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Variations In Gelatin And Pure Concentrations Of Cilembu Sweet Potato (*Ipomoea batatas 'Cilembu'*) On The Chemical And Organoleptic Qualities Of Panna Cotta

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Abstract. Dessert that is currenlty a favorite dish in Indonesia is panna cotta. Panna cotta has a taste that tends to be sweet. chewy and soft texture. Panna cotta it means “cooked cream”. The basic ingedients for making panna cotta are cream mixed with sugar, gelatin and flavorings. Modifications can be made to Panna Cotta products by using additional Cilembu sweet potato puree. The aim of this research was to determine the effect of varying concentrations of gelatin and Cilembu sweet potato puree (Ipomoea batatas 'Cilembu') on the chemical and organoleptic quality of panna cotta. Another objective is to determine the right concentration of gelatin and cilembu sweet potato puree so that the best chemical and organoleptic quality of panna cotta is obtained. The research method that used in this research is a laboratory experimental quantitative method. The experimental design used in this research was a completely randomized design (CRD) which consisted of 1 factor, which was a combination of gelatin concentration treatment and Cilembu sweet potato puree consisting of 4 levels, namely: P2 = Gelatin 6g and Cilembu sweet potato puree 40g; P3 = Gelatin 6g and Cilembu Sweet Potato Puree 50g; P4 = Gelatin 7g and Cilembu Sweet Potato Puree 40g; P5 = Gelatin g and Cilembu Sweet Potato Puree 50g. Each treatment was repeated 4 times. The quality parameters observed were TPA, beta-carotene content and organoleptics which included colour, softness and taste.

Keywords: Cilembu Sweet Potato, Gelatin, Panna Cotta

1 Introduction

Milk is one of the most important sources of animal protein for the body because it contains complete and balanced nutrients. According to the USDA Foreign Agicultural Service (2014)[1], the average milk consumption in Indonesia is still relatively low. The Fauziyah (2022) shows that the low consumption of milk is caused by people who do not like the taste of milk and prefer soft drinks and other similar processed products [2]. This shows that efforts need to be made to increase milk consumption, such as by making milk the basic ingredient of a processed product, one of which is dessert products.

Panna cotta is a dessert product originating from Italy that is made using cream and milk cooked with other ingredients such as gelatin and sugar, and served cold. Panna cotta has a pudding-like character with softer gel properties but remains firm and can maintain its shape. The properties of panna cotta that can melt in the mouth make this product different from other types of desserts.

There is still a lack of utilization of sweet potatoes in healthy desserts, the nutritional content of sweet potatoes which is rich in fiber, natural sweeteners, and starch levels of sweet potatoes are higher than other sweet potato starch levels. This shows that sweet potato can be developed as a potential starch source food. The sugar content of Cilembu Sweet Potatoes is higher than other sweet potatoes, so sweet potatoes are very popular because of their very sweet taste [3], [4]. In addition, it can also increase the selling value of Cilembu Sweet Potatoes.

Modifications can be made to Panna Cottta products. One form of modification that can be done is to use additional sweet potato puree. This product is a new innovation by adding local food ingredients that also have health benefits for those who consume it. Sweet potato is a food source that is quite high in calories [5], [6]. Putri (2017) explained that the carbohydrate content of sweet potato is ranked the fourth highest after rice, corn, and cassava [7]. In addition, it also contains a source of vitamin A of 8,509 mg, vitamin B1 0.08 mg, Vitamin B2 0.05 mg, niacin 0.9 mg, Vitamin C 20 mg and minerals in the form of calcium 46 mg per 100 g which is useful for

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body metabolism and strengthens bones and teeth and is also good for meeting the nutritional needs of the community.

Gelatin is a derivative protein obtained from the hydrolysis process of collagen proteins, either acidically or alkalinely [8]. The use of gelatin has been widely used in the food world, especially dessert products. The properties and characteristics of gelatin which has a high gelling agent, are able to form emulsifiers, stabilize solutions, and form thin layers (films), making gelatin suitable for use as an additional ingredient, especially in dessert products [9].

The large volume of milk does not make panna cotta have a chewy texture, therefore gelatin is needed. The gelatin function makes the dough have the permissible panna cotta texture. The gelatin in panna cotta acts as a gelling agent. The gelatin concentration used in this study was 6g and 7g. According to [10], the gelatin gel properties are also influenced by other ingredients such as sugar, therefore the sugar concentration also needs to be known to produce the most preferred panna cotta character. In this study, the required glucose and carbohydrate content was replaced by sweet potato. The concentration of sweet potato puree used is 40g, 50g.

Based on preliminary research, panna cotta with different concentrations and purees of sweet potato, the most preferred in terms of organoleptics in terms of softness, color and taste is panna cotta with the addition of 6g of gelatin and 50g of sweet potato puree. So the researcher has concluded that the title that he wants to raise is a variation in the concentration of gelatin and sweet potato puree (*Ipomoea batatas 'Cilembu'*) which is different from the chemical and organoleptic quality of panna cotta.

2 Method

2.1 Tools

The tools used in this study include analytical scales, sauce pans, bowls, balloon whisks, ovens, baking sheets, spatula, ladles, microwaves, knives, and cups to print panna cotta. The tools used for this chemical quality analysis are crustaceans, spatulas, analytical scales, ovens, spectrophotomers and cuvettes.

2.2 Material

The main ingredients used in this study are gelatin, and sweet potato. Other supporting ingredients include milk, light whipping cream, sugar. The materials used in the chemical quality test in this study include NaOH and Aquadest.

2.3 Research Methods

In this study, laboratory experimental quantitatives are used for the method. This method is used to determine the influence of independent variables on dependent variables (outcomes) in a controlled condition and to find out the answer to the existing problem formulation. This condition is meant that there is no influence from other variables, so experimental research in the laboratory is needed. The influencing factors are hypothesis, independent variable, dependent variable, and subject [11].

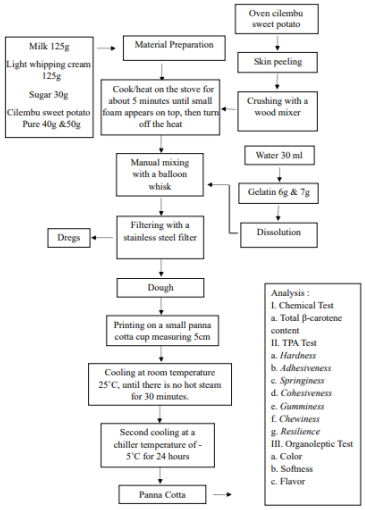

Figure 1. Flow of Research Procedures

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3 Result and Discussion

3.1 Chemical Quality Testing

Chemical quality testing on the variation of gelatin and sweet potato puree (*Ipomoea batatas 'Cilembu'*) includes hardness, adhesiveness, springiness, cohesiveness, gumminess, chewiness, resilience and β-carotene tests.

3.1.1 Hardness (g)

Table 1. Average Hardness Value of Panna Cotta

Formulation	Treatment	Average
P2	Gelatin 6g, Cilembu Sweet Potato Pure 40g	404,170[a]
P3	Gelatin 6g, Cilembu Sweet Potato Pure 50g	516,138[b]
P4	Gelatin 7g, Cilembu Sweet Potato Pure 40g	507,640[c]
P5	Gelatin 7g, Cilembu Sweet Potato Pure 50g	452,734[c]
KK = 22,208% (Duncan)		

Information:
The KK value > 10% using the Duncan differential test.

The average results of the hardness value in Table 4.4 showed the lowest value in the P2 treatment (Gelatin 6g, Cilembu Sweet Potato Puree 40g) with a value of 404.1698. Meanwhile, the highest hardness value was found in the P3 treatment (Gelatin 6g, Cilembu Sweet Potato Puree 50g) with a value of 516.138. The higher the addition of gelatin and sweet potato puree, the higher the hardness value did not show a linear increase in hardness value. The results of the differential test using Duncan on the hardness test parameters showed that there was a very real difference in the treatment of P2, P5 and P4 and P3. In the P4 and P3 treatments, there was no real difference.

3.1.2 Adhesiveness

Table 2. Average Adhesiveness Value of Panna Cotta

Formulation	Treatment	Average
P2	Gelatin 6g, Cilembu Sweet Potato Pure 40g	-63,102
P3	Gelatin 6g, Cilembu Sweet Potato Pure 50g	-77,256
P4	Gelatin 7g, Cilembu Sweet Potato Pure 40g	-147,064
P5	Gelatin 7g, Cilembu Sweet Potato Pure 50g	-85,542

The average results of the adhesiveness value in Table 4.4 showed the highest value in the P2 treatment (Gelatin 6g, Cilembu Sweet Potato Puree 40g) with a value of -63.1023. Meanwhile, the lowest adhesiveness value was found in the P4 treatment (Gelatin 7g, Cilembu Sweet Potato Puree 40g) with a value of -147.0764. The lower the gelatin content indicates that the adhesiveness value will be lower. The lower the adhesiveness value indicates that the resulting product is sticky. The increased concentration of gelatin will form more and more gel in the product so that the product becomes more sticky [12].

3.1.3 Springiness

Table 3. Average Springiness Value of Panna Cotta

Formulation	Treatment	Average
P2	Gelatin 6g, Cilembu Sweet Potato Pure 40g	0,964
P3	Gelatin 6g, Cilembu Sweet Potato Pure 50g	0,957
P4	Gelatin 7g, Cilembu Sweet Potato Pure 40g	0,958
P5	Gelatin 7g, Cilembu Sweet Potato Pure 50g	0,964

The average results of the springiness value in Table 4.6 showed the highest value in the P5 treatment (Gelatin 7g, Cilembu Sweet Potato Puree 50g) with a value of 0.964. Meanwhile, the lowest springiness value was found in the P3 treatment (Gelatin 6g, Cilembu Sweet Potato Puree 50g) with a value of 0.95725. The higher the content of gelatin and sweet potato puree did not indicate a linear increase in springiness value. Springiness is related to

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the cavities that are inside the panna cotta. The healing cavity is able to trap carbon dioxide gas so that it causes pore formation and increases elasticity [13]. It is not related to panna cotta because the texture is dense not hollow so the value of spiringness is small.

3.1.4 Cohesiveness

Table 4. Average Cohesiveness Value of Panna Cotta

Formulation	Treatment	Average
P2	Gelatin 6g, Cilembu Sweet Potato Pure 40g	0,822
P3	Gelatin 6g, Cilembu Sweet Potato Pure 50g	0,763
P4	Gelatin 7g, Cilembu Sweet Potato Pure 40g	0,797
P5	Gelatin 7g, Cilembu Sweet Potato Pure 50g	0,803

The average results of the cohesiveness value in Table 4.7 showed the highest value in the P2 treatment (Gelatin 6g, Cilembu Sweet Potato Puree 40g) with a value of 0.82225. Meanwhile, the lowest cohesiveness value was found in the P3 treatment (Gelatin 6g, Cilembu Sweet Potato Puree 50g) with a value of 0.76235. Supposedly, with the addition of gelatin, it is able to form an increasingly stable texture so that the interaction between the components in panna cotta becomes strong and forms a solid dough gel matrix. The sturdy gel matrix produces a firm texture that increases the value of cohesiveness [13].

3.1.5 Gumminess

Tabel 5. Average Gumminess Value of Panna Cotta

Formulation	Treatment	Average
P2	Gelatin 6g, Cilembu Sweet Potato Pure 40g	327,333[a]
P3	Gelatin 6g, Cilembu Sweet Potato Pure 50g	393,762[b]
P4	Gelatin 7g, Cilembu Sweet Potato Pure 40g	403,352[c]
P5	Gelatin 7g, Cilembu Sweet Potato Pure 50g	362,631[c]
KK = 18,478% (Duncan)		

Information:
The KK value < 10% using the Duncan differential test.

The average results of the gumminess value in Table 4.8 showed the lowest value in the P2 treatment (Gelatin 6g, Cilembu Sweet Potato Puree 40g) with a value of 327.3328. Meanwhile, the lowest gumminess value was highest in the P4 treatment (Gelatin 7g, Cilembu Sweet Potato Puree 40g) with a value of 403.352. The results of the differential test using Duncan on the gumminess test parameters in Table 4.13 show that there are very real differences in the treatment of P2, P5 and P3 and P4. In the P3 and P4 treatments, there was no real difference. The gumminess value is influenced by the ingredients that make it up. Proteins, fats, starches and fiber. The more protein and fiber, the higher the gumminess. But the higher the dietary fat, the lower the gumminess value. Sweet potato puree has a lot of starch and protein. Supposedly, the higher the concentration of sweet potato puree, the gumminess value also increases [14].

3.1.6 Chewiness

Tabel 6. Average Panna Cotta Chewiness Value

Formulation	Treatment	Average
P2	Gelatin 6g, Cilembu Sweet Potato Pure 40g	319,946[a]
P3	Gelatin 6g, Cilembu Sweet Potato Pure 50g	376,956[b]
P4	Gelatin 7g, Cilembu Sweet Potato Pure 40g	361,397[ab]
P5	Gelatin 7g, Cilembu Sweet Potato Pure 50g	349,704[ab]
KK = 13,699% (Duncan)		

Information:
The KK value < 10% using the Duncan differential test.

The average results of chewiness values in Table 4.9 showed the lowest value in the P2 treatment (Gelatin 6g, Cilembu Sweet Potato Puree 40g) with a value of 319.9463. Meanwhile, the highest chewiness value was in

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the P2 treatment (Gelatin 6g, Cilembu Sweet Potato Puree 50g) with a value of 376.9558. The results of the differential test using Duncan on the chewiness test parameters in Table 4.14 show that there are very real differences in the treatment of P2, P4 and P5 and P4. In the treatment of P5 and P4 there was a real difference. An increase in the concentration of gelatin in panna cotta will increase chewiness. This is because gelatin will provide rubber-like properties by trapping water and forming a gel [15].

3.1.7 Resilience

Tabel 7. Table of Average Resilience of Panna Cotta

Formulation	Treatment	Average
P2	Gelatin 6g, Cilembu Sweet Potato Pure 40g	0,41325
P3	Gelatin 6g, Cilembu Sweet Potato Pure 50g	0,41225
P4	Gelatin 7g, Cilembu Sweet Potato Pure 40g	0,41075
P5	Gelatin 7g, Cilembu Sweet Potato Pure 50g	0,3935

The average results of the resilience value in Table 4.10 showed the highest value in the P2 treatment (Gelatin 6g, Cilembu Sweet Potato Puree 40g) with a value of 0.41325. Meanwhile, the lowest resilience value was in the P5 treatment (Gelatin 7g, Cilembu Sweet Potato Puree 50g) with a value of 0.3935. An increase in sugar concentration can cause the value of panna cotta to become more chewy [16]. The sugar concentration in this study was the same in each treatment. Sweet potato puree also does not have a high sugar content so the resilience value in this test has no real effect.

3.1.8 β-karoten

Tabel 8. Average Beta Carotene Value of Panna Cotta

Formulation	Treatment	Average
P2	Gelatin 6g, Cilembu Sweet Potato Pure 40g	6,464[a]
P3	Gelatin 6g, Cilembu Sweet Potato Pure 50g	8,200[b]
P4	Gelatin 7g, Cilembu Sweet Potato Pure 40g	6,336[a]
P5	Gelatin 7g, Cilembu Sweet Potato Pure 50g	8,196[b]
KK = 779,728% (Duncan)		

Information:
The KK value < 10% using the Duncan differential test.

The average results of beta carotene values in Table 4.11 showed the highest value in the P3 treatment (Gelatin 6g, Cilembu Sweet Potato Puree 50g) with a value of 8.199567. Meanwhile, the lowest beta carotene value was in the P4 treatment (Gelatin 7g, Cilembu Sweet Potato Puree 40g) with a value of 6.336367. The results of the differential test using Duncan on the beta carotene test parameters in Table 4.15 show that there is a very real difference between the treatment of P4 and P2 with P5 and P3. In the P4 and P2 treatments, there was no real difference. The same thing is also in the treatment of P5 and P3 there is no real difference. The lower the gelatin content and the higher the pure content of sweet potato cilembu showed a linear increase in beta carotene value.

3.2 Organoleptic Test

Organoleptic tests were carried out to determine the highest level of preference of each treatment sample based on predetermined assessment criteria in the form of color, softness and taste. The test result data is in the form of a numerical scale according to the level of preference. The numerical scale starts from 1 = strongly disliked, 2 = disliked, 3 = somewhat disliked, 4 = neutral, 5 = somewhat liked, 6 = liked, 7 = strongly liked.

3.2.1 Color

The results of the organoleptic test with the color assessment criteria in Figure 4.1 show that the P2 treatment (gelatin 6g, sweet potato puree 40g) received the highest score of 5.725, included in the category favored by the panelists.

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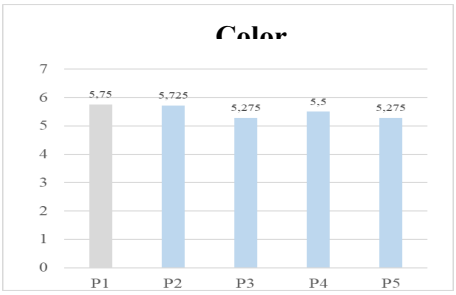

Figure 2. Organoleptic Test Results Color Assessment Criteria Chart

This shows that between the treatments tested, the addition of gelatin and sweet potato puree affects the panelists' acceptance of the panna cotta taste assessment criteria.

3.2.2 Softness

The results of the organoleptic test with the softness assessment criteria in Figure 4.2 show that the P2 treatment (gelatin 6g, sweet potato puree 40g) got the highest score of 5.6 included in the category preferred by the panelists.

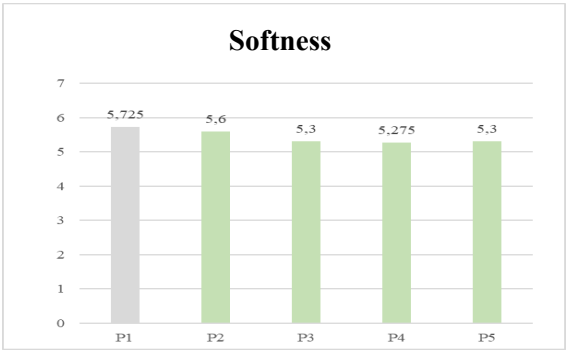

Figure 3. Organoleptic Test Results of Softness Assessment Criteria Chart

This shows that between the treatments tested, the addition of gelatin and sweet potato puree did not affect the panelists' acceptance of the panna cotta taste assessment criteria. This could be due to the fact that the difference in gelatin levels was not significant, only 1g difference in 1 recipe made for some of the samples tested.

3.2.3 Taste

The results of the organoleptic test with taste assessment criteria in Figure 4.3 show that the P2 treatment (gelatin 6g, sweet potato puree 40g) got the highest score of 5.55, included in the category preferred by the panelists.

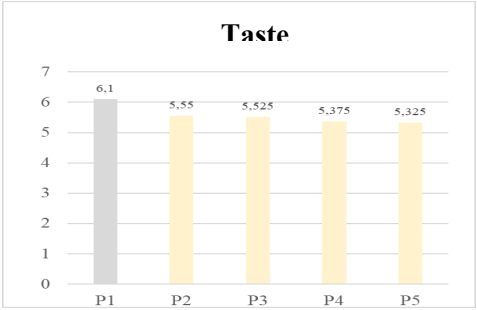

Figure 4. Organoleptic test results taste assessment criteria chart

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This shows that between the treatments tested, the addition of gelatin and sweet potato puree greatly affects the panelists' acceptance of the panna cotta flavor assessment criteria. This can be due to the fact that the panelists are not familiar with the addition of sweet potato puree to panna cotta, so that the lower the gelatin and sweet potato puree content, the more preferred by the panelists.

3.3 Effectiveness Test

The results of the effectiveness test in this study are presented in Table 4.11 below.

Table 9. Results of *the* Variable Effectiveness Test of the Research

Parameter	Weight	Value Weight	NH Formulation Value			
			P2	P3	P4	P5
Hardness (g)	9	0,1011	0,0000	0,1071	0,0988	0,0451
Adhesiveness	8	0,0899	0,0833	0,0693	0,0000	0,0611
Springiness	8	0,0899	0,0802	0,0000	0,0031	0,0833
Cohesiveness	8	0,0899	0,0952	0,0000	0,0549	0,0638
Gumminess	8	0,0899	0,0000	0,0832	0,0952	0,0442
Chewiness	8	0,0899	0,0000	0,0833	0,0606	0,0435
Resilience	8	0,0899	0,0833	0,0791	0,0728	0,0000
Beta Karoten	9	0,1011	0,0065	0,0952	0,0000	0,0951
Color	7	0,0787	0,0833	0,0000	0,0536	0,0000
Softness	7	0,0787	0,0833	0,0064	0,0000	0,0064
Taste	9	0,0787	0,1071	0,0952	0,0000	0,0000
Amount			0,6225	0,6190	0,4390	0,4425

The results of the effectiveness test on all assessment criteria (chemical test and organoleptic test) showed that the P2 treatment (gelatin 6g, sweet potato puree 40g) was the treatment with the best Yield Value (NH) of 0.6225 with an average value of *Hardness* 406.6140*, Adhesiveness* -63.1023*, Springiness* 0.9638*, Cohesiveness* 0.8223*, Gumminess* 327.3328*, Chewiness* 319.9463*, Resilience* 0.4133*,* Beta Carotene 6.4641, Color 5.625 (likes), Softness 5.6 (likes) and Taste 5.55 (likes).

4 Conclusion

The results of the study on the variation of gelatin and *sweet potato puree* (*ipomoea batatas 'cilembu'*) on all assessment criteria (chemical test and organoleptic test) showed that the P2 treatment (gelatin 6g, sweet potato *puree* 40g) was the treatment with the best Yield Value (NH) of 0.6225. with an average value of *Hardness* 406.6140*, Adhesiveness* -63.1023*, Springiness* 0.9638*, Cohesiveness* 0.8223*, Gumminess* 327.3328*, Chewiness* 319.9463*, Resilience* 0.4133*,* Beta Carotene 6.4641, Color 5.625 (likes), Softness 5.6 (likes) and Taste 5.55 (likes).

References

[1] "Indonesia: Dairy and Products Annual," *USDA FAS*, 2014. [Online]. Available: https://fas.usda.gov/data/indonesia-dairy-and-products-annual-0

[2] A. N. Fauziyah, P. Astuti, and S. Fathonah, "Pengaruh antara Pengetahuan dan Sikap Gizi Siswa dengan Pola Konsumsi Jajan Siswa di SD Negeri 08 Brebes," *FOCUZE*, vol. 11, no. 1, pp. 22–30, Apr. 2022, doi: 10.15294/focuze.v11i1.20001.

[3] A. Mahmudatussa'adah, "Komposisi Kimia Ubi Jalar (Ipomoea batatas L) Cilembu pada Berbagai Waktu Simpan sebagai Bahan Baku Gula Cair," vol. 23, no. 1, 2014.

[4] A. Z. A. Choir and A. A. Akbar, "Analisis kandungan glukosa dan daya terima gula cair berbahan dasar Ubi Cilembu (Ipomoea batatas L.)," *gikes*, vol. 5, no. 1, p. 133, Dec. 2023, doi: 10.30867/gikes.v5i1.1295.

[5] R. A. Pratiwi, "Pengolahan Ubi Jalar Menjadi Aneka Olahan Makanan : Review," *JT*, vol. 11, no. 2, pp. 42–50, Dec. 2020, doi: 10.47687/jt.v11i2.112.

[6] Juanda J.S, Dede and Cahyono, Bambang, *Ubi Jalar Budidaya dan Analisis Usaha Tani*. Yogyakarta: Kanisius, 2000.

[7] Putri, Sefanadia, "Kajian Aktivitas Indeks Glikemik Brownies Kukus Substitusi Tepung Ubi Jalar Termodifikasi," *Jurnal Kesehatan*, vol. 8, no. 1, pp. 18–29, 2018, doi: 10.26630/jk.v8i1.245.

[8] C. Santoso and T. Surti, "PERBEDAAN PENGGUNAAN KONSENTRASI LARUTAN ASAM SITRAT DALAM PEMBUATAN GELATIN TULANG RAWAN IKAN PARI MONDOL (Himantura gerrardi)," vol. 4, 2015.
[9] R. Cahyaningrum, K. K. Safira, G. N. Lutfiyah, S. I. Zahra, and A. A. Rahasticha, "POTENSI GELATIN DARI BERBAGAI SUMBER DALAM MEMPERBAIKI KARAKTERISTIK MARSHMALLOW: REVIEW," *PFTJ*, vol. 8, no. 2, pp. 39–44, Jul. 2021, doi: 10.23969/pftj.v8i2.4035.
[10] Weaver, Connie M. and Dniel, James R., *The Food Chemistry Laboratory*. London: CRC Press.
[11] W. Ningsih, M. Kamaludin, and R. Alfian, "Hubungan Media Pembelajaran dengan Peningkatan Motivasi Belajar Siswa Pada Mata Pelajaran PAI di SMP Iptek Sengkol Tangerang Selatan," vol. 06, no. 01.
[12] Samantha, Kezia, Suseno, T. I. P., and Utomo, Adrianus Rulianto, "Pengaruh Konsentrasi Karagian Terhadap Karakteristik Fisikokimia Dan Organoleptik Selai Murbei (Morus Nigra L.) Lembaran," *JTPG*, vol. 18, no. 2, 2019, doi: https://doi.org/10.33508/jtpg.v18i2.2159.
[13] Imami, Rahma Hambyah and Sutrisno, Aji, "Pengaruh Proporsi Telur Dan Gula Serta Suhu Pengovenan Terhadap Kualitas Fisik, Kimia Dan Organoleptik Pada Bolu Bebas Gluten Dari Pasta Ubi Kayu," *JPA*, vol. 6, no. 3, pp. 89–99, 2018, doi: https://doi.org/10.21776/ub.jpa.2018.006.03.10.
[14] Vemuri, Ravi Chandra, Gundamaraju, Rohit, Sekaran, Shamala Devi, and Manikam, Rishya, "Major Pathophysiological Correlations of Rosacea: AComplete Clinical Appraisal," *IVYSPRING*, vol. 12, no. 5, pp. 387–396, 2015, doi: https://doi.org/10.7150/ijms.10608.
[15] Ann, Kho Chin, Suseno, Thomas Indarto Putut, and Utomo, Adrianus Rulianto, "Pengaruh Perbedaan Konsentrasi Ekstrak Bit Merah Dan Gelatin Terhadap Sifat Fisikokimia Dan Organoleptik Marshmallow Beet.," *JTPG*, vol. 11, no. 2, pp. 28–36, 2012, doi: https://doi.org/10.33508/jtpg.v11i2.1472.
[16] Sohibulloh, Imron, Hidayati, Darimiyya, and Burhan, "Karakteristik Manisan Nangka Kering Dengan Perendaman Gula Bertingkat," *Agrointek*, vol. 7, no. 2, pp. 84–89, 2013, doi: https://doi.org/10.21107/agrointek.v7i2.2054.