

**PRODUCT DEVELOPMENT OF BEVERAGES GRASS JELLY
(*Premna oblongifolia* L Merr) WITH BEET (*Beta vulgaris*) FOR TEENEGARS**

Rima Annisa, Dudung Angkasa, Aprilita Rina Yanti

Program of Nutrition Faculty of Health Sciences
Esa Unggul University, Arjuna Utara Street No.9 West Jakarta. 11510
Email: rimaannisa7@gmail.com

ABSTRACT

Teenagers need higher nutrients, Increased physical growth and development, lifestyle changes and eating habits teenagers, affect both intake and nutritional needs. According to Riskesdas (2007) as many as 93.6% of early teenagers aged 10-14 years and 93.8% of late teens aged 15-20 years less to eat vegetables and fruits. Can be overcome with a drink made from natural ingredients. To know the content of fiber, nutrients as well acceptance of grass jelly beverage with additional beet, broccoli, and soursop. This was an experimental study using three grass jelly formulations, beets, broccoli, F1 (70g: 20: 10g), F2 (75g: 15g: 10g) and F3 (80g: 10g: 10g) with the addition of 30% soursop. The three formulations tested the nutritional value of fiber content and proximate value. and then, the organoleptic test by a semi-trained panelists were 35 people using VAS (Visual Analog Scale). Data analysis using *One Way Anova*. Treatment of F3 with addition, 10g beet, 10g broccoli, and 30% soursop was the most preferred treatment of panelists. In addition hedonic parameters: taste and texture, it Gives significant effect ($p < 0.05$), color (65.08 ± 11.59), aroma (68.85 ± 08.53), and whole (65.54 ± 9.21). Parameters of hedonic quality: taste and texture, gave significant effect ($p < 0.05$) in color (57.86 ± 14.03) and fragrance (58.49 ± 11.27). Proximate results in% Carbohydrates (1.65 ± 0.01), Protein (0.14 ± 0.01), Fat (0.19 ± 0.01), Fiber (1.48 ± 0.01), Moisture (97.81 ± 0.01) and Content (0.21 ± 0.01). Chopped with beetroot product result fiber content of 1.48% and this product can be said fiber source if consumed per 250 ml or about 3.7 g of fiber. This is in accordance with BPOM.

Keywords: Grass jelly (*Premna oblongifolia* L Merr), beet (*Beta vulgaris*), Teenagers.

INTRODUCTION

Teenagers require higher nutrients due to increased physical growth and development of the dramatic, then a change in lifestyle and eating habits of adolescents affect both intake and nutritional needs. According to Riskesdas, (2007) as much as 93.6% early teens aged 10-14 years and 93.8% aged 15-20 years late teens consume less fruit and vegetables. One of the problems associated with adolescent eating behavior is the lack of fruit and vegetable consumption [1].

If there is a deficiency in the consumption of fruits and vegetables will cause the body lacks the intake of nutrients such as vitamins, minerals, and fiber, so it can lead to a variety of diseases [2]. Diet during adolescence can affect health status in adulthood and will be eating constantly followed throughout life [3].

Fiber includes portions of food are not easily absorbed and nutritional contribution can be ignored, but dietary fiber has an important function that is not replaceable by other substances. Fiber foods also contain sugar as the main building blocks and functions that can bind and bind or react with each other or with other components. One of the most vulnerable age group if less consumption of vegetables and fruit are teens because adolescence is a critical period in the growth and maturation of human [4].

Green grass jelly (*Premna oblongifolia* L Merr) is one of the plants that contain fiber. People often take advantage of green grass jelly as an ingredient in beverages because of its ability to form a gel. Green grass jelly extract of the plant can form gels because they contain soluble fiber, one of which is polysaccharide pectin [5].

Red beet (*Beta vulgaris*) is rich in various B vitamins are vitamin B1, B2, B3, and B6. The main nutrient content of red beet is folic acid, fiber, and sugar, but the calorific value of red beet is still moderate. Beet is one fruit that has a complete nutritional content and very good to eat regularly [6].

Broccoli (*Brassicaoleracea var.Italica*) is a plant that is known to have properties that are healthy as well as foods that contain high nutrients such as vitamins and minerals in the amount the body needs and contains few calories (nutrient dense). Broccoli can reduce the risk of hyperglycemia and hyperlipidemia and maintain the balance of blood sugar making it a good choice of vegetables for diabetics. At 100 grams of broccoli, there are about 3 grams of fiber [7].

Soursop (*Annona muricata* L.) is a fruit that has a fairly large size and can weigh up to 2.5 kg. This fruit contains a lot of carbohydrates, especially fructose and vitamins such as vitamin C. Soursop is one potential source of antioxidants. Soursop fruit contains phenolic compounds and flavonoids which act as antioxidants high because it has a molecular structure that can give electrons to free radical molecules [8].

Purpose of the Researcher

Know the content of fiber and nutrients plus the power of little grass, broccoli, and soursop.

METHODS

Materials and Equipment

Materials used in this study were divided into two parts, namely basic materials and additional materials. The materials used for the manufacture of leaves of grass jelly comprises water. Materials used as an addition consisting of beet, broccoli, soursop, water and sugar.

The tools used in the manufacture of grass jelly namely digital scales, container, blender, sieve, and knife. Equipment for *proximate* analysis test used is glass appliances, spatula, desiccator, condenser, soxhlet, bowls, filter paper, and distillation equipment.

Design of Experiments

This research was conducted in two phases, Phase I to determine the formulation of grass jelly with the addition of beets and broccoli consists of three levels, namely: F1 (70g: 20: 10), F2 (75g: 15g: 10g) F3 (80g: 10g: 10g) with the addition of 30% soursop (soursop 30gr in 100ml water) for each formulations. While the phase II study to see grass jelly drink with the addition of beets, broccoli and soursop most preferred by the panelists. Instruments in the organoleptic research that is using the VAS (*Visual Analogue Scale*) include hedonic test and hedonic quality test conducted by 35 panelists semi-trained, as well as the analysis of the data using One Way Anova. The treatment is chosen by organoleptic, then performed a chemical analysis includes moisture, ash, fat, protein, carbohydrates and fiber.

Produce the Leaf Extract Grass jelly

Grass jelly production method is with the selection of appropriate materials, which leaves that fit the criteria that not perforated and curled. Dirt on the leaves cleaned and weighed leaves then washed using flowing water. Grass jelly leaf extract obtained by the method of kneading until issuing extract gel form that is traditionally manufactured is often used in the community. The addition of beets, broccoli and soursop must also meet the criteria: Materials used must be fresh, not perforated, and there are no impurities.

Manufacturing of Soursop Fruit

Fruit prepared each 30g without skin and seeds. Pulverized using a blender with the addition of 100ml water and 30g sugar, after which the results are filtered. And mixing with as a sweetener.

Manufacture Grass jelly With the addition of Beet

Grass jelly made from a mixture of beets and broccoli was boiled at a temperature of 700-800 C for 2-3 minutes and then blended up into juice/cider. Grass jelly-making process sequence with the addition of beets as follows: leaf grass jelly washed using water, peeled beets of outer skin, broccoli cleaned, washed, cut and boiled with a temperature of 70-80⁰ C for 2-3 minutes. Grass Jelly kneaded using mineral water and filtered and then added beets and broccoli in a blender. Then grass jelly which has become a gel, add the juice soursop fruit as a sweetener.

RESULTS

In this research the determination of preliminary formulation was done to test or determine the formulation of grass making with the addition of beets, to produce the best formulation. Initial preliminary research is a beet ring consisting of 3 formulations (1) 70:20, formulation (2) 75:15 and formulation (3) 80:10. The resulting beetle has a chewy texture and the aroma is like a grass in general. The resulting aroma of formulation 1 and formulation 2 is more swift than the 3 puree formulations because the leaves of the rhinoceros are more than those of formulations 1 and 2.

Then a second preliminary study added soursop fruit and broccoli. The addition of broccoli to beam beet grass consisting of 3 formulations is formulation (1) 60:20:20, formulation (2) 70:15:15, and formulation (3) 80:10:10. The beetle produced after added broccoli has a very delicate aroma. The resulting texture is chewy very easy to experience *sineresis* (small amount of gel discharge due to contraction). Furthermore in each formulation added juice sours as much as 30% (30 g in 100 ml water). Mixing of soursop juice with a slight jelly in the manufacture of this product is expected to reduce the odor on the grass jelly ingredients and enhance the taste of the beet grass.

Snack beverage products with additional beets are using the main ingredients of green grass jelly leaves. Other ingredients added to the grass into a little, broccoli and soursop. . This ring is a natural beverage made from green cincau leaves extract with the addition of beets, broccoli and soursop that are the source of fiber from vegetables and fruits, do not use artificial sweeteners, food coloring and contain low sugar. Compared to the yellow-packaged beverage products on the market like ye * 's made from black jelly extract, using caramelized food coloring, not containing fiber (0g), and containing high sugar (23g / 350ml). Then the shortage of this cincau is easy *sineresis*, not durable because it does not use preservatives.

The main target in this research is the jelly beverage product for teenagers. Healthy foods, high in calories, and high in fat, comparing fruit and vegetables [9].

Grass jelly (*Premna oblongifolia L merr*) obtained from Duri Kepa urban village, Tanjung Duren, West Jakarta. The green ring has a fiber content of 6.0 g / 100 g [10]. Beet (*Beta vulgaris*), broccoli (*Brassica oleracea var Italica*) and soursop (*Annona muricata L.*) are used because of one of the traditional markets in Duri Kepa area.

Table 1. Quality Hedonic Drink Result

Parameter	Mean ± SD (mm)			Sig
	F1	F2	F3	
Taste1	55.97±12.39	59.26±10.03	61.91±11.34	0.093
Color2	66.26±11.49 ^a	61.00±09.80 ^{ab}	57.86±14.03 ^b	0.014
Aroma3	51.03±15.02 ^a	56.17±10.45 ^{ab}	58.49±11.27 ^b	0.040
Texture4	49.66±16.61	54.29±14.41	55.77±11.22	0.179

Note:

Data are presented in mean± SD

Data followed by letters superscript different have a significant difference.

The data followed by the letter superscript have the same significant difference

data not followed by letter superscript means there is no difference significant

F1 :Addition 20 grams of beet

F2 :Additions 15 grams of beet

F3 :Addition 10 grams of beet

1 _{Taste}	:Better (00 mm) until Sweet(100 mm)
2 _{Color}	:Dark Green (00 mm) to Dark red (100 mm)
3 _{Aroma}	: <i>Langu</i> (00 mm) to not <i>Langu</i> (100 mm)
4 _{Texture}	:Flabby (00 mm) until a better chewy (100 mm)

Table 2. Hedonic Drink Result

Parameter	Mean ± SD (mm)			Sig
	F1	F2	F3	
Overall1	58.88±14.66 ^a	63.22±08.70 ^{ab}	65.54±09.21 ^b	0.045
Taste2	61.05±12.76	62.40±09.27	65.97±10.32	0.154
Color3	71.28±11.72 ^a	69.34±07.86 ^{ab}	65.08±11.59 ^b	0.046
Aroma4	62.31±08.63 ^a	66.08±09.93 ^{ab}	68.85±08.53 ^b	0.012
Texture5	60.65±09.25	61.08±10.05	64.51±09.81	0.196

Note:

Data are presented in mean ± SD

The data followed by different *superscript* letters has a significant difference.

The data followed by the same *superscript* letter has an insignificant difference

Data that is not followed by *superscript* letters means there is no significant difference

F1 : Added 20 grams of beets

F2 : Added 15 grams of beets

F3 : Add 10 grams of beets

1_{Overall} : Dislikes (00 mm) to very likes (100 mm)

2_{Taste} : Dislikes (00 mm) to very likes (100 mm)

3_{Color} : Dislikes (00 mm) to very likes (100 mm)

4_{Aroma} : Dislikes (00 mm) to very likes (100 mm)

5_{Texture} : Dislikes (00 mm) to very likes (100 mm)

Table 3. Drink Nutritional Value Results

Nilai Gizi	Mean±SD(%)			Sig	Syarat Mutu SNI
	F1	F2	F3		
Carbohydrates1	1.71±0.01	1.68±0.04	1.65±0.01	0.234	-
Protein2	0.18±0.00	0.15±0.01	0.14±0.01	0.069	-
Fat3	0.15±0.00	0.16±0.00	0.19±0.01	0.081	-
Fiber4	1.38±0.00 ^a	1.43±0.00 ^b	1.48±0.01 ^c	0.006	-
Water					
Concent5	97.69±0.02 ^a	97.76±0.02 ^{ab}	97.81±0.01 ^b	0.038	-
Ash Concent6	0.25±0.00 ^a	0.24±0.04 ^a	0.21±0.01 ^b	0.035	-

Note:

Data are presented in mean ± SD

Data followed by different *superscript* letters have significant differences.

The data followed by the same *superscript* letter makes no difference

Data suppressed by *superscript* letters means no significant difference

important

F1 : Added 20 gram beets

F2 : Added 15 gram beets

F3 : Add 10 grams of beets

1_{Carbohydrates} : *Difference* method

2 Protein	: Gravimetri method
3 fats	: Oven method
4 Fibers	: Gravimetri method
5 Water content	: Oven method
6 Ash Content	: Tanur method

Figure 1. Product Results

Figure 1. Represents the product of cincau drinks with the addition of broccoli and so



Figure 1. Represents the product of cincau drinks with the addition of broccoli and soursop selected.

Quality hedonic Sense

Based on Table 1 shows that the highest average value in F3 at $11:34 \pm 61.91$ mm with descriptions better to sweet. Results of the analysis *One Way Anova* of 0.093 ($p > 0.05$) that there was no significant difference in the value average quality grass jelly flavor beets.

The hedonic Sense

Based on Table 2. shows that the highest average value in F3 at $10:32 \pm 65.97$ mm with descriptions really do not like to like. Analysis of the results *One Way Anova* of 0.154 ($p > 0.05$) that there was no significant difference on the average value of A taste of grass jelly beets.

The hedonic quality Colors

Based on Table 1 shows that the highest average value in F1 at $11:49 \pm 66.26^a$ mm with a description of dark green to dark red. Results of the analysis *One Way Anova* of 0.014 ($P < 0.05$) that there is a significant difference on the average value of grass jelly-beet color quality.

The hedonic Colors

Based on Table 2 shows that the highest average value in F1 of 71.28 ± 11.72^a mm with a description of very like to strongly dislike. Results of the analysis *One Way Anova* of 0.046 ($P < 0.05$) that there was a significant difference in the value average a beet color grass jelly.

Further test results *Duncan* on hedonic and hedonic quality obtained significant values ($p < 0.05$), namely the treatment of F1 and F2, F2 and F3 there is no real difference, then between

F1 and F3 treatment have a significantly different color. While the F1 and F2, F2 and F3 did not have a noticeable difference. The color produced on grass jelly beets formulation 1 (F1) is very concentrated (dark red) compared with formulations 1 (F1) for the addition of beets of the formulation 3 (F3) is less than the formula one (F1) are made of 70 g of grass jelly with the addition 20 g beets. Because of the beets of very high pigment containing approximately 75% - 95%. This study is in line with [11] the higher the extract beets then use the resulting color will be more purplish red

Hedonic quality of Aroma

Based on Table 1 shows that the highest average value in F3 of 58.49 ± 11.27^b mm with descriptions dark green to dark red. Results of the analysis *One Way Anova* of 0.040 ($P < 0.05$) that there is a significant difference on the average value of the quality of the scent of grass jelly beets.

The hedonic Aroma

Based on table 2 shows that the highest average value in F3 of $68.85 \pm 8.53a$ mm with the description is very like to strongly dislike. Results of the analysis *One Way Anova* of 0.012 ($P < 0.05$) that there is a significant difference on the average value of Ascent of grass jelly beets.

Further test results *Duncan* on hedonic and hedonic quality obtained significant values ($p < 0.05$), which is significantly different treatment contained in F1 to F3, meaning the scent of grass jelly have significant differences ($P < 0.05$). While the F1 and F2, F2 and F3 did not have a noticeable difference. This study is in line with [12] the higher the use of extracts beets then the aroma of tubers on the resulting beet will be more flavorful robust, panelists preferred the scent of syrup in treatment by comparison juice soursop higher, this is due to the scent of soursop strong and preferred by the panelists than the beets that have unpleasant odor and the smell of the soil.

The hedonic quality Texture

Based on Table 1 shows that the highest average value in F3 at 11.22 ± 55.77 mm with a description of mushy until better chewy. Analysis of the results *One Way Anova* of 0.0179 ($p > 0.05$) that there was no significant difference in the value average quality grass jelly texture beets.

The hedonic Texture

Based on Table 2. Demonstrate that the highest average value in F3 of 64.51 ± 9.81 mm with descriptions really like to strongly dislike. Results of the analysis *One Way Anova* of 0.046 ($p > 0.05$) that there was no significant difference on the average value of a texture of grass jelly beets.

Overall hedonic

Based on table 2 shows that the highest average value in F3 of 65.54 ± 9.21^b mm with descriptions really like to strongly dislike. Results of the analysis *One Way Anova* of 0.046 ($P < 0.05$) that there is a significant difference on the average value of the overall a grass jelly beets.

Test result in further *Duncan* hedonic obtained significant values ($p < 0.05$), namely the treatment of F1 to F3 on the overall *Grass jelly* have significant differences ($P < 0.05$). While the F1 and F2, F2 and F3 did not have a noticeable difference.

Nutritional Value (Proximate)

Carbohydrate

Carbohydrate levels are calculated by difference. Carbohydrates obtained in the treatment of F1 has a value of $1.71 \pm 0.01\%$. Comparison of carbohydrates in F1 is the highest due to the manufacture of this grass jelly is a bit where the bit is a type of tubers.

Protein

Based on protein testing using gravimetry, the highest protein is found in Formula 1 (F1) with $0.18 \pm 0.00\%$, protein content obtained including low protein content, because the ingredients used are from vegetables and fruits which are not high protein sources. [13] a food product is said to be a protein source if it contains at least 20% protein / 100 g of the product

Fat

Based on fat testing using oven method, the highest fat was found in F3 with value $0.19 \pm 0.01\%$. This beverage drink is a low-fat beverage because the ingredients contained in this product is made from vegetables and fruits that contain less fat.

Water Content

Based on testing moisture content using methods, the oven, fiber obtained in the treatment Grass jelly F3 has a value of $97.81 \pm 0.01\%$. According [14] that the high water levels caused by the heating process when the change in structure between starch and gluten protein due to the formulation of use leaf grass jelly more gel on grass jelly containing pectin can bind the fluid, then the water contained on grass jelly drinks beets derived from water added while extracting the leaves and water that comes from the leaves of grass jelly itself, as well as the addition of beets, broccoli, and soursop will also affect the water content of the grass jelly.

Ash Content

Based on testing using methods ash furnace content, fiber obtained in the treatment Grass jelly F3 has a value of $0.25 \pm 0.00\%$, beets of grass jelly drink product has ash content is high enough because there are some minerals contained in the leaves of grass jelly (*Premna oblongifolia* L.Merr) such as calcium (Ca), phosphorus (P), iron (Fe), magnesium (Mg) and some other minerals. This study is in line with [14], ash content in the product grass jelly, a jelly drink is still larger than drinks jelly the leaf hantap 0:18%.

Fiber

Based on testing using method of crude the gravimetric fiber, the fiber obtained in the treatment Grass jelly F3 has a value of 1:48% or equal to 1/3 of the daily fiber needs, it is because this study only uses materials and additions are not many. According to BPOM a food product is said to contain of fiber if the fiber 3g / 100g of material. This is a distraction grass

jelly drink it with existing fiber content, is good enough for every day sure everyone consumes other foods that contain fiber such as vegetables, fruits, and whole grains [13].

CONCLUSIONS

The formulations are set at F1 (70g: 20g: 10), F2 (75g: 15g: 10), and F3 (80g: 10g: 10). Based on the test results of the hedonic product formulations grass jelly F3 become the most preferred by the panelists, F3 is the grass jelly beets with grass jelly formulation leaves 80 g, 10 g of beet, 10 g broccoli and 30% soursop. Products grass gelly beet F3 has an average value of test hedonic parameters flavors of 65.97 ± 10.32 mm, the color parameter of 65.08 ± 11.59 , parameter aroma of 68.85 ± 5.53 mm, the parameters of the texture of 64.51 ± 09.81 mm, the parameters totaling 65.54 ± 9.21 mm. Based on the results of the Quality hedonic product Grass jelly that are the F3 with the formulation of 80 g leaves of grass jelly, 10 g of beet, 10 g broccoli and 30% soursop, had an average value parameter flavor of 61.91 ± 11.34 mm, parameter color of 57.86 ± 14.03 , parameter aroma of 58.49 ± 11.27 mm, the texture parameter of 55.77 ± 11.22 .

Moisture content, ash content and the fibers have a noticeable difference.

Based on the research that has been done, the researchers suggest further research necessary to perform the analysis of the physical properties of these beets grass jelly products which include sineresis conditions, water activity, grass jelly formulation, gel strength, and durability of the product. Addition of "jelly" and other fruit flavors can be further assessed produce transform the texture, flavor, and aroma is stronger. Advanced researchers suggested that can make a higher fiber content with more formulation as well as select other materials that contain higher fiber. Further research may identify others nutritional value, such as vitamin C, antioxidants, and iron.

REFERENCES

1. Balitbangkes. (2007). Riset Kesehatan Dasar. *Departemen Kesehatan, Republik Indonesia*.
2. Hermina, H. (2016). Gambaran Konsumsi Sayur dan Buah Penduduk Indonesia dalam Konteks Gizi Seimbang: Analisis Lanjut Survei Konsumsi Makanan Individu (SKMI) 2014. *Jurnal Penelitian Kesehatan*, 44(3), 205-218.
3. Virlita, V., Destriatania, S., & Febry, F. (2015). Perception Dietary Fiber Consumption Habits in Youth Junior and Senior High School City of Palembang in 2013. *Jurnal Ilmu Kesehatan Masyarakat*, Vol 6(2), No 02.
4. Dhaneswara, D. P. (2017). Faktor Yang Mempengaruhi Niat Makan Sayur Dan Buah Pada Mahasiswa Asrama Universitas Airlangga. *Jurnal PROMKES*, 4(1), 34-47.
5. Nurdin, K. A. (2008). Pengaruh Pemberian Bubuk Ekstrak Cu-Turunan Klorofil daun Cincau Hijau (*Premna oblongifolia* Merr.) Terhadap Profil Lipid Darah Kelinci. *Jurnal Media Gizi & Keluarga*, 104-114.
6. Suryandari, A. E., & Happinasari, O. (2015). Perbandingan Kenaikan Kadar Hb Pada Ibu Hamil Yang Diberi Fe Dengan Fe Dan Buah Bit Di Wilayah Kerja Puskesmas Purwokerto Selatan. *Jurnal Kebidanan*, 7(01).

7. Setyoadi, U, Y. W., & Lowita, S. F. (2014). Jus Brokoli Menurunkan Kadar Low Density Lipoprotein Darah pada Tikus Model Diabetes Melitus. *Jurnal Kedokteran Brawijaya*, 28(1), 26-29.
8. Prasetyorini, P., M, W., & Rusli, Z. (2014). Potensi Antioksidan Berbagai Sediaan Buah Sirsak (*Annona muricata* L). *Penelitian Gizi dan Makanan. The Journal and Food Research*, 137-244.
9. Dyah P, I., Muwakhidah, & Indriyani, L. (2011). Pengembangan Model Pendidikan Gizi Dengan Media Leaflet Terhadap Peningkatan Pengetahuan Tentang Serat Makanan (Dietary Fiber) pada remaja di SMK DWIJA DHARMA Boyolali. *Jurnal Kesehatan Vol.4*, 32
10. Pitojo, S. (2008). *Khasiat Cincau Perdu*. Kanisius, Yogyakarta
11. Liana, Ayu, D. F., & Rahmayuni. (2017). Pembuatan Susu Kedelai Umbi Bit Dalam Pembuatan Es Krim. *Jurnal Online Mahasiswa Fakultas Pertanian Riau*, Vol. 4 No. 2.
12. Bastanta, D., Karo-Karo, T., & Rusmarilin, H. (2017). Pengaruh Perbandingan Sari Sirsak Dengan Sari Bit Dan Konsentrasi Gula Terhadap Sirup Sabit. *Jurnal Ilmu dan Teknologi Pangan*, Vol.5 No.1.
13. Pamungkas, A., Sulaeman, A., & Roosita, K. (2014). Pengembangan produk minuman jeli ekstrak daun hantap (*Sterculia oblongata r Brown*) sebagai alternative pangan fungsional. *Jurnal Gizi Dan Pangan*, Vol 9, No. 3.
14. Widyatmoko, R. B., & Estiasih, T. (2015). Karakteristik Fisikokimia dan Organoleptik Mie Kering Berbasis Tepung Ubi Jalar Ungu pada Berbagai Tingkat Penambahan Gluten. *Jurnal Pangan dan Agroindustri*, Vol 3 No.4
15. [BPOM] *Badan Pengawasan Klaim dan Label Dalam Iklan Pangan Olahan*. (2011). HK. 03.1.23.11.11.09909