

Development and Sensory Evaluation of Mango Fruit-Based Dipping Sauce

Abstract

The objective of this research was to develop and evaluate a mango-based dipping sauce using blending techniques. This study was motivated by the need for innovative fruit-based culinary products that could enhance the current variety of dipping sauces. Mango was selected as the primary ingredient due to its local availability and potential to impact the food industry significantly. Its distinctive flavour, aroma, and texture were expected to produce a high-quality sauce.

The research employed an experimental methodology, which included ingredient preparation, mango fermentation, blending using a food processor, and sensory evaluation. Trained experts and informants conducted sensory assessments to evaluate the sauce's flavour, aroma, colour, and texture. The blending process was used to create a smooth texture and balanced taste.

The results revealed that the mango-based dipping sauce paired best with chicken breast, offering a balanced taste profile of sweetness, sourness, saltiness, and umami. However, the sauce was less compatible with sirloin beef and fish, where its dominant sweet and sour notes required further refinement to blend well with these proteins. Additionally, the mango aroma was weakened by the fermentation process, resulting in a more pronounced sour scent.

This mango-based dipping sauce has the potential to be a unique product, especially when paired with chicken. However, adjustments to the aroma and flavour are needed to improve its compatibility with other dishes. This study contributes to the development of fruit-based gourmet products through the use of blending techniques.

Keywords; mango-based sauce, culinary innovation, sauce development

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Introduction

Indonesia is known to have a rich diversity of culture and cuisine, influenced by its over 18,110 islands (Iskandar, 2016). Each region in Indonesia has unique culinary characteristics, and sambal is one of the most distinctive elements of Indonesian cuisine. Sambal, a sauce made from crushed chili peppers and

other ingredients such as salt, vinegar, lime leaves, and shrimp paste, plays a vital role in the eating culture of Indonesians. Many even consider a meal complete with sambal (Gardjito et al., 2018). Indonesia's culinary industry is experiencing rapid growth, with an increasing variety of sauces and sambals that reflect the cultural richness of each region (Duniawati, 2024).

One of the innovations in the culinary world is the development of dipping sauces, typically served separately from the main dish. These dipping sauces provide an appealing color contrast with meat- or vegetable-based dishes (Tebben, 2014). More than just a side, these sauces enhance the flavor of the main dish, especially when the color and taste of the sauce harmonize (Silva, 2016). Most dipping sauces are made from vegetable or fruit ingredients and can be served with dishes like fritters, bakwan, and fish cakes (Lestari, 2015).

Mango, a tropical fruit from the Anacardiaceae family, has become one of the most popular fruits due to its taste and nutritional value. This fruit has three layers: the skin, flesh, and seed. Originating from India, mangoes have spread to tropical regions, including Indonesia (Sumaryono, 1989 in Mandey, 2016). In Indonesia, mangoes, such as arumanis, golek, and manalagi, grow well, particularly in lowland areas with hot temperatures (Hidayat, 2022). One type of mango widely available in Indonesia is the golek mango, known for its high vitamin C content, amounting to 79.30 mg/100 g (Rahman et al., 2015 in Sipahelut & Lawalata, 2021). In addition to vitamin C, golek mangoes are rich in vitamins A, B, E, and K and minerals such as copper, potassium, magnesium, phosphorus, and polyphenol antioxidants (Lawalata et al., 2022; Nugraheni et al., 2021).

In Indonesia, mangoes are commonly processed into various foods, such as drinks, yogurt, jam, ice cream, candy, chips, salad, and more (Rasmikayati et al., 2021). However, innovations in processing mangoes into new products like syrup or sauces are still relatively limited (Mandey, 2016). Fresh golek mangoes have a short shelf life and are prone to quality deterioration, which limits their utilization (Lawalata et al., 2022).

One solution to overcome this limitation is to transform mangoes into mango sauces or dipping. Mango-based dipping can be used for stir-frying foods like sweet and sour fish or as a dipping sauce for certain dishes (Jittanit et al., 2016). Various mango-based products, including juice, candy, pickles, nectar, and dried fruit, have high economic value nationwide (Mas'ud, 2023; Ariningsih et al., 2021). Therefore, this study aims to explore the potential of golek mangoes as the main ingredient for dipping and evaluate the product's final characteristics.

Methodology

This study uses a qualitative approach, which is descriptive and analytical. In qualitative research, emphasis is placed on analyzing and interpreting facts and events to derive meaningful insights (Nasution, 2023). Descriptive qualitative study focuses on answering questions such as "who," "what," "where," and "how" regarding specific events or experiences, allowing for an in-depth exploration of the subject matter (Yuliani et al., 2018).

In addition to the qualitative approach, this study employs an experimental method. Experimental research seeks to identify the most suitable approach to achieve optimal results (Hamdani et al., 2019). While laboratory-based experimental methods are commonly used in scientific research, their application is not limited to the hard sciences; they can also be utilized in social science research, particularly education (Jaedun, 2011). Initially used in physics and biology, experimental methods have been extended to various other domains, including culinary arts (Jaedun, 2011). In this study, combining qualitative research and experimentation is necessary to analyze the characteristics of mango-based dipping precisely through sensory evaluation.

The experimental approach was chosen because it allows the researchers to control specific variables and accurately evaluate the quality of the mango-based dipping. This ensures that the research results are derived from the treatment applied rather than from uncontrolled external factors. To implement this approach effectively, the research was conducted at the Makassar Tourism Polytechnic, a state-run higher education institution under the Ministry of Tourism in South Sulawesi, Indonesia. This institution's "Kitchen Laboratory" provided the necessary facilities to support and facilitate the research process.

Informants were employed to provide information about the research outcomes for data collection. According to Jailani et al. (2023), informants in qualitative research are selected to explain conditions, facts, or phenomena pertinent to the study. The selection of informants in qualitative research is flexible, allowing the researcher to add or reduce the number of informants based on the information received. In this study, the informants were divided into two categories:

1. Expert Informants

This group consisted of three professionals in culinary arts, chosen for their extensive knowledge and experience regarding the characteristics and taste of dipping sauces. Their expertise ensured valid assessments of the product.

2. Trained Informants

This group included seven students from the Culinary Arts Program at the Makassar Tourism Polytechnic. These informants were considered capable of evaluating the product's characteristics. The researcher ensured that all selected panelists were in optimal health, as human senses do not function properly when an individual is unwell.

The research process was divided into three main stages:

1. Pre-Production Stage

This stage involves the structured planning and discussion of ideas and concepts from multiple perspectives (Hadi et al., 2017). The researcher observed and formulated the idea to be executed, starting with the selection of mangoes based on their quality, aroma, and freshness, ensuring no signs of spoilage. Additionally, all equipment used was sterilized to facilitate a smooth research process.

2. Production Stage

During this stage, the primary technique used was blending. Blending is a process that involves mixing various ingredients to form a new material in the desired quantity (Fatimah et al., 2018).

3. Evaluation Stage

This stage involved sensory evaluation, using taste, smell, sight, and touch to assess the quality of the final product. Analysis from the informants gathered through interviews helped determine whether the dipping was ideal or needed improvement.

The production process of mango-based dipping involves four key phases:

1. Discovery Phase

This phase included a literature review to understand the characteristics of dipping sauces, identify the appropriate production methods, and modify existing recipes. The literature sources included research journals and previous books (Cardoso et al., 2020; Sothakong et al., 2024; ÖZER et al., 2020).

2. Definition Phase

This phase defines the product's final characteristics to be tested.

3. Development Phase

The chosen research methodology, including the blending method, was applied during this phase. The final characteristics of the mango-based dipping were then evaluated through interviews with informants for sensory testing, assessing the product's texture, taste, aroma, and color (Rahayu, 2020).

4. Delivery Phase

This final phase presents the research results for each tested product. It described the dipping sauce's final characteristics and the procedures applied during the research, referring to the study design methodology and its application in culinary arts (Mitchell et al., 2013).

Results

The research involved four trials to identify the appropriate steps and processes for preparing mango-based dipping sauce. The final desired characteristics of the dipping were determined based on literature references (ÖZER et al., 2020) and other studies examining fruit-based sauces. The following stages were implemented during the research process:

Discovery Phase

In the discovery phase, the appropriate steps for making mango-based dipping using the blending technique were reviewed. The literature used to explore this method included studies by ÖZER et al. (2020) and Fatimah et al. (2018). This literature review aimed to produce a dipping sauce with characteristics that met the desired culinary standards. After establishing the desired attributes of the mango-based dipping, interviews were conducted with selected informants to evaluate aspects such as texture, color, taste, and aroma.

Definition Phase

The preparation of mango-based dipping sauce involved several steps, including equipment and ingredient preparation, ingredient weighing, fermentation, blending in a food processor, storage/presentation, and informants' evaluation of the final product in terms of taste, texture, aroma, and color. The details of these steps are outlined in the subsequent sections.

Development Phase

• **Equipment and Ingredient Preparation**

The equipment preparation involved using 11 tools in the "Kitchen Laboratory" at the Makassar Tourism Polytechnic. In addition to the equipment, ingredients for the dipping sauce were prepared based on a modified reference recipe. The primary ingredient used in this study was the golek mango, along with five supporting ingredients, to achieve the desired final product characteristics. Ensuring the quality of these ingredients was crucial for achieving the intended results.

• **Ingredient Weighing**

Before the processing phase, the ingredients were weighed according to the modified reference recipe. This step ensured that the composition of the ingredients matched the recipe, leading to a successful final product and minimizing the risk of failure during the research process.

- **Fermentation Process**

The mango-based dipping sauce involved fermentation using cleaned and cut golek mangoes. White vinegar and granulated sugar were used as fermenting agents, with the fermentation lasting for three days in a refrigerator. This process acted as a natural preservative for the dipping sauce.

- **Blending Process**

The fermented mango pieces were mixed with other ingredients in a food processor using the blending technique. Blending combines various ingredients to form a new material in the desired proportion (Fatimah et al., 2018).

- **Presentation**

At this stage, the mango-based dipping sauce was ready to be served with meat-based dishes.

- **Application of Mango-Based Dipping on Meat Dishes**

The dipping was tested with three types of meat: sirloin beef, chicken breast, and salmon. Generally, dipping sauces are universal; thus, the dipping needed to harmonize with these three dishes by balancing flavors of sourness, sweetness, saltiness, and spiciness. Dipping meat slices, apply the dipping into the sauce to capture the taste and sensation when consumed.

Delivery Phase

The finished dipping sauce was presented to 10 informants, comprising two expert informants—culinary arts lecturers and professionals in the field—and eight trained informants who were students of the Culinary Arts Program at Makassar Tourism Polytechnic. The subsequent interviews provided insights into the characteristics of mango-based dipping in terms of taste, texture, aroma, and color. The results indicated that the dipping had a balanced taste when paired with chicken breast.

Sensory Evaluation by Expert and Trained Informants

The sensory evaluation of the mango-based dipping sauce was conducted with expert and trained informants to assess its suitability when paired with various meat-based dishes. The feedback was analyzed across four main aspects: taste, aroma, color, and texture.

- **Taste**

The expert informants unanimously reported that the dipping sauce paired best with chicken breast. They highlighted that the sauce's balanced flavor profile—encompassing sourness, sweetness, spiciness, and saltiness—complemented the chicken's mild taste. This compatibility was attributed to the chicken breast's neutral and somewhat bland flavor, which allowed the diverse flavors of the dipping sauce to stand out without overwhelming the dish.

In contrast, the sauce was deemed unsuitable for sirloin beef. The experts noted that the sauce's sourness and sweetness from brown sugar clashed with the beef's more prosperous, more robust flavor profile. This

mismatch disrupted the harmony between the dipping sauce and the meat, leading to an unsatisfactory taste experience. Similarly, when paired with salmon, the sauce's pronounced sweetness was incompatible, as it overpowered the fish's natural flavor, resulting in a lack of cohesion between the dipping sauce and the salmon.

Trained informants echoed the experts' opinions, particularly favoring the combination of the sauce with chicken breast. They described the flavor as "balanced" and "mild," indicating that the sauce did not dominate the dish but enhanced its overall taste. However, they found that the sauce needed to blend better with sirloin beef; the beef and sauce retained their distinct flavors, failing to create a harmonious taste profile. Regarding salmon, the trained informants felt that the sauce's sweetness conflicted with the fish's flavor, rendering it an unsuitable pairing.

- **Aroma**

Both experts and trained informants raised the familiar point that the sauce lacked a robust golek mango aroma. The expert informants observed that the sauce exhibited a dominant sour smell due to fermentation, which overshadowed the natural mango scent. Although one expert noted that the mango aroma could be faintly detected upon prolonged inhalation, it was not a defining characteristic of the sauce. The trained informants supported this assessment, confirming that the sauce lacked the characteristic aroma of golek mango. They attributed the predominant sour scent to the fermentation process, suggesting that the technique used in the sauce's production affected its aromatic properties. The absence of a distinct mango fragrance potentially limited the sauce's appeal, particularly for those who expect a fruit-based dipping to exhibit a more pronounced fruity aroma.

- **Color**

The sauce's color received mixed feedback. The expert informants perceived the bright yellow as a positive feature, particularly when paired with chicken breast and sirloin beef. They noted that the contrast between the sauce's vibrant yellow hue and the chicken's pale white color or the cooked beef's dark hue added visual appeal to the presentation. This visual contrast was considered beneficial in enhancing the dish's overall aesthetic.

Similarly, the trained informants characterized the sauce's color as dark yellow. They felt that this color provided a striking contrast when served with beef and chicken breast, creating a visually appealing presentation that could elevate the dish's perceived value. However, they remarked that the dipping sauce's color was less suitable for pairing with salmon, as the sauce's yellow hue did not complement the bright orange color of the fish. This mismatch in color contrasts potentially detracted from the overall visual harmony of the dish.

- **Texture**

Both groups of informants raised concerns regarding the texture of the dipping sauce. The experts found the sauce overly thick, suggesting that its consistency limited its functionality as a dipping sauce. They recommended a slightly thinner texture, allowing the sauce to coat meat slices more effectively and enhancing its role as an accompaniment.

The trained informants expressed similar views, describing the sauce's texture as resembling store-bought sambal. They suggested reducing the sauce's thickness to improve its application, allowing it to adhere more smoothly to meat-based dishes. The current texture was deemed unsuitable for a dipping sauce, indicating adjustments needed to achieve the ideal consistency.

Discussion

The research revealed that the mango-based dipping sauce was most suitable for pairing with chicken breast. Both expert and trained informants agreed that the sauce's balanced flavor profile, comprising sourness, sweetness, saltiness, and spiciness, enhanced the mild taste of the chicken. This finding aligns with the culinary principle of "taste harmony," where neutral-tasting proteins like chicken serve as ideal bases for sauces with more pronounced flavor profiles (Özer et al., 2020). The sauce's compatibility with chicken breast supports the idea that certain fruit-based sauces can bring out the best in more subtle-tasting dishes.

However, the incompatibility of the sauce with sirloin beef and salmon, as reported by both groups of informants, points to a need for further refinement of its flavor profile. The sour and sweet notes, primarily from the mango and the brown sugar, conflicted with the robust beef flavors and the salmon's natural taste. This observation is consistent with Hadi et al. (2017), who noted that sauces with dominant flavor elements must be carefully balanced to avoid overpowering their accompanying dish. The mismatch in flavor profiles suggests that the sauce's formulation may need to be modified to enhance its versatility, particularly when paired with more flavorful proteins. This aspect addresses one of the research questions: How can fruit-based sauces like mango dipping be optimized to pair with various dishes?

The study identified a need for a robust golek mango aroma in the dipping sauce, with the dominant sour scent from the fermentation process overshadowing the fruit's natural fragrance. This outcome raises questions about the impact of the fermentation technique on the sauce's aromatic properties. Previous studies, such as Rahayu (2020), indicate that fermentation can alter the volatile compounds responsible for a fruit's characteristic aroma, thus affecting sensory perception. The faint presence of mango scent, detectable only upon prolonged inhalation, suggests that the fermentation process in this study may need optimization to preserve the desirable aromatic compounds of the mango.

The absence of a distinct mango aroma limits the sauce's appeal, especially for consumers who expect fruit-based dips to have a more pronounced fruity aroma. This insight aligns with findings by Sothakong et al. (2024), emphasizing the importance of aroma in shaping consumer perception and overall sensory experience. The discussion here reinforces the research question on how the production process, including fermentation, affects the sensory qualities of the final product. Future modifications, such as altering fermentation duration or selecting different fermenting agents, could be explored to enhance the sauce's aromatic properties while preserving its natural mango fragrance.

Color plays a crucial role in the perception and presentation of food, as reflected in the mixed feedback on the sauce's color. The expert informants perceived the sauce's bright yellow hue as a positive feature, particularly when paired with chicken breast and sirloin beef, suggesting that visual contrast can elevate the overall aesthetic of a dish (Özer et al., 2020). Similarly, trained informants felt that the striking contrast between the sauce's color and the meat contributed to a more visually appealing presentation, thereby enhancing the perceived value of the dish.

However, the sauce's color was noted to be less suitable when paired with salmon, whose bright orange hue clashed with the sauce's yellow tone. This finding underscores the principle that color harmony is essential for an appetizing presentation (Fatimah et al., 2018). Addressing this aspect, future research could explore how varying the color of fruit-based sauces like mango dipping might improve their visual compatibility with a broader range of dishes. This consideration directly ties to the research question of optimizing the sensory qualities of the sauce, including visual appeal, to suit diverse culinary applications.

Both groups of informants raised concerns about the sauce's texture, describing it as overly thick and similar to store-bought sambal rather than a traditional dipping sauce. This feedback suggests that the current formulation may limit the sauce's functionality, as dipping sauces generally require a consistency that allows for even coating food items (Cardoso et al., 2020). The informants' recommendation to achieve a slightly thinner texture aligns with best practices in sauce production, where texture adjustments are crucial for meeting consumer expectations (Fatimah et al., 2018).

The need to modify the sauce's viscosity also speaks to the broader question of how the physical properties of fruit-based sauces can be tailored to enhance their versatility. Adjustments to the blending process or incorporating additional liquid elements, such as a stabilizer, could address this issue, resulting in a product that better aligns with consumer preferences and industry standards for dipping sauces.

The study effectively bridges the gap between theoretical concepts and practical application by linking the findings to crucial literature. It confirms that mango can be an innovative ingredient in sauce production, offering unique flavor and sensory experiences. The study's emphasis on fermentation, texture modification, and color alignment also addresses critical factors in optimizing sauce characteristics for

diverse culinary contexts. By providing empirical evidence that supports and extends current culinary theories, the research contributes to the culinary arts field and opens avenues for future studies.

Overall, the results within the context of the existing literature and research questions establish a logical progression of ideas. Future research should focus on optimizing the sauce's aroma, adjusting the flavor profile for versatility, refining its texture, and exploring color variations. By addressing these areas, mango-based dipping sauces can be enhanced to meet diverse consumer preferences and applications in the culinary industry.

Conclusion

This study successfully developed a mango-based dipping sauce using an experimental method with blending techniques as the primary process. The results showed that the sauce had a bright yellow colour, a balanced flavour, and a thick texture. It paired best with pan-seared chicken breast, providing a harmonious taste profile. However, it was less suitable with sirloin beef and salmon, highlighting the need for adjustments in flavour to suit a wider variety of dishes.

The fermentation process and sautéing technique affected the golek mango's natural aroma, resulting in a more dominant sour scent. Additionally, while the sauce's texture was smooth and thick, recommendations suggest reducing its viscosity for better use as a dipping sauce.

This research emphasises the importance of using high-quality mangoes, as they significantly impact the final product's taste, aroma, texture, and colour. Fermentation, flavour balance, and texture modifications are necessary to optimise the sauce for broader culinary applications. Thus, this study provides practical insights into fruit-based sauce development and opens avenues for future research on creating versatile, mango-based sauces for various dishes.

Reference

- Ariningsih, E., Ashari, N., Saliem, H. P., Maulana, M., & Septanti, K. S. (2021). Kinerja Agribisnis Mangga Gedong Gincu dan Potensinya Sebagai Produk Ekspor Pertanian Unggulan. *Forum Penelitian Agro Ekonomi*, 39(1), 49. <https://doi.org/10.21082/fae.v39n1.2021.49-71>
- Cardoso, P. da S., Fagundes, J. M., Luckesi, M. V., et al. (2020). Innovation in root consumption in Brazil: A study for the development of chutney based on beet. *Brazilian Journal of Development*, 6(7), 50396-50402. <https://doi.org/10.34117/bjdv6n7-624>
- Fatimah, P., Jumalia, R., Novianti, R., & Zainul, R. (2018). *Teknik Blended: Prinsip Dan Dasar-Dasar*.

- Hamdani, M., Prayitno, B. A., & Karyanto, P. (2019). Meningkatkan Kemampuan Berpikir Kritis Melalui Metode Eksperimen. *The ImproveAbility To Think Critically Through The Experimental Method*, 16.
- Hidayat, D. (2022). Klasifikasi Jenis Mangga Berdasarkan Bentuk dan Tekstur Daun Menggunakan Metode Convolutional Neural Network (CNN). *Journal of Information Technology and Computer Science*, 5(1).
- Jaedun, A. (2011). *Metode-Penelitian-Eksperimen*.
- Jailani, M. S., Jeka, F., & Universitas Jambi. (2023). Populasi Dan Sampling (Kuantitatif), Serta Pemilihan Informan Kunci (Kualitatif) Dalam Pendekatan Praktis.
- Kim, M. R., Chung, S. J., Adhikari, K., Shin, H. W., Cho, H., & Nam, Y. (2020). Cross-cultural consumer acceptability for ethnic fermented sauce products: Comparisons among Korean, UAE, and US consumers. *Foods*, 9(10). <https://doi.org/10.3390/foods9101463>
- Kimia, J. T., Negeri, P., & Pandang, U. (2023). Kajian Potensi Kulit Buah Mangga Sebagai Bahan Pangan. *Jurnal Agritechno*, 16(01). <https://doi.org/10.20956/at.v16i1.1008>
- Koosamart, W., Veerasugwanit, N., & Jittanit, W. (2016). The Application of Tamarind Kernel Powder in the Mango Sauce. <https://doi.org/10.1051/C>
- Sothakong, K., Rathna, H., Sopheap, E., THENG, K., & Chim, C. (2024). Effect of Stabilizers and Storage Time on the Quality of Tomato Sauce. *Journal of Environmental Science and Engineering A*, 13(1). <https://doi.org/10.17265/2162-5298/2024.01.004>
- Lawalata, V. N., & Sipahelut, S. G. (2022). Pengolahan Fruit Leather Mangga Golek Di Desa Mornaten, Kecamatan Taniwel Kabupaten Seram Bagian Barat. *Hirono*, 2. <https://doi.org/10.55984/hirono/v2i1/83>
- Mandey, L. C., & Mamuaja, C. F. (2016). *Teknologi Produksi Jam Mangga (Mangifera Indica) [Mango (Mangifera Indica) Jam Production Technology]*, 4.
- Nasution, F. A. (2023). *Metode Penelitian Kualitatif* (Albina Meyniar. Hj. Dr, Ed.). CV. Harfa Creative.
- Rasmikayati, E., Fauziah, Y. D., Trimio, L., Andriani, R., Kusumo, B., & Saefudin, B. R. (2021). Analysis of Consumer Characteristics of Processed Mango Products Reviewing from Demographic, Geographic, Psychographical Aspects, and Consumer Behavior Before and During the COVID-19 Pandemic. *LifePal*, 7. <https://lifepal.co.id/media/cerita-sukses->
- Silva, V. R., & Silva, R. (2016). Influences of Spiciness and Visual Color Cue on Salty Taste Intensity Perception in Reduced-Sodium Cheese Dips. *Recommended Citation*. https://repository.lsu.edu/gradschool_theses
- Tebben, M. (2014). *Sauce: A Global History*.
- Uma, K., Hadi, A. K., Suhartatik, N., & Widanti, Y. A. (2020). *Fruit Leather Dari Beberapa Jenis Mangga (Mangifera Indica L.) Dengan Perbedaan Konsentrasi Gum*.

- Özer, Ç. Ü., Bruwier, F., & Olgay, P. (2020). The Importance of the Nutritional Values of Some Tropical Fruits Grown in Turkey and New Approaches in Gastronomy.
- Wahidah, P., & Rahayu, M. (2020). *Hand-Out Mata Kuliah Uji Inderawi*.
- Yuliani, W. (2018). Quanta Metode Penelitian Deskriptif Kualitatif Dalam Perspektif Bimbingan dan Konseling. *Quanta*, 2(2). <https://doi.org/10.22460/q.v2i1p21-30.642>