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## **MODIFICATION OF BASE GENEP INSTANT BALI SEASONING USING FDH6 TYPE DEHYDRATOR**

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### **Abstract**

This research concerns the findings of the formulation of the balinese seasoning base genep dry instant, related to the formulation of spices for balinese specialties which so far are in pasta packaging or are generally known as the seasoning wet base genep. Through food technology applications, this spice is dried using a dehydrator machine. This dry seasoning is expected to be easier and more efficient to use in various balinese dishes, and durable in storage. The methodology of this research is experimental, with steps to standardize the appropriate seasoning recipe, dry the seasoning with a dehydrator, and apply the dry seasoning for using in chicken betutu. Then do a preference level assessment test by expert panelists. The expert panelists used in this study were members of the Indonesian Chef Association Bali (ICA Bali). All panelists work as cooks or chefs and are native balinese who are accustomed to enjoying betutu chicken for generations. The results of the research on the level of preference for this instant seasoning are on average at a score of 4. This means that the panelists like the taste, aroma, texture, and color of using base genep seasoning. As we know in using of instant seasoning, being increasingly popular in the catering, hotel, and restaurant industries. This provides an opportunity to produce base genep instant seasoning on an industrial scale.

**Keywords:** Seasoning, Instant, Dry Herb, Base Genep Bali

### **1. INTRODUCTION**

Bali is already worldwide, as one of Indonesia's leading tourist destinations, Bali is famous for its cultural beauty and natural panorama. All the beauty becomes an attraction that entertains tourists to visit and visit again. Most of the Balinese people are Hindu. Living life with culture and traditions and customs that are full of meaning. The meaning in the lives of Balinese people is not only done during traditional ceremonies and rituals. It is also recorded in the way they dress, fabrics and motifs to the presentation and processing of their culinary. Traditional Balinese cuisine is known for its strong and sharp flavors. This is due to the use of basic herbs and spices. One of the basic spices typical of Balinese cuisine is base genep.

According to Endeus (2021) in Balinese, spice is called base and genep means complete. The same thing is also interpreted in the Balinese dictionary, namely base genep which means complete seasoning (2022). Base genep is a philosophy in the tradition of culinary processing and presentation in Bali. Betutu chicken or duck is one of

the dishes that is always present in the ceremonies of kings in Bali. Base genep seasoning not only serves as a flavor enhancer but also eliminates the unpleasant odor of duck meat when cooked. Another culinary using base genep seasoning, sate lilit, is also often served at traditional and religious ceremonies. This is done because there is a philosophy that the community believes in sate lilit. It is a symbol of unification for the Balinese people. The meat wrapped around the lemongrass stem symbolizes the Balinese people, and the lemongrass stem is the unifier. From Bali, we see that spices are not just about flavor. Spices and their products are history and philosophy to them. It is not only needed in people's lives, but also interpreted as sacred and sustainable values.

Indonesia is dubbed as the mother of spices due to its geographical advantage. Spices in Indonesia are quite abundant and diverse and have unique and distinctive flavors that are very attached. Indonesian people are accustomed to utilizing fresh spices for daily needs so that the supply of spices must be fresh and plentiful, while the moisture content of fresh spices is quite high so that the damage is also fast. Therefore, innovation or modification is needed in preserving spices, and one of the solutions that can be done is to make dried instant spices.

Dry instant seasoning is a seasoning modification by preserving spices that were originally in the form of paste/wet, then given special treatment or modification so that the spices become dry or powdered. Modification according to the Big Indonesian Dictionary (KBBI) can be interpreted as a change or alteration. Modification is an effort to make changes with adjustments both in terms of physical materials, as well as in goals and ways (methods, styles, approaches, rules and assessments) (Bahagia, 2010). Furthermore, Multi Karina (2016) suggests that modifications are divided into three ways, namely the first modification in terms of food ingredients including adding, reducing, and replacing a food ingredient. Second, modifying in terms of cooking techniques, be it wet heat, dry heat, and fat cooking techniques. The third is modifying in terms of the number of servings. So, it can be concluded that food modification is changing food from recipe ingredients (adding, reducing, replacing), in terms of cooking techniques, and the number of portions. Instant food is a type of food that is packaged, easy to serve, practical, or processed in a simple way (Widodo: 2013). So instant dry seasoning is a seasoning that is packaged in such a way that it is easy to use in the cooking process, and adjusts to the number of servings of dishes, this seasoning can last longer in storage.

The processing of dried spices in addition to preserving is also more practical in use considering the level of busyness of the community is increasing and wants everything in instant form, including the need for spices. Of course, instant dried seasoning will make it easier for people to cook dishes. Instant seasoning is also increasingly popular in the catering, hotel and restaurant industries. With the ease of use and maintained quality standards of seasonings, this makes it easier for chefs to craft dishes in industrial-scale production kitchens. This opportunity provides an opportunity for dried instant genep base seasoning to be created and marketed widely.

Bali is famous for its specialties of ayam betutu, lawar, satay lilit and other dishes. Most of these dishes use the base genep seasoning. Genep base seasoning actually already exists and is limited in some traditional markets in Bali but is available in the form of paste or wet seasoning which has a low shelf life. This is the background for the author to research the making of instant base genep seasoning in powder form so that it is durable in storage and practical in use. Here is a photo of the base genep seasoning paste that is commonly circulated in the Indonesian marketplace.

The base genep pasta seasoning that is widely sold in the market now, because it is still a wet product, so this seasoning ranges to a short durability. Or if you expect it to last long during the sales process, the addition of food preservatives is one solution. Of course, this is not healthy for people who consume this spice. Another solution is to store this spice in a refrigerator or freezer, but this is impractical and troublesome. From this problem came the idea to dry this spice blend and without adding food preservatives to it.

Making spices into powders requires an appropriate drying method. Instant seasoning is a mixture of various spices with a certain composition and can be directly used as a seasoning for certain dishes (Sianipar, 2008). This means that instant seasoning is a mixture of spices with the right composition that is used to cook certain dishes. Instant food is food that is concentrated or in concentrated form. This implies that in instant food products there is a process of removing water content with the aim that the product is not easily contaminated. Instant seasoning also has ease of handling ingredients and practical presentation. The way to serve instant food is only by adding water (hot/cold) so that it is ready to eat or use (Hartomo and Widiatmoko, 1993).

The aim/purpose of the study is to address the challenge of preserving and making Balinese base genep seasoning more accessible and practical for use in culinary applications. The focus is on transforming the traditional wet paste form of the seasoning into a dry instant powder without compromising its flavor, cultural significance, or healthiness. By addressing these objectives, the study aims to provide a solution that not only meets the practical needs of consumers but also respects the cultural heritage and culinary traditions associated with Balinese cuisine.

## **2. LITERATURE REVIEW**

A drying machine utilizing a hot air current can efficiently dry herbs by creating a swirl of hot air to fully dry the herbs [Salikandi: 2020]. Additionally, a grinding machine for herbs incorporates rotating blades to grind dried herbs into smaller pieces, facilitating the drying process [Shiple dkk: 2019]. For decocting Chinese medicines, a machine with an electric heater and condensation recovery device ensures effective decoction without burning the herbs and enhances the pharmacodynamic actions of the medicines [Li, Yuezheng: 2000]. Moreover, a novel herb cleaning machine with a brush rod system and water stopping clamp groove offers effective cleaning for herbs, suitable for small-scale processing enterprises [Jiangjun, Xing: 2012]. Lastly, a super fine disintegrator set for traditional Chinese medicine ensures fine granules and high disintegrating quality of materials, including herbs [Wu, Jianming: 2001].

Instant cooking seasoning is a convenient and popular option for many consumers due to its ease of use and time-saving benefits. These seasonings are typically a blend of various spices with specific compositions that can be directly used as cooking spices for different dishes (Sachin et al., 2020; Mareta et al., 2019). They are known for their practicality and are commonly used by individuals seeking quick and efficient meal preparation (Liu et al., 2021; Oriakpono & Ibanibo, 2019). Instant cooking seasoning plays a significant role in modern food preparation, offering convenience and efficiency to consumers. While research continues to explore various aspects of instant seasoning production, it is crucial to prioritize product safety and quality to ensure a positive consumer experience.

### 3. RESEARCH METHODS

This research uses an experimental approach. Specifically, this research will be conducted using the rules of the experimental method which is laboratory research. This experimental research method was chosen based on the formulation and objectives of the research. This research aims to produce an innovative product by utilizing a dehydrator in the drying process of wet base genep seasoning so that the experimental method is appropriate to use. The experimental method is a series of activities that are systematically designed and planned so that they can be accounted for, with the aim of obtaining new products, for product development, to improve products, or for product diversity. The experimental method in this study was used with the aim of innovating a variety of instant dried spices. This method is applied by researchers to determine the results of base genep drying seasoning that can be utilized in cooking chicken betutu effectively and efficiently.

This research will use qualitative data in the form of formula recipes and organoleptic tests. The formula or recipe is sourced from experimental tests conducted in the laboratory, namely the Bali International Polytechnic kitchen. While organoleptic test data was obtained from research respondents. Experiments in the laboratory and also the collection of responses from respondents are the primary data sources in this study. In addition, this research also uses secondary data sources in the form of literature related to the research topic.

The raw materials used in making base genep instant seasoning are with the following ingredient composition in the table:

**Table 1.** Formulation of Base Genep Recipe

| Baliness Seasoning (Base genep) |                     |                      | <i>Base Genep Wet</i> | <i>Base genep Instant Dry</i> |                   |
|---------------------------------|---------------------|----------------------|-----------------------|-------------------------------|-------------------|
| Amount                          | Ingredient Name     | Description          | Control (gr)          | Drying 30 oC (gr)             | Drying 70 oC (gr) |
| 125 gr                          | Garlic Sliced       | Chopped              | 42                    | 42                            | 42                |
| 250 gr                          | Shallot             | Chopped              | 83                    | 83                            | 83                |
| 75 gr                           | Big Red Chillies    | Chopped              | 25                    | 25                            | 25                |
| 37,5 gr                         | Bird's Eye Chillies | Chopped              | 13                    | 13                            | 13                |
| 100 gr                          | Galangal            | Chopped              | 33                    | 33                            | 33                |
| 50 gr                           | Kencur              | Chopped              | 17                    | 17                            | 17                |
| 50 gr                           | Turmeric            | Chopped              | 17                    | 17                            | 17                |
| 50 gr                           | Ginger              | Chopped              | 17                    | 17                            | 17                |
| 2,5 gr                          | Nutmeg              | Toated-Finely Ground | 1                     | 1                             | 1                 |
| 25 gr                           | Candlenuts          | Toated-Finely Ground | 8                     | 8                             | 8                 |
| 7,5 gr                          | White Pepper        | Toated-Finely Ground | 3                     | 3                             | 3                 |
| 7,5 gr                          | Black Pepper        | Toated-Finely Ground | 3                     | 3                             | 3                 |
| 15 gr                           | Kwangen             | Toated-Finely Ground | 5                     | 5                             | 5                 |
| 2,5 gr                          | Cumin               | Toated-Finely Ground | 1                     | 1                             | 1                 |
| 125 gr                          | Lemon Grass         | Chopped              | 42                    | 42                            | 42                |
| 5 gr                            | Lime Leaf           | Chopped              | 2                     | 2                             | 2                 |
| 5 ml                            | Local Byleaf        | Chopped              | 2                     | 2                             | 2                 |
| 25 gr                           | Broth Powder        | Flavoring            | 8                     | 8                             | 8                 |
| 5 gr                            | Salt                | Flavoring            | 2                     | 2                             | 2                 |
| 10 gr                           | Sugar               | Flavoring            | 3                     | 3                             | 3                 |
| 972,5 gr                        |                     | Total                | 324 gr                | 324 gr                        | 324 gr            |

Source: Bali International Polytechnic Base Genep Recipe Standard (2022)

The instruments used in this research can be divided into two categories, namely instruments for experiments and instruments for organoleptic tests.

a. Experiment Instrument

Experiments that will be carried out to produce recipes and formulas use two instruments, namely equipment and raw materials. The following are the equipment and raw materials needed. The raw material used in this research is the complete Base genep seasoning obtained directly from the PIB food supplier. The main equipment used in this research is the Fdh6 type Dehydrator machine which functions to dry agricultural products. This tool is a rack-type dryer using electric power. While the equipment used in the material preparation process is a knife, plastic cutting board, blender and tray. The raw material used in the manufacture of base genep instant seasoning is a blend of base genep wet seasoning with a predetermined recipe composition.

b. Organoleptic Instrument

For the organoleptic test, researchers used an assessment sheet to respondents. The assessment component in the organoleptic test only contains the respondent's favorite component. The technique used for the organoleptic test is a scoring technique with the level of assessment very like is given a score of five and those who do not like are given a score of one. The level of assessment is Very Like given a score of 5; Like given a score of 4; Moderately Like given a score of 3; Less Like given a score of 2; Dislike given a score of 1.

c. Panelist Determination

This study involved panelists who would participate in the organoleptic test. 100 panelists must meet the following criteria. (1) Profession as a chef/chef (ICA Member); (2) Balinese native; (3) Know and have eaten Ayam Betutu; (4) Willing to give an assessment.

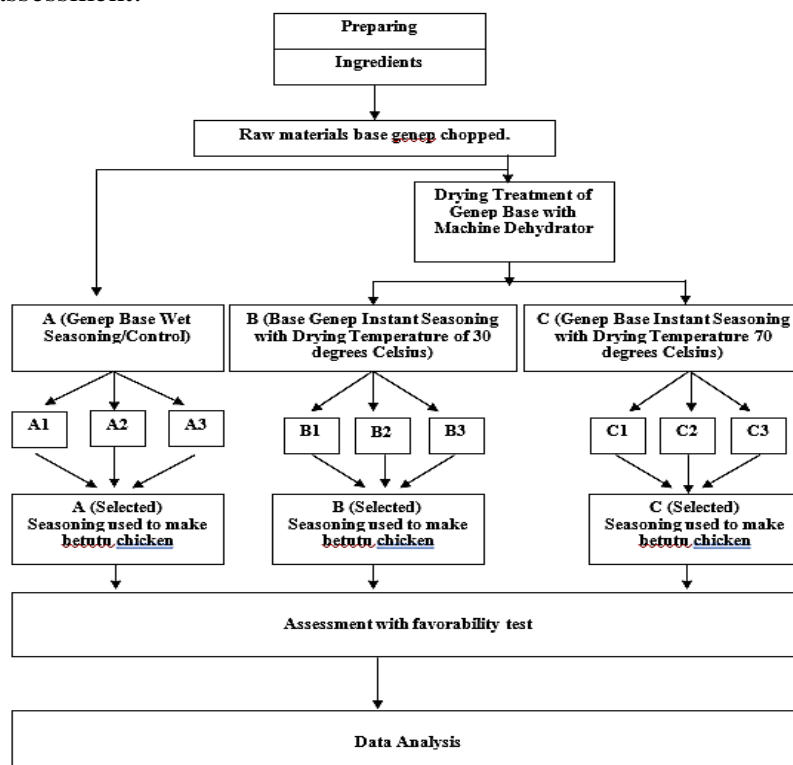


Figure 1. Experiment Design  
Source: Data Analysis (2023)

Experiments in this study were carried out three times, meaning that in the experiment of making Ayam betutu with Base genep seasoning, the researcher experimented three times each with the same basic ingredients and treatment. This repetition is done to obtain maximum results.

The process of making Base genep seasoning is done by weighing all the raw materials according to the recipe standard. After that, all wet spices are chopped, and dry spices are fried and finely ground. After that, the spices are mixed well. The seasonings that have been chopped are then divided into three parts. The first part [A] will be used to make Ayam betutu with wet Base genep seasoning. The second part [B] will be dried with a dehydrator drying temperature of 30 degrees Celsius. The third part [C] will be dried with a dehydrator drying temperature of 70 degrees Celsius. The drying time is until the spice mixture is completely dry. Because it prevents the growth of microorganisms if the seasoning still has water content.

The first part [A] of Base genep wet seasoning was used to make Ayam betutu as a control. The second part [B], Base genep instant seasoning dried with a dehydrator drying temperature of 30 degrees Celsius, was also used to make Chicken betutu. Likewise, the third part [C] of Base genep, which was dried with a dehydrator drying temperature of 70 degrees Celsius, was also used to make Ayam Betutu.

After that, organoleptic testing was carried out with panelists. In the test there were 100 panelists (Balinese Culinary Experts/Indonesian Chef Association (ICA)/F&B Stakeholders) who gave an assessment based on the level of liking for the product including taste, aroma, color and overall level of liking. The test was carried out using the hedonic technique method with a preference level of 1-5, namely: (1) Very Dislike; (2) Dislike; (3) Somewhat Like; (4) Like; (5) Very Like.

The Limitations acknowledged, the study involved panelists primarily consisting of Balinese culinary experts, members of the Indonesian Chef Association (ICA), and stakeholders in the food and beverage industry. While these selection criteria aimed to ensure expertise and familiarity with Balinese cuisine, it may limit the generalizability of the findings to a broader population. Organoleptic tests rely on subjective assessments of taste, aroma, color, and overall liking by individual panelists. Despite efforts to standardize the scoring technique, individual preferences and biases may influence the results, leading to variability in responses. The experiment focused on drying the base genep seasoning using a dehydrator machine at two different temperatures (30 degrees Celsius and 70 degrees Celsius). While this method offers controlled drying conditions, other drying techniques or temperature variations were not explored, which could impact the final product's quality and characteristics. The study primarily evaluated the effectiveness of the dried base genep seasoning in preparing Ayam betutu. While this dish holds cultural significance in Bali, its narrow focus may overlook the seasoning's suitability for other culinary applications or dishes, limiting the broader applicability of the findings. The organoleptic testing provided immediate feedback on the dried seasoning's sensory attributes. However, the study did not address the long-term stability or shelf life of the dried seasoning, which is crucial for assessing its practicality and commercial viability over time.

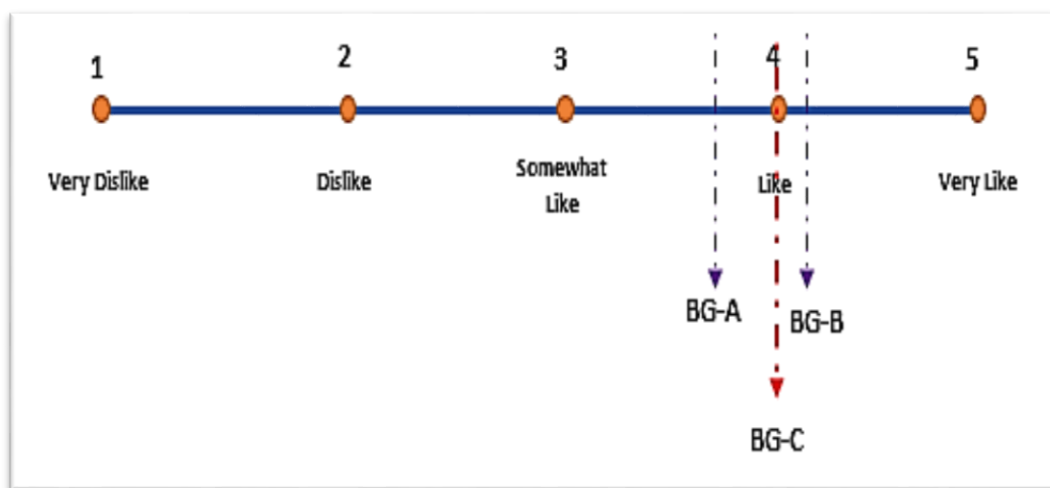
#### **4. FINDINGS AND DISCUSSION**

The level of public liking for Chicken betutu with Base genep A, B and C seasoning. To test the level of public liking for Chicken betutu with Base genep A seasoning, using Base genep wet seasoning, with (Code BGA); Base genep B Instant Dry

Seasoning (Code BGB); and Base genep C Instant Dry Seasoning (Code BGC); Research by giving a questionnaire that contains four components, namely texture, taste, color, aroma. Respondents were asked to give an assessment by choosing the options of dislike, dislike, quite like, like, and very like.

a. Taste

The results of a simple analysis related to the taste of the Ayam Betutu dish using 3 kinds of Base Genep seasoning treatments, found that Ayam Betutu using wet Base Genep seasoning (control) with an assessment of the taste is in the position of enough and like, but the tendency is towards a taste with a "like" assessment of Ayam Betutu. However, the panelists' level of liking for the taste of Ayam Betutu increased with the use of instant dry Base genep seasoning, which led to a score of 4 (Like) and a score of 5 (Very Like).

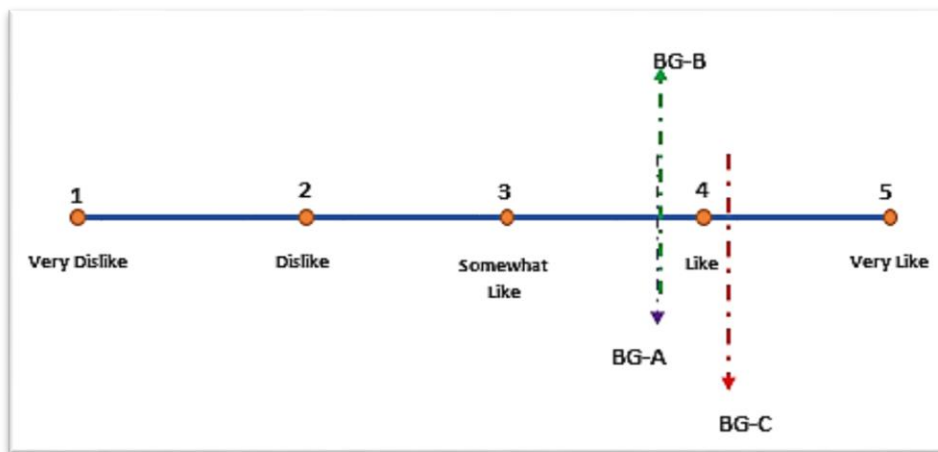


**Figure 2.** Scores Chart of Panelists Preference Levels for the Taste of Betutu Chicken Dishes  
Source: Processed Research Data (2023)

It can be concluded that Betutu chicken using instant dry Base genep seasoning from the Betutu "Taste" indicator is more preferred than using wet Base genep seasoning. This corroborates the answer also that seasoning that undergoes a drying process (dehydrator) makes the aroma and taste of the raw material more fragrant and delicious. Heat can enhance the flavor of the spices. Food dishes by sautéing spices or heating spices can bring up aromas that increase the attractiveness of food for consumption (Widyastuti and Pramono, 2014).

b. Aroma

Aroma is the smell of a food product. Odor itself is a response when volatile compounds from a food enter the nasal cavity and are perceived by the olfactory system (Kemp et al., 2009). The results of a simple analysis related to the "Aroma" of the Betutu Chicken dish using 3 kinds of Base genep seasoning treatments, found that Betutu Chicken with wet Base genep seasoning, based on the panelists' assessment, the aroma of this dish was favored. Likewise, by using dry seasoning, this Chicken Betutu dish was also favored by the panelists. It can be concluded that the Ayam betutu dish using instant dry Base genep seasoning or using wet Base genep seasoning, in terms of the assessment of preference for the aroma of the dish, is equally favored by the public.

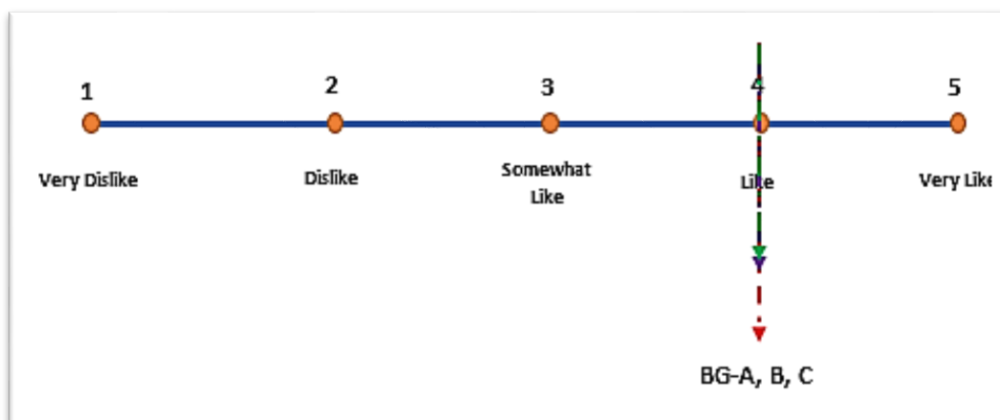


**Figure 3.** Graph of Panelists Favorability Score for the Aroma of Betutu Chicken Dishes  
Source: Processed Research Data (2023)

c. Texture

Texture is the nature of material particles when palpated can be smooth, plain, glossy, slippery, shiny, wrinkled, soft, hard, soft and so on. Food texture is the result of a tactile sense response or skin touch that is able to detect the form of physical stimuli when there is contact between food and parts in the oral cavity. In this study, the intended texture is the level of liking for the tenderness of the results of Chicken betutu meat (soft or hard).

From the results of the questionnaire data processing, it is concluded that the data analysis of the panelists' level of preference for the texture of Betutu chicken dishes. For the texture of Betutu chicken cooked using Base genep seasoning A, B and Base genep seasoning C, the favorability results were obtained at a score of 4 or (like). The texture of the chicken was equally liked by the panelists, even though it used 3 types of Base genep seasoning that were given different treatments, namely wet seasoning and dry seasoning. Basically, the treatment of dry seasoning is only removing/removing the water content in the wet seasoning using a dehydrator. It can be concluded that betutu chicken cooked using either wet or dry seasoning does not affect the texture of the processed betutu chicken. The level of maturity in chicken texture is favored by the public.

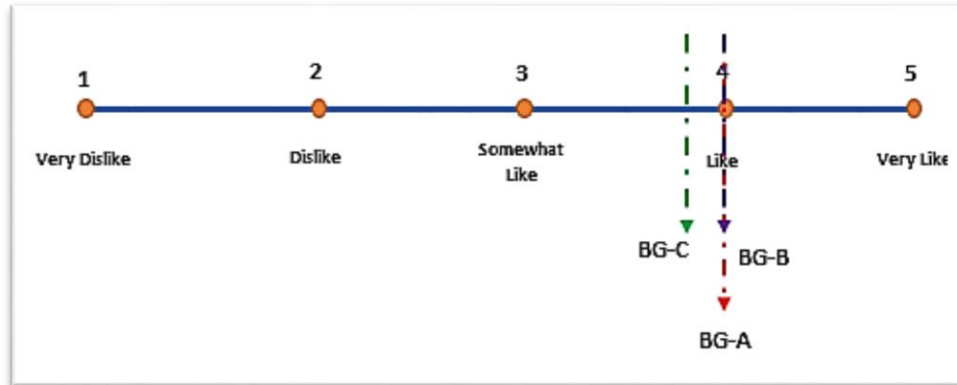


**Figure 4.** Scorecard of Panelists Favorability Levels on the Texture of Betutu Chicken Dishes  
Source: Processed Research Data (2023)



#### d. Color

Similar to the level of panelist preference for the color of the results of the Betutu chicken dish. The color of the dishes from the three kinds of chicken was equally liked by the panelists. The results of data processing obtained a score of 4 (like) for the color of Chicken betutu using Base genep A and B seasoning, while for Chicken betutu with Base genep C seasoning received a score of 3.8 (close to like). It can be concluded that the public liked the color of the processed Chicken betutu both using wet Base genep seasoning (Control) and Chicken betutu using instant dry Base genep seasoning (research).



**Figure 5.** Position Score Chart of Panelists Level of Preference for the Color of Betutu Chicken Dishes  
Source: Processed Research Data (2023)

## 5. CONCLUSION

Based on the experimental results and data analysis, several conclusions can be drawn regarding the use of instant dried Base genep seasoning in Ayam betutu preparation. Firstly, Ayam betutu seasoned with instant dried Base genep seasoning received higher preference scores for taste compared to those seasoned with wet Base genep seasoning. This suggests that the drying process enhances the fragrance and flavor of the raw ingredients, with heat potentially intensifying the spice flavors. Secondly, there was no significant difference in the aroma favorability between Ayam betutu dishes seasoned with instant dry Base genep seasoning and those with wet seasoning, indicating that both methods effectively preserved the dish's aromatic qualities. Thirdly, the texture of the processed chicken in Ayam betutu remained consistent regardless of whether wet or dry Base genep seasoning was used, with both variations equally favored by participants. Lastly, participants showed equal preference for the color of Ayam betutu prepared using either wet or instant dry Base genep seasoning. These findings highlight the efficacy of instant dried Base genep seasoning in enhancing the taste and aroma of Ayam betutu, without compromising its texture or visual appeal, thus offering a convenient and flavorful seasoning option for culinary enthusiasts.

In conclusion, while the study provides valuable insights into the effectiveness of instant dried Base genep seasoning, several limitations should be acknowledged. Firstly, the limited representation of panelists, primarily comprising Balinese culinary experts and industry stakeholders, may restrict the generalizability of the findings to a wider population. Additionally, the subjective nature of organoleptic testing introduces variability in responses, influenced by individual preferences and biases. Moreover, the focus on a single drying method using a dehydrator at two temperatures may overlook

alternative techniques that could impact the seasoning's quality. The narrow scope of culinary application, primarily assessing Ayam betutu, limits the broader applicability of the findings to other dishes. Lastly, the short-term evaluation neglects the long-term stability and shelf life of the dried seasoning, essential considerations for its practicality and commercial viability over time. Despite these limitations, the study underscores the potential of instant dried Base genep seasoning in enhancing flavor and aroma in culinary applications, while highlighting areas for further research and exploration.

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