

## ANALYSIS OF GEN Z'S INTEREST IN GELATIN GRAMMAGE VARIATIONS ON THE TEXTURE OF JAPANESE PURIN

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### Abstrak

#### Keywords:

Gelatin,  
Pudding,  
Grammage,  
Texture,  
Survey

*This study aims to analyze the effect of gelatin weight variation on the texture, stability, and level of consumer preference among Generation Z for purin (Japanese pudding) products. Three gelatin formulations were tested: 7 grams, 9 grams, and 12 grams. The research method was conducted by testing 20 Gen-Z respondents, with the assessment level based on the texture of the pudding produced during a 5-hour cooling period. The results of this study will be a data-based assessment of the gelatin dosage that will affect the density of the Japanese pudding texture and a survey assessment from the respondents. It also confirms how gelatin works as the final result of the pudding texture. This study aims to analyze the effect of gelatin weight variations on the texture, stability, and level of Generation Z consumer preference for purin (Japanese pudding) products. Three gelatin formulations were tested: 7 grams, 9 grams, and 12 grams. The research method was conducted through testing 20 Gen-Z respondents, with assessment levels based on the texture of the pudding produced during a 5-hour cooling period. The results of this study will be a data-based assessment of the gelatin dosage that affects the density of Japanese pudding texture and the assessment survey of respondents. It also confirms how gelatin works on the texture of the pudding as the final result of the pudding texture.*

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### INTRODUCION

Japanese pudding (purin) has its roots in Western influences introduced during the Meiji Era (1868–1912). As Japan opened to international exchange, Western-style pastries became increasingly popular. The concepts of custard and pudding were



adopted and adapted to local ingredients and Japanese preferences. Over time, purin evolved from an imported foreign dessert into an iconic Japanese confection. (Rayne, L, 2025)

Purin, one of Japan's signature desserts, has become an important part of modern society. According to Namiko Hirasawa Chen (February 19, 2025), Purin (Japanese Custard Pudding) プリン is a custard-based dessert made from eggs, milk, and sugar. Essentially, it is the Japanese version of crème caramel, also known as flan, custard pudding, or caramel pudding. Japanese purin resembles the custard portion of crème brûlée, but with a softer, melt-in-the-mouth texture. Purin can be found in bakeries, cake shops, supermarkets, and convenience stores throughout Japan, and there are many variations to choose from.

In this study, the original purin recipe was slightly modified by adding gelatin commonly used as a stabilizer to maintain firmness and texture. The gelatin dosage was adjusted in proportion to other ingredients without altering the taste.

Gelatin is a product derived from the breakdown of long-chain proteins called collagen. Gelatin produced through collagen hydrolysis contains high levels of protein. The protein content of gelatin may be influenced by the concentration of acid or base used during demineralization and soaking processes (Farmasetika & Review, 2021). Gelatin consists of polypeptide molecules derived from collagen, the primary structural protein in animal tissues (skin and bones). Gelatin is widely used in industry as an additive functioning as a stabilizer and emulsifier, helping to create and maintain emulsion systems. Industries that use gelatin include food, pharmaceutical, cosmetics, and photography (Zumarni, 2016).

Gelatin is a natural product obtained from partial hydrolysis of collagen. It is a soluble protein that may function either as a gelling agent or a non-gelling agent. Gelatin can be sourced from cows (bones and hide), pigs (skin only), and fish (skin). Because it is a natural product, gelatin is classified as a food ingredient rather than a food additive (Dewi Hastuti & Iriane Sumpe, 2007).

This research aims to analyze specific features of Japanese purin pudding, describe the production steps, and document experimental results involving variations in gelatin gram weight as a texture stabilizer. It is expected that this study will provide a comprehensive understanding of food technology aspects and cultural factors contributing to the increasing popularity and acceptance of purin in the market.

The primary goal of this paper is to study and understand the characteristics of Japanese purin pudding, a popular and growing dessert in Japanese culinary culture. The specific objectives include:

1. Reviewing the history of Japanese purin, including its origins and cultural influences
2. Identifying the main ingredients of Japanese purin and its physical characteristics such as texture, flavor, and gel structure.
3. Explaining the gelatinization or gel formation process during purin preparation; and
4. Analyzing Gen Z's interest in the experimental results of gelatin gram variations in Japanese purin making.

## LITERATURE REVIEW

### 1. *Quantitative Descriptive Survey Research Method*

According to Sugiyono (2023), quantitative research is an approach grounded in positivism, used to study a particular population or sample by collecting data using

research instruments and analyzing it quantitatively/statistically. Quantitative descriptive research aims to systematically and factually describe conditions, characteristics, or variables based on field data. This study employs a quantitative descriptive survey method. A structured questionnaire was given to 20 respondents to collect data. The purpose of the survey is to determine Gen Z's interest and preferences regarding variations of purin products. After tasting the samples, respondents completed a questionnaire to identify the most preferred product attributes among the samples.

## 2. *History of Purin*

The word purin comes from the English word “pudding.” The English pudding that inspired Japanese purin was first made around the late 1500s during the Age of Exploration, when leftover ship bread crumbs were mixed with flour, lard, and eggs, then steamed. Over time, bread and fruit were added, and sweet custard pudding developed, which was thickened only with liquid eggs (Otani, 2008). Purin was first introduced by Europeans in the late Edo period to early Meiji period. Initially, it was served in European-style hotels for special guests. However, in the 1960s, it began to be mass-produced and sold in supermarkets, kiosks, and convenience stores in Japan (Aryani, 2025).

Purin is the Japanese version of a dessert known as crème caramel or flan pudding. Essentially, Japanese purin is a custard-based dessert topped with caramel sauce. The custard is steamed or baked, and sometimes thickened using gelatin (Essa, 2025).

Since the Meiji period, purin has been a popular café dessert across Japan, alongside treats such as coffee jelly. During the post-war economic boom, purin became one of the most popular packaged desserts and was mass-produced (BentoYa Cooking, 2020). Purin Day is commemorated and celebrated on the 25th of every month. This tradition was initiated by Ohayo Dairy Products Co., Ltd and began in 2010 (Aryani, 2025).

## 3. *Tools and Ingredients*

The tools used to make Japanese purin include: digital scales, bowl/container, spoon and balloon whisk, measuring cup (for measuring liquid volume), saucepan, and pudding cups/molds. The ingredients used in Japanese pudding include: 7 grams gelatin, 2 tbsp water, 300 ml fresh milk, 50 grams sugar, 1 egg yolk, and 1 whole egg (recipe source: sudachirecipes.com, developed and created by Sudachi and author of “Japan: The Ultimate Cookbook”).

## METHOD

Pudding is a type of food made from starch, processed by boiling, steaming, or baking, producing a gel with a soft texture (Rantika et al., 2020). Starch-based pudding may include agar, gums, seaweed carrageenan, flour, or processed products such as bread and cake. While purin normally uses only milk and eggs as main ingredients, this experiment uses gelatin as a thickener in three different proportions: 7 grams, 9 grams, and 12 grams. Gelatin is derived from animal fat and functions as a stabilizer and thickener for food mixtures such as desserts. Besides thickening and stabilizing, gelatin also influences food texture by maintaining shape and enhancing appearance. Gelatin contributes to a clean visual structure, giving purin a firm, professional look for consumers. The production process follows these steps:

1. Prepare all tools.
2. Blooming gelatin: dissolve 7 grams of gelatin in water (2 tbsp), then let it sit for 5–10 minutes until it expands.

3. Heating the base mixture: add fresh milk and sugar to a saucepan, heat over low flame until lukewarm and lightly foamy. Stop heating once the sugar is completely dissolved.
4. Incorporating gelatin: after turning off the heat, add the bloomed gelatin into the warm milk mixture. Whisk until the gelatin melts and spreads evenly.

### 1. Chemical Reaction in Gelatin

Gelatin is a thickening agent typically made from animal fat, skin, bones, and connective tissue. Its ability to absorb water 5–10 times its weight and form a gel that can be remelted makes it ideal for many applications. Its complex molecular structure gives it unique characteristics such as strength and stability, derived from amino acids like proline or hydroxyproline, and flexibility from glycine (Sahgal, 2024). Skin protein consists of collagen, keratin, elastin, albumin, globulin, and mucin. Albumin, globulin, and mucin dissolve in salt solutions, while collagen, keratin, and elastin do not dissolve in water or organic solvents. Collagen is the protein that reacts to form gelatin. Gelatin has the molecular formula  $C_{102}H_{151}N_{31}O_{39}$  and is composed of multiple amino acids. At least 18 amino acids form gelatin, including alanine, phenylalanine, isoleucine, methionine, and others (Suhenny et al., 2015).

### 2. How Gelatin Works

Gelatin works in pudding batter by absorbing liquid when heated and forming cross-linked bonds as it cools, creating a firm, chewy, and soft pudding texture. When gelatin is mixed into hot liquid batter, gelatin molecules dissolve and spread evenly. As the temperature drops, these molecules cross-link to form a gel network that traps water and other ingredients, producing a stable and chewy texture (NCSA, 2025).

## RESULT AND DISCUSSION

In the original formulation, 7 grams of gelatin produces a soft, chewy pudding that melts easily in the mouth. The variation in gelatin amounts (7g, 9g, and 12g) created different texture and visual characteristics.

### Sample A (7 grams gelatin)



- a. **Time analysis:** 20 minutes after being left at room temperature
- b. **Texture analysis:** After chilling for 3–4 hours to ensure the pudding set, the 7g gelatin formulation resulted in a pudding that was firm but still slightly liquid, with a watery and jiggly impression. It was soft and closely resembled the original Japanese purin texture. When scooped, it felt light and easily broke apart but provided a creamy sensation in the mouth. In terms of taste, the sweet and savory milk flavor was more prominent because the soft texture allowed flavor to spread evenly. However, this formulation had a weakness: the structure was not stable. When stored at room temperature (around 27°C, typical of Bekasi conditions), within  $\pm 20$  minutes the pudding began to melt and turned into a liquid resembling

milk.

### Sample B (9 grams gelatin)



- a. **Time analysis:** 30 minutes after being left at room temperature
- b. **Texture analysis:** Using 9 grams of gelatin produced a firmer texture compared to 7 grams. The balance between softness and firmness was more ideal. The pudding maintained shape consistency without losing its softness, remained smooth and chewy, and gave a texture sensation similar to *bubur sumsum* when eaten. The elasticity level remained light and aligned with Japanese purin characteristics. Sweetness and creamy taste were still balanced without a dominant gelatin flavor. However, when cut, the pudding's structure appeared less smooth than the 7g formulation. Its resistance to room temperature was better lasting  $\pm 30$  minutes before melting into a more liquid texture.

### Sample C (12 grams gelatin)

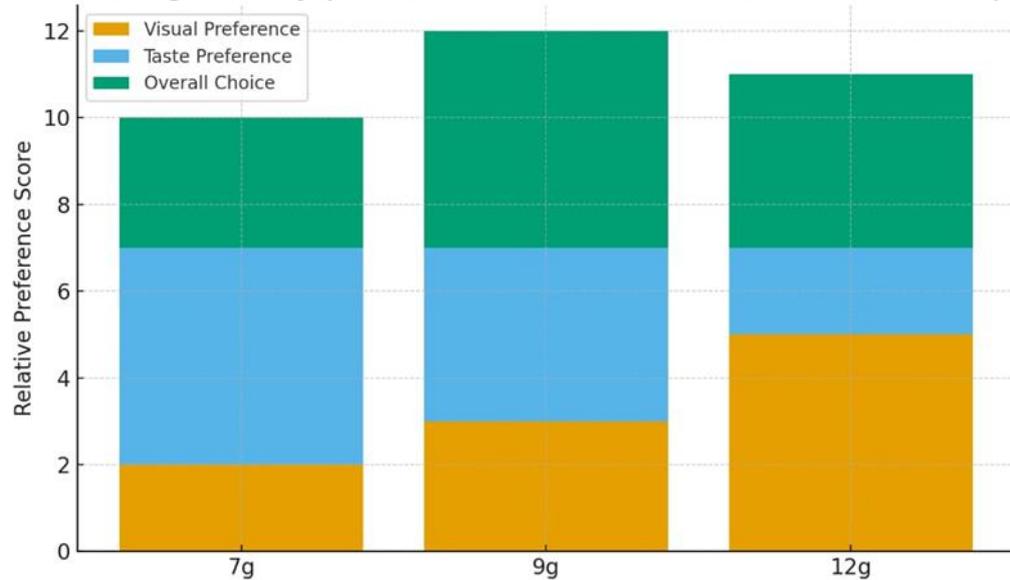


- a. **Time analysis:** 50 minutes after being left at room temperature
- b. **Texture analysis:** Adding 12 grams of gelatin produced the most firm and chewy texture and was significantly sturdier than the 7g and 9g versions. It felt stiffer when scooped. The signature softness of Japanese purin decreased. Nevertheless, it remained chewy and easy to consume without requiring extra effort. When eaten, it still provided a melt-in-the-mouth sensation. In taste evaluation, the gelatin flavor was more dominant compared to milk and egg flavors. Its resistance at room temperature reached  $\pm 50$  minutes, longer than the other formulations.

Thus, differences in gelatin gram weight, while using the same ingredients and processing techniques, affected pudding texture characteristics and room-temperature stability under Bekasi environmental conditions. Based on the survey, Gen Z respondents were familiar with Japanese purin texture characteristics. Visually, respondents were more attracted to the 12g gelatin purin due to its firmer appearance, chewiness, and thicker consistency. Meanwhile, in terms of taste, the 7g gelatin purin also had many fans due to its soft melting sensation, although some respondents felt it was too similar to baby porridge.

However, if this Japanese purin product were marketed to Gen Z consumers, most respondents stated they would choose the 9g gelatin formulation. This is because its texture was considered the most ideal neither too runny nor too firm making it more acceptable for consumers unfamiliar with Japanese purin.

Preference Diagram for Japanese Purin Gelatin Formulations (Gen Z Respondents)



## CONCLUSIONS

The variation in gelatin gram weight in Japanese purin demonstrates a significant correlation with texture characteristics, visual appearance, and product stability at room temperature ( $\pm 27^{\circ}\text{C}$ ). The 7g gelatin formulation produces a very soft, watery, and jiggly texture, but has the lowest stability, melting after approximately  $\pm 20$  minutes at room temperature. In contrast, using 12g gelatin produces the firmest texture and offers the best stability, lasting up to  $\pm 50$  minutes, while still providing a melt-in-the-mouth sensation. Survey results from Gen Z consumers showed that the 12g variant had the highest visual appeal due to its firmer and chewier appearance. Meanwhile, the 7g variant was preferred by some for its unique melting texture. However, in purchasing decision contexts, respondents tended to choose the 9g gelatin formulation because it was perceived as having the most balanced ideal texture not too runny nor too dense and was easier to accept by consumers unfamiliar with Japanese purin.

Based on these results, the 9g gelatin formulation is recommended as the main product for commercialization strategy due to its broader market acceptance potential. The 7g variant may be positioned as a niche product with extreme melt-in-the-mouth texture, while the 12g variant can be used as visual appeal for promotion and branding. Furthermore, additional modifications are needed to improve room-temperature stability, especially for the 9g formulation, to support distribution and maintain product quality during sales.

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