technique delivered stronger and more varied flavor sensations, likely due to improved aeration and emulsification, while the wet shake produced a milder taste, potentially due to dilution from ice [23]. In terms of balance, the wet shake method achieved higher flavor harmony, as reported unanimously by panelists, suggesting that simultaneous mixing and chilling promote a more uniform distribution of taste components [24]. Finally, for comfort, the wet shake technique yielded more consistent positive perceptions, whereas the dry shake elicited mixed responses, reflecting potential trade-offs between flavor intensity and comfort in consumption [25]. Overall, these findings underscore that while the dry shake technique excels in prolonging and intensifying aftertaste, the wet shake method offers superior balance and comfort, aligning with previous research on the influence of preparation methods on sensory quality in mixed beverages.

4. CONCLUSION

The present study demonstrated that shaking techniques significantly influence certain aftertaste attributes of the Pussyfoot beverage. The dry shake method was found to produce a longer-lasting and more intense aftertaste, which can be linked to enhanced emulsification and aeration processes that concentrate flavor compounds [26]. In contrast, the wet shake method offered superior balance and comfort, likely due to the simultaneous mixing and chilling process that promotes uniform flavor distribution and moderates intensity. While both techniques yielded similar flavor types dominated by sweet and sour notes with minor astringent undertones, the differences in duration, intensity, and comfort underscore the importance of selecting the appropriate preparation method to align with desired sensory outcomes. For practitioners in the beverage industry, these findings provide practical insights for tailoring mocktail preparation techniques to specific consumer preferences—opting for dry shake when aiming for a bold and persistent flavor experience, or wet shake for a smoother and more balanced aftertaste profile. Future research could extend this work by exploring larger sample sizes, diverse beverage formulations, and advanced sensory analysis methods to enhance generalizability and deepen understanding of the relationship between preparation techniques and sensory perception.

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