



Compliance in the Implementation of Cooking Procedures to Obtain “Rawon” Soup Meat with a Consistent Taste. Case Study: use of Kluwak

Tarsisius Dwi Wibawa Budianta^{1*}, Thomas Indarto Putut Suseno¹, and Anita Maya Sutedja¹

¹ Widya Mandala Catholic University Surabaya, Jl Dinoyo 42-44 Surabaya 60265, Indonesia

*tdwiwibawabudianta@ukwms.ac.id

Abstract. Rawon is a beef soup that has a distinctive and unique taste. Rawon consumers typically request a consistent taste. To achieve a consistent taste, the procedure for preparing and processing is standardized and must be followed by food processors. The main procedure for processing rawon is typically divided into two main groups: preparing raw materials according to the recipe and applying processing methods. In the study, the preparation of raw materials according to the recipe will be studied. This study was conducted to determine the implementation of the kluwak use procedure by comparing the differences in concentration of kluwak use. There were 3 levels of concentration, 2 treatments with codes H and L, one of which was the standard treatment S. Taste testing was carried out by 29 panelists who were the same as in the previous study, by providing an assessment using the scoring method, with a score of 1-7. The purpose of the assessment was to determine whether the treatment was preferred or disliked compared to the standard. The result data were tested using analysis of variance with a single factor and an alpha level of 5%. The result obtained was that H was preferred over L, while treatments H and S were equally preferred. From this study, it was concluded that non-compliance with standards does not always cause differences in consumer acceptance. With a higher preference value, it can even be categorized as an innovation.

Keywords: rawon, compliance, cooking procedure, consistent taste.

1 Introduction

Rawon is a meat soup or meat broth with a blackish color that can be consumed at any time, whether in the morning, afternoon, or evening, with a wide range of consumers, including children, youth, adults, and the elderly. Rawon is a typical East Javanese food that is side by side with various foods consumed by the local community, including rujak cingur, tahu campur, satay, and fried rice, in addition to other foods. Each food has its characteristics that are certainly not right when compared. The existence of rawon as a main menu food in society cannot be denied. Various information about

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L. Animatul Chisbiyah and S. Zahro (eds.), *Proceedings of the International Conference on Innovation in Food Science, Culinary Art, and Fashion Technology (INNOFATEC 2025)*, Advances in Social Science, Education and Humanities Research 973,

https://doi.org/10.2991/978-94-6463-908-7_4

rawon has been spread in multiple media, websites, and blogs, starting from its existence, recipe ingredients, how to make it, and some even present its nutritional value. The types of rawon discussed in the media vary depending on the name. The naming of rawon can be based on the type of main ingredient, namely beef rawon, chicken rawon, iga rawon, and others; it can also be based on the origin or place where it is served, for example rawon nguling, rawon malang, rawon jalan gajah mada; it can also be based on the maker, for example rawon Pak Pangat, Mbak Yati, and others. Giving the right name is a branding that sticks in the minds of users, so that it has an impact on marketing success. Each of these names shows the characteristics of rawon that differentiate one from the others [1]. From the tasteatlas ranking of rawon (black beef soup) out of 100 delicious dishes in the world, rawon is ranked 8th. Rawon has higher position than pempek and rendang. (<https://www.tasteatlas.com/best/dishes?ref=main-menu>) [2]. From the observation of the making and serving of rawon at the Mbak Pai Canteen on Jl Mojopahit and the stall of Mbak Yati Baratajaya to find out the characteristics of the raw materials, it is known that the main rawon ingredients are beef and broth, with the main characteristic spices being kluwek, keluwak, keluak or kluwak (*Pangium edule* Reinw) as conveyed by Murdijati-Gardjito[3], plus turmeric, galangal, lemongrass stalks, kaffir lime leaves, candlenuts, coriander, pepper, shallots, garlic, salt, and sugar. Likewise, for observations of the process characteristics, it is known that the process of making rawon begins with preparing the meat and broth, preparing the spices, sautéing the spices, mixing the spices with the broth, and cooking. The stages of the processing process and the amount of ingredient composition are very dependent on how much rawon will be served. If the serving is large, the processing time will be longer, and the amount of ingredients provided will also be greater, so a model of "cooking" conceptualizations is needed, as conveyed by Kyutoku [4] and Minami [5]. This research aimed to determine the effect of using various concentrations of kluwak on the panelists' level of preference for the color and the taste of rawon.

2 Method

The research method involves the steps of observation, application, and confirmation. The researcher carried out the observation step, who positioned himself as a consumer who regularly visited the rawon stall vendor at Pak "P", rawon in Surabaya, for 3 consecutive visits in 2 days during a week. Observations included observations of rawon sauce (color, aroma, and volume per serving) and observations of presentation to consumers (basic completeness of rawon rice). Observations were also carried out to review processing procedures, recipes, materials, and literature related to rawon processing. The implementation or application step is the application of the recipe [6] using a fixed cooking procedure, including the treatment of ingredients and process conditions, with a repetition cycle of 3 times. repetitions are carried out at intervals of 1 week. The confirmation step is a step to obtain panelist responses through organoleptic tests of preferences for rawon sauce that has been made at the application stage, to obtain confirmation of preferences for rawon sauce that uses different amounts of keluwak according to the treatment. The initial number of panelists in the confirmation stage

was 29 people to test the color and taste of the rawon soup. In the subsequent testing, 10 people were selected based on their ability to distinguish the color and taste of the rawon soup. In the confirmation stage, sensory test data were analyzed using a one-factor completely randomized design. The results of this confirmation test will be used as the basis for determining the cooking procedure that produces a consistent taste. In the confirmation step, objective testing of the color of the rawon soup was also carried out using a color reader. As stated that visual attractiveness depends on colorfulness and color contrasts [7], this also applies to rawon soup.

2.1 Observation

Based on observations, the ingredients (Fig. 1.) used for serving as needed were 200 g red chilies (*Capsicum annuum*), 150 g galangal (*Alpinia galanga*), 150 g turmeric (*Curcuma longa*), 150 g lemongrass (*Cymbopogon nardus*), 100 g ginger (*Zingiber officinale*), 150 g shallots (*Allium cepa*), 150 g garlic (*Allium sativum*), 300 g cooking oil, 2 kg of sweetener, 3 kg of meat, 30 g of granulated sugar, 5 g of salt, and 100 g of kluwak (*Pangium edule*), to make 9 liters of rawon broth. The requirements for the kluwak used are that the seed flesh in the kluwak has been fermented, is black, does not taste bitter, and does not grow mold.



Fig. 1. Some of the ingredients for rawon soup

2.2 Implementation

During the implementation, the things that were done were planning and recording the activities carried out in a checklist, starting from preparing ingredients according to the recipe (kluwak, spices, meat, salt and sugar), preparing tools (cutting, cooking, serving, volume measuring tools, weighing tools), cooking procedures (temperature and time control), and paying attention to the provisions of Good Manufacturing Practices (CPPOB)[8]. The work procedure involves preparing the spices to make the sauce and mixing other ingredients in a single container with a total volume of 7 liters (Fig. 2.). From this one container, the ingredients were divided unequally into three parts (L: 2800 ml, S: 2400 ml, H: 1800 ml). Next, 100 g of kluwak solution was prepared by dissolving 100 g of kluwak in 200 ml of hot water and then adding it to 2 L. The 2 L kluwak solution was then divided into three parts: 200 ml for treatment L (low concentration), 600 ml for treatment S (standard concentration), and 1200 ml for treatment H

(high concentration). Each solution was added to a container of soup containing 3 liters. Then, the meat was added and heated for 45 minutes, until it was cooked. Rawon soup was served for testing.

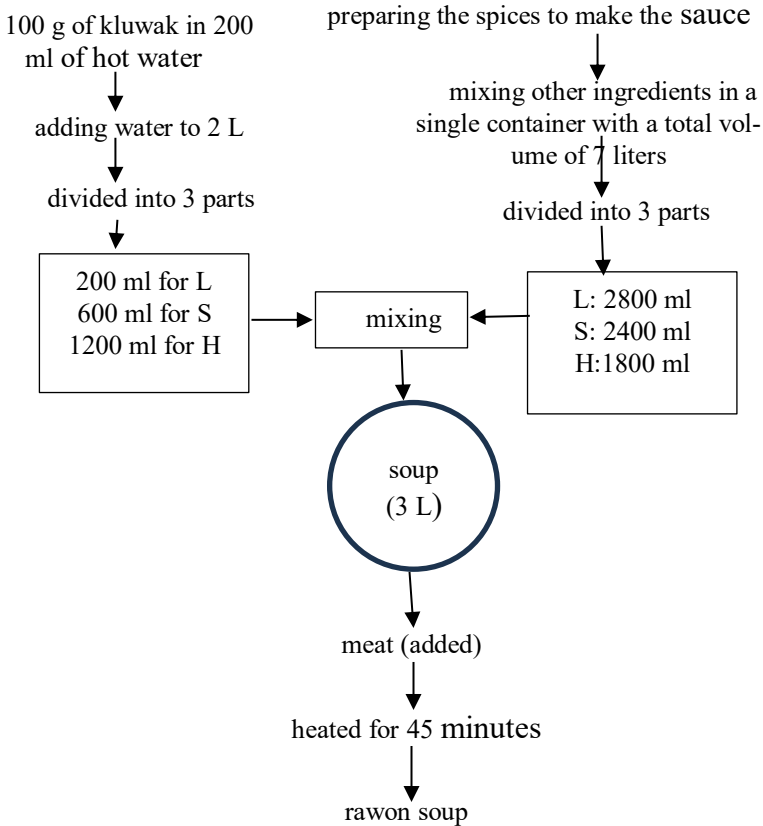


Fig. 2. Cooking procedure

2.3 Confirmation

The test conducted was an objective color test using a Minolta color reader to determine L, a, b, c, and H [9]. The procedure involved taking 50 mL of broth samples from each treatment, then filtering them using a filter cloth, placing the samples in a color analysis glass, and covering them with a glass cover. This was followed by reading the samples using a Color reader. The reading was replicated 3 times. Preferences for the color and taste of the broth were assessed by completing a questionnaire [10], using a 1-7 preference scale. A preference rating scale 1(dislike very much), 2(dislike moderately), 3(dislike slightly), 4(neither like nor dislike), 5(like slightly), 6(like moderately), and 7(like

very much). A total of 29 semi-trained panelists, consisting of students, staff, and lecturers from the Faculty of Agricultural Technology, Widya Mandala Catholic University, Surabaya, participated. Color and taste preference were also tested on rawon served as a complete dish or a complete serving. For the full dish, in addition to the rawon soup, white rice, salted egg, fried tempeh, “kerupuk uyel” crackers, bean sprouts, sambal, and fried shallots were added, according to each panelist’s preference. The data were analyzed using a single-factor ANOVA with a 5% alpha level in Minitab 17. If there is a significant difference from the ANOVA test, then continue using the Post Hoc test using Tukey. Data were presented in tables and coded for significantly different results. To test compliance with standard procedures, a taste preference test was conducted with 10 panelists, and the results were presented descriptively in the form of preference scores.

3. Result and Discussion

3.1. Color rawon soup: objective color test results using a color reader

The results of reading using a color reader tool are shown in Table 1. Color measurement using a color reader was carried out with 3 replications.

Table 1. Objective color test result for rawon soup

<i>Treat- ment</i>	<i>L</i>	<i>a</i>	<i>b</i>	<i>C</i>	<i>H</i>
H	24.30 ^c	1.87 ^{ab}	0.97 ^c	2.07 ^c	28 ^c
L	28.57 ^a	1.47 ^b	5.37 ^a	5.5 ^a	74.4 ^a
S	27.20 ^b	2.03 ^a	4.17 ^b	4.6 ^b	64.13 ^b

*Different lowercase letters in the same column indicate a difference.

From Table 1, it can be seen that there are differences between treatments H, L, and S for the *L*, *b*, *C*, and *H* values. Meanwhile, for the *a*-value, treatment S is different from L, while treatment H has similarities with S and L. The *a*-value indicates the degree of red, the *b*-value indicates the degree of yellow, and the *L*-value indicates the brightness value of the product; the higher the *L*-value, the brighter the color of the product. Meanwhile, the *C*-value is the chroma value or color intensity value of the product, and the *H*-value is the Hue, which represents the angle on the color wheel [1]. The *H*-value range between 18-54 is included in the red group, and 54-90 is the reddish-yellow group, while 90-126 is included in the yellow color group. From the color, it can be seen that treatment H is included in the red color group, while S and L are included in the reddish-yellow group. The colors of the L, S, and H treatments are shown in Figure 3.

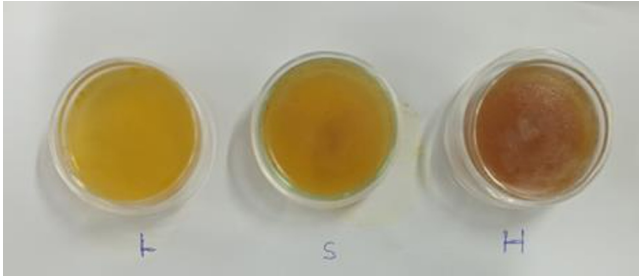


Fig. 3. The Color of L, S, and H treatments

From Fig. 3., it can be seen that with the increasing use of kluwak, the color of the rawon soup becomes redder. This is because the kluwak component contains many compounds that tend to give a red color, in addition to other compounds that also affect the color of the solution.

3.2. Color rawon soup: subjective color test result using the organoleptic preference test

From the organoleptic test, preferences for the color of rawon soup were obtained as shown in Table 2. The test results showed that the average preference for the color of rawon soup was between 4(neither like nor dislike) and 6(like moderately).

Table 2. Organoleptic Preference Test for Color Rawon Soup

<i>Treatment</i>	<i>Preference</i>
H	5.59 ±1.18 A*
L	4.17±1.40 B*
S	5.09±0.94 A*

*Different uppercase letters in the same column indicate a difference.

From Table 2, it is known that the preferred colors are treatments S and H, while the color treatment L received the lowest rating. Likewise, the results of organoleptic testing on the complete serving of rawon rice obtained the results as in Table 3.

Table 3. Organoleptic Preference Test for Color Rawon Soup with complete serving

<i>Treatment</i>	<i>Preference</i>
H	5.54 ±0.97 A*
L	4.09±1.33 B*
S	5.31±0.86 A*

*Different uppercase letters in the same column indicate a difference.

Tables 2 and 3 show that panelists' preferences were similar. This is likely because preference for the complete rawon rice dish depends on the rawon soup. Therefore, adding additional side dishes or other toppings did not affect the rawon soup rating. With daytime testing, the color will be more clearly detected by the panelists compared to other times [12].

The color of rawon soup is due, in part, to its characteristic ingredient, kluwak, which contains a high amount of tannins (Fig. 4.), which physically contribute to its reddish-black color. Chemically, kluwak also contributes polyphenols, which are beneficial as antioxidants, antibacterial agents, and antifungal agents [13].

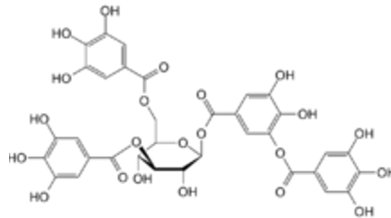


Fig. 4. Tannin.

Apart from kluwak, the color of rawon soup is also influenced by other spices. Ginger and turmeric also contribute to the yellow color.

3.3. Taste rawon soup: subjective taste test result using the organoleptic preference test

The results of the subjective taste test, as determined by the organoleptic preference test, are presented in Table 4. The subjective taste test using the organoleptic preference test yielded the results as shown in Table 4. The panelists tasted the rawon soup bit by bit using the provided tablespoon. By tasting the rawon soup bit by bit (Figure 5.), the distinctive rawon flavor was obtained. The distinctive taste difference was discovered when all the components of the rawon soup were detected by the taste buds. The temperature of the rawon soup was maintained at a warm condition between 40-50 degrees Celsius.

Table 4. Organoleptic Preference Test for Rawon Soup Taste

<i>Treatment</i>	<i>Preference</i>
H	5.09 ±1.29 A*
L	4.26±1.36 B*
S	4.94±1.18 AB*

*Different uppercase letters in the same column indicate a difference.

From Table 4, it is known that the taste of rawon soup from treatment L is different from H, while treatment S is not different from treatments L and H. This is interesting because treatment L can still be recognized as the same as treatment S.



Figure 5. Panelists conducted a taste test by slowly tasting the rawon soup. Different results are shown in Table 5, compared to Table 4. For the complete nasi rawon rice (*nasi rawon*) test, treatment L received the lowest rating. This rating is likely because treatment L had the lowest kluwak concentration, so the distinctive kluwak flavor was drowned out by the flavors of the additional toppings. Additional toppings that interfere with the flavor include chili sauce (*sambal*), salted egg (*telur bebek asin*), and crackers (*kerupuk uyel*). The chili sauce provides spiciness, the egg provides saltiness, and the crackers provide savory flavor. Therefore, the relatively small amount of kluwak added is insufficient to overpower the sensation of the chili sauce, salted egg, and crackers.

Table 5. Organoleptic Preference Test for Taste Nasi Rawon Soup with complete serving

<i>Treatment</i>	<i>Preference</i>
H	5.16 ±1.02 A*
L	4.38±1.47 B*
S	5.19±1.07 A*

*Different uppercase letters in the same column indicate a difference.

Compliance in following the rules or procedures for preparing ingredients according to the recipe (*kluwak*, spices, meat, salt and sugar), preparing tools (cutting, cooking, serving, volume measuring tools, weighing tools), cooking procedures (temperature and time control), in each cycle, was recorded and the rawon soup was tested for taste preferences by 10 panelists. The following results were obtained:

Table 6. Compliance with Standards and Results of Taste Preference Testing by 10 Panelists

Item	Confirmation		Degree Compliance		
	Sub item		Cycle 1	Cycle 2	Cycle 3
Control process and procedure	-Tools -Time -temperature		Compliance	Compliance	Compliance
Material Recipe (spices)	Spices composition	com-	Compliance	Compliance	Compliance
Material Recipe (kluwak)	Kluwak concentration	con-	Not compliance	Not compliance	Not compliance
Test procedure	Panelist organoleptic test	or-	Compliance	Compliance	Compliance
Treatment	Result: Based on the range of taste preference tests (10 panelists)				
H (High Concentration)			Like moderately to like very much	Like moderately to like very much	Like moderately to like very much
L (low Concentration)			Neither like nor dislike to like slightly	Neither like nor dislike to like slightly	Neither like nor dislike to like slightly
S (Standard Concentration)			Like slightly to like moderately	Like slightly to like moderately	Like slightly to like moderately

From the table above, it can be seen that treatments L and S are not significantly different, and S and H are not significantly different. At the same time, L and H are significantly different. An assessment with a score of 4 (neither like nor dislike) or above means that all treatments are acceptable to the panelists. This can be used as a reason to think that the implementation of activities that do not meet standards is not always bad, and may even receive a positive response from its users. After three cycles, the test results remained the same, indicating that using the *kluwak* count as a standard is crucial to ensure the product remains acceptable to panelists.

4. Conclusion

The use of *kluwak* is a key characteristic of *rawon* as a traditional dish, irreplaceable. Different concentrations of *rawon* soup produce different colors, including yellow *rawon*, reddish-yellow *rawon*, and red *rawon*. The surface of red *rawon* tends to be reddish-black. The level of preferences for color and taste in *rawon* soup did not differ significantly, with treatment L (low concentration) not being different from S (standard concentration), treatment S not being significantly different from H (high concentration), while S was very significantly different from H; this was consistent throughout 3 production cycles. The result obtained was that H was preferred over L, while treatments H and S were equally preferred. From this study, it was concluded that

non-compliance with standards does not always cause differences in consumer acceptance. With a higher preference value, it can even be categorized as an innovation. Consumer preference for rawon depends on individual tastes and is influenced by additional toppings. The creativity of the processor or seller is crucial to adapting to consumer preferences.

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