

# PROCEEDING BOOK

THE 1<sup>st</sup> INTERNATIONAL CONFERENCE  
ON INTERPROFESSIONAL  
HEALTH COLLABORATION

**“Combating The Growing Epidemic of  
Triple Burden Diseases through  
Interprofessional Health Collaboration in  
Developing Countries”**

**GRAGE HOTEL BENGKULU, INDONESIA**

**October 30-31th**

**2018**



**KEMENTERIAN  
KESEHATAN  
REPUBLIK  
INDONESIA**



**HEALTH POLYTECHNIC OF HEALTH MINISTRY BENGKULU**  
**Jl. Indragiri No.3, Padang Harapan, Kota Bengkulu, Indonesia 38225**  
**Phone/Fax.62-736-341212. Email : [icihcpoltekkesbengkulu@gmail.com](mailto:icihcpoltekkesbengkulu@gmail.com)**

# PROCEEDING BOOK

## *THE 1<sup>th</sup> INTERNATIONAL CONFERENCE ON INTERPROFESSIONAL HEALTH COLLABORATION*

### **“Combating The Growing Epidemic of Triple Burden Diseases through Interprofessional Health Collaboration in Developing Countries”**

GRAGE HOTEL BENGKULU, INDONESIA

October 30-31<sup>th</sup>  
2018



KEMENTERIAN  
KESEHATAN  
REPUBLIK  
INDONESIA



HEALTH POLYTECHNIC OF HEALTH MINISTRY BENGKULU  
Jl. Indragiri No.3, Padang Harapan, Kota Bengkulu, Indonesia 38225  
Phone/Fax.62-736-341212.Email : [icihcpoltekkesbengkulu@gmail.com](mailto:icihcpoltekkesbengkulu@gmail.com)

Proceeding Book

The 1<sup>th</sup> INTERNATIONAL CONFERENCE ON  
INTERPROFESSIONAL HEALTH COLLABORATION

“Combating The Growing Epidemic of Triple Burden Diseases  
through Interprofessional Health Collaboration in Developing  
Countries”

**Editorial Board for  
Proceeding Chief:**

Dr. Tonny C Maigoda, SKM., MA

**Members:**

Eliana, SKM, MPH  
Yuniarti, SST, M.Kes  
Resva Meinisasti, S.Farm, Apt  
Ns. Hermansyah, S.Kep., M.Kep  
Sunita RS, SKM., M.Sc  
EptiYorita, SKM., MPH  
Lusi Andriani, SST., M.Kes  
Yenni Okfrianti, STP., MP  
Ratna Dewi, SKM., MPH  
Sandy Ardiansyah, SST

**Reviewers :**

Prof. Guwarni Anwar  
dr. Hamim Sadewa, Ph.D  
Prof. Mustofa, Apt  
Prof. Ali Khomsan  
Moesijanti Soekatri, MCN., Ph.D

**Editors:**

Dr. Demsa Simbolon, MKM  
Dr. Betty Yosephin, MKM  
Dr. drg. Daisy Novira, MARS  
Dr. Rustam Aji

**Steering Committee**

**Prof. dr. Endang Laksaminingsih, MPH., Dr. PH**  
(University of Indonesia)

**Dr. Jane Buncuan**

(Faculty of Medicine and Health Science University Malaysia Sarawak (UNIMAS))

**Teresita R. Irigo-Barcelo, Ph.D., RN**  
(Centro Escolar University, Philippine)

**Asst. Prof. Niramol Punbusyakul, Ph.D**

(Head of the Department of Food Science, Faculty of Science, Burapha University, Thailand)

**Prof. Ritu Priya**

(Center of Social Medicine and Community Health in Jawaharlal Nehru University, Delhi)

ISBN 978-623-90336-0-6



9 786239 033606

Publisher

**HEALTH POLYTECHNIC MINISTRY OF HEALTH BENGKULU**

## Table of Contents

<i>Page Address from The Chairman of The Conference .....</i>	<i>viii</i>
<i>Address from Governor Bengkulu.....</i>	<i>ix</i>
<i>Address from Director of Health Polytechnic of Health Ministry Bengkulu .....</i>	<i>ix</i>
<i>Full text of Oral Presentation.....</i>	<i>10</i>
<i>Full text of Poster resentation .....</i>	<i>142</i>
<b>The Effect Of Playing Puzzle And Listening To Music Against Anxiety In Children Age Preschool In Edelweis Room Rsud Dr. M. Yunus Bengkulu</b>	
Agung Robby Ichwanda, Hermansyah, Nehru Nugroho .....	01-05
<b>The Effectiveness Of <i>Sweetbae</i> In Order To Influence The Quantity Of Baby Sleep</b>	
Alyxia Gita Stellata .....	06-12
<b>The Influence Of Counseling Guidance On Mother Coping With Low Birth Weight Infant In The Incubator Perinatology Room Of Rsud Dr . M Yunus Bengkulu 2018</b>	
Elza Ariska .....	13-17
<b>The Risk Of Low Back Pain Among Women Working As Green Mussel Shell Peeler In Kamal Muara Area, North Jakarta</b>	
Nurdahlia, Eska.....	18-23
<b>The Effect Of Progressive Muscle Exercise On The Reduction Of Stress Levels Stroke Patients In Saraf Poly Rsud Dr M. Yunus Bengkulu</b>	
Ilfana Ichsaniyah Mahmoeddin, Hermansyah, Husni .....	24-27
<b>The Antimicrobial Activity Leaf Extract From Series (<i>Muntingia Calabura L</i>) On The Growth <i>Staphylococcus Aureus</i></b>	
Indah Permata Sari, Raden Sunita, Resva M .....	28-31
<b>The Relationship Between Pregnant Women's Hemoglobin Levels And The Newborn Physical Maturity</b>	
Kamsatun, Atin Karjatin .....	32-39
<b>Factors Relating To Hipeurismia In Elderly In Integrated Development Post (Posbindu) Working Area Of Nusa Indah Public Health Center 2018</b>	
Kartika Oktarini.....	40-48
<b>The Differences Between Intake Of Energy And Protein Toward The Patient Of Chronic Kidney Disease Who Undergo The Hemodialysis After Provided By Diet Education In Hemodialisardud Room Of Dr. M Yunus Hospital Bengkulu</b>	
Lestiana, Septiyanti, Dahrizal .....	49-55

<b>Experience And Psychological Analysis In Female Patients With Chronic Kidney Failure Who Underwent Hemodialysis In Dr. M.Yunus Hospital Of Bengkulu</b>	
Liza Fitri Lina.....	56-72
<b>Relationship Characteristics Of Individuals And Environmental Factors To Conduct Defecation (Babs)</b>	
Lukita Melian Dika .....	73-79
<b>Effect Of Snack Bar Based On Fermented Glutinous Black Rice In Waist Circumference Decrease And Weight Loss In Obese Adults</b>	
Fauziyah, Roro Nur; Rohmawati, Inlan Nur; Hapsari, Agustina Indri.....	80-92
<b>Asi Relations House Exclusive And Environment Of Events Of Pneumonia In The Health District Width City Bengkulu</b>	
Melisa Fitriany, Wisuda Andeka, Yuniarti .....	93-97
<b>The Relationship of Personal Hygine, Behaviour and Environmental Health Facilities Availability WithThypoid Fever in Sukamerindu Health Center Bengkulu City</b>	
Mely Gustina .....	98-102
<b>Risk Analysis Impaired Respiratory Due To Gas Ammonia (Nh3) In The Factory Worker Rubber</b>	
Muchsin Riviwanto .....	103-105
<b>The Effect Of Health Education Through Social Media On The Knowledge Of Adolescents About Premarital Sex At Senior High School Number 10 Of Bengkulu City</b>	
Rachmawati .....	106-109
<b>Black tapai Berry Ice Sherbet Product is Rich in Anthocyanin and Fiber to Prevent Obesity</b>	
Fauziyah Roro Nur, Fajriyanti N, Fitria Mona.....	110-117
<b>The Formula And Determine The Effect Of Muffin Based On Fermented Glutinous Black Rice And Black Rice On Organoleptic Properties, Fiber Content, And Anthocyanin</b>	
Fauziyah Roro Nur, Slanikovita Arizky Kusuma, Surmita.....	118-127
<b>The Effect On Diapering Care Education (Diapers Use And Care) Towards Diapering Care And Diaper Rash On Infants In Puskesmas Bengkulu City 2018</b>	
Shintani Wulandari .....	128-135
<b>Gel Formulation Of Guava Leaf (Psidium Guajava Linn) Ethanol Extract With Hpmc (Hidroksipropil Metil Selulosa) As Gel Base</b>	
Suci Rahmawati .....	136-140
<b>Relationship B Etween Anemia A Nd Uteri Atonia In Hospital Mother In Dr. M Yunus Bengkulu</b>	
Tia Setriana, Eliana, Elly Wahyuni.....	141-148
<b>Dates Effective Accelerates Labor In Primipara Mother</b>	
Vivilia Prajna Angriantika.....	149-152



## **Address from the Governor of Bengkulu Province**

Dear honorary guests and participants,

First, I Recommend Welcome To Our Guests From State Friends Of Thailand, Malaysia, Philippines, And India And Speakers From Indonesia As The Host. Welcome To *Bumi Rafflesia*. And Happy To Enjoy The Beauty Of Bengkulu City Which Is A Historical City For The Indonesian Nation.

To Poltekkes, Bengkulu Ministry Of Health, Which Has Implemented International Seminars Today, This Polytech Is A Higher Education, Which Is Superior In Educating Health Personnel, Bengkulu And Indonesia Property In General And Always Visiting The Tri Dharma Of Higher Education.

I Realize That An Important Thing In Life Is Health, There Is No Meaning We Life If We Are Not Healthy, Then From The Role Of Health Personnel Is Very Important To Improve Optimal Health.

Ladies And Gentlemen,

The Success Of Health Development In Indonesia Must Implement The Entire And Integrated Health Development Program According To The Health Problems Faced By The Community.

At The Time Of Existing Diseases From Infection Disease To Degenerative Diseases That Need Handling Readiness Carefully Through The Approach To The Potential And Empowerment Of The Community. With The Multi Discipline Approach.

Increasing Health Services Can Improve The Aptitude Of Community As Well As Decrease The Number Of Illness And Mortality In Any Region, And To Enhance The Available Health Service.

That Is All And Thank You

Governor Of Bengkulu



Dr Drh Rohidin Mersyah, MMA

## **Address from the Director of Health Polytechnic of Health Ministry Bengkulu**

Dear honorary guests and participants,

Welcome to the International Conference which is held annually in our institution Bengkulu Health Polytechnic. This is our first event of International Conference. We hope this event can be our place to share knowledge from many field studies related to health science.

It is a great pleasure to invite you in The 1<sup>st</sup> International Conference on Interprofessional Health Collaboration. The International Conference on Health Sciences Named "Combating The Growing Epidemic of Triple Burden Diseases through Interprofessional Health Collaboration in Developing Countries". We have missions to improve health collaboration in other health education, research and community service. This conference is one of the way to achieve our vision and mission Bengkulu Health Polytechnic.

We have a great expectation that this conference can be our good environment to develop knowledge, to share experience, to have interaction between us and of course to give contribution for our health world. We do hope the success of the conference and we hope you all enjoy it.

Sincerely,



Darwis, S.Kp., M.Kes  
Director Bengkulu Health Polytechnic

# BLACK TAPAI BERRY ICE SHERBET PRODUCT IS RICH IN ANTHOCYANIN AND FIBER TO PREVENT OBESITY

Fauziyah Roro Nur, Fajriyanti N, Fitria Mona Jurusan Gizi Poltekkes Kemenkes Bandung e-mail : roronur70@yahoo.com

## ABSTRACT

*Obesity is a condition caused by disturbance of energy balance in the body, 19.7% of Indonesian male population is overweight and 32.9% are women. Anthocyanin and fiber have been associated with several therapeutic roles including beneficial effects on obesity. Black Tapai Berry Ice Sherbet product is rich in anthocyanin and fiber are needed to prevent obesity which has been proven that some studies are used as antiobesity. The purpose of this research is to get the formulation of black-stained tapai and strawberry, to determine the effect of Black Tapai Berry Ice Sherbet formula to the color, aroma, taste, and texture of the product, and to analyze the anthocyanin and fiber of product. This type of research is an experimental study using Complete Randomized Design. The method research used hedonic test to know the organoleptic properties, differential pH for anthocyanin test, and enzymatic gravimetric for fiber test. The formulation of Black Tapai Berry Ice Sherbet was obtained from previous research, F1(25%: 75%), F2 (50%: 50%), F3 (75%: 25%). The results of Kruskal Wallis test showed significant differences in hedonic test (color, aroma, taste, and texture). F3 has the highest level in color, aroma, taste, and texture. The anthocyanin and fiber content in Black Tapai Berry Ice*

*Sherbet products is 22,1 mg and 3.25 g per 100 g of product.*

**Keywords:** *Black Tapai Berry Ice Sherbet, Organoleptic Properties, Anthocyanin, Fiber*

## Introduction

Obesity is often defined as an abnormal condition or excess fat that is serious in adipose tissue, which disrupts health. The main cause of obesity is an imbalance between energy entering and energy out<sup>1</sup>. In 2014, more than 1.9 million adults were overweight (overweight), and more than 600 million people were obese. The prevalence of obese adult male population in Indonesia in 2013 was 19.7%, while the prevalence of adult female obesity was 32.9%<sup>2</sup>.

Obesity is a condition caused by a disturbance of energy balance in the body. In obese conditions, adipose tissue produces various cytokines and hormones (adipokine or adipocytokine), one of which is adiponectin. Adiponectin is the most abundant adipocytokine and is found to have decreased in conditions of obesity. Decrease in adiponectin levels associated with obesity is evidenced by experiments using mice (knock out-mice) in which the adiponectin gene has been deactivated so that the ability to remove free fatty acids in plasma becomes decreased<sup>3</sup>.

Anthocyanin is a water-soluble pigment found in fruits and vegetables,



anthocyanins have been associated with several therapeutic roles including beneficial effects on obesity. Anthocyanins can suppress weight gain by regulating lipid metabolism by suppressing genes related to fatty acid synthesis and inducing the expression of  $\beta$ -oxidation-related genes, besides anthocyanins can also reduce insulin resistance, affect the number and size of adipocytes in adipose tissue, and increase adiponectin concentration<sup>4</sup>.

Consumption of foods that contain high fiber can also control weight so as to prevent obesity. Foods that are rich in fiber, when digested longer in the stomach, then the fiber will draw water and give a sense of fullness longer so as to prevent consuming more food<sup>5</sup>.

Fermented Glutinous Black Rice is a traditional fermentation product. Tape ketan has a slightly sour sweet taste and has a distinctive taste because it contains alcohol<sup>6</sup>. Tape ketan can be made from white glutinous rice and black glutinous rice. Tape black sticky rice has phenolic, anthocyanin, and also contains fiber components. Fauziyah's (2015) study shows that there is a significant relationship between consumption of black sticky rice tape and the incidence of metabolic syndrome, one of which is obesity, where daily consumption of black sticky tape has a protective effect on the incidence of metabolic syndrome by 12 times compared to non-consumption of black sticky rice<sup>7</sup>.

In addition to black sticky tape, anthocyanins are an important component in strawberries<sup>8</sup>. Strawberries also contain lots of water and fiber, have many small seeds in the fruit. Prior, et al (2008) study showed that giving strawberry powder had an effect on obesity characterized by an emphasis on weight gain in the sample<sup>9</sup>.

Processed products favored by the public, one of which is frozen food products or frozen dairy products, such as ice cream, mellorine, gelato, sorbet, and sherbet. Sherbet has different characteristics from ice cream, which has a

lower fat content of 1-2%<sup>10</sup>. Looking at the anthocyanin and fiber content in the tape of black and strawberry sticky rice, and the low fat content of the sherbet, food diversification was carried out with the aim of getting new products (Black Tapai Berry Ice Sherbet) as intermittent foods that have high anthocyanin and fiber content as food functional to prevent obesity.

## METHOD

The research design used was experimental study design. The dependent variable is *Black Tapai Berry Ice Sherbet* with a formulation of tape of black and strawberry sticky rice 25%: 75%, 50%: 50%, and 75%: 25% affecting the dependent variable, namely organoleptic properties, anthocyanin levels, and product fiber content. This research was an experimental study with a completely randomized design (CRD), which was carried out at the Food Technology Laboratory of the Nutrition Department of the Ministry of Health Poltekkes Bandung for the manufacture of products, organoleptic tests carried out in the Laboratory of Organoleptic Testing, and anthocyanin level testing and fiber content carried out at the Center for Research and Development Postharvest Test Testing Laboratory, Bogor, during January - April 2018. The balance used is F1 (25%: 75%), F2 (50%: 50%), and F3 (75%: 25%).

The main ingredient used in this study is a tape of black and strawberry sticky rice with the addition of other ingredients such as full cream milk and CMC. The chemicals used are 15% HCl, methanol, potassium chloride, sodium acetate, concentrated HCl, buffer solution, termamyl solution, 4 M HCl solution, pepsin, pancreatin, ethanol, acetone, and petroleum ether.

The tools used in the manufacture of Black Tapai Berry Ice Sherbet product formulas are basins, measuring cups, pans, baking sheets, paper cups, measuring

spoons, blenders, ice cream makers, refrigerators / freezers, and food scales digital. Whereas the equipment used for anthocyanin and fiber testing is a beaker, measuring cup, measuring flask, pipette, filter paper, test tube, 1 cm cuvette, digital analytic balance, UV-Vis spectrophotometer, soxhlet apparatus, vacuum funnel, fume hood, crucible, muffle furnaces, and desiccators.

This research was conducted through several stages, namely the stage of making Black Tapai Berry Ice Sherbet products, the hedonic test stage based on aspects of color, aroma, taste, and texture, as well as

the stages of anthocyanin and fiber analysis tests.

### **Making Black Tapai Berry Ice Sherbet Products**

Blend the black sticky rice and strawberries using a blender. Prepare a basin, put the tape dough and strawberries into it. Add full cream milk and CMC to the mixture, then homogenize using a mixer.

Cool it to 4°C quickly by using ice cream maker. Put it in the freezer until the ice texture hardens. The composition of the Black Tapai Berry Ice Sherbet product formulation can be seen in table 1.

**Table 1. Materials for making Black Tapai Berry Ice Sherbet products**

No	Bahan	Formulation 1 FGBR: Strawberry 25% : 75%	Formulation 2 FGBR : Strawberry 50% : 50%	Formulation 3 FGBR : Strawberry 75% : 25%
1	Fermented Glutinous Black Rice (FGBR)	188 gram	375 gram	562 gram
2	Strawberry	562 gram	375 gram	188 gram
3	Susu <i>Full Cream Milk</i>	250 ml	250 ml	250 ml
4	CMC	3 gram	3 gram	3 gram

### **Hedonic Test**

Hedonic testing was carried out on 30 trained panelists<sup>11</sup>, who are lecturers and students at Nutrition Department of Bandung Health Ministry Polytechnic who had received material on Organoleptic Tests. The instrument used is a questionnaire form in the form of a hedonic test form on aspects color, aroma, taste, and texture, with a scale of 1-7, namely: (1) strongly dislike, (2) dislike, (3) rather dislike, (4) neutral, (5) rather like, (6) likes, and (7) really like. Determination of the most preferred product or superior product is seen from the highest level of panelists who declare their likes and likes among the three formulas. Data processing and analysis were carried out to determine the effect of black and strawberry sticky rice tape on the level of panelists' preference for Black Tapai Berry Ice Sherbet products, analysis using SPSS 20.0

software. The test used is the Kruskal Wallis test and continued with the Mann Whitney test.

### **Anthocyanin and Fiber Analysis Test**

Black Tapai Berry Ice Sherbet products are analyzed for the content of anthocyanins and fiber contained in the product. Anthocyanin analysis was carried out using the differential pH method, while the fiber test was carried out by gravimetric enzymatic method.

## **RESULTS**

### **Hedonic Test**

Based on Table 2, products that have the highest level of preference in the aspect of color are F3 with a 75%: 25% tape of black and strawberry sticky tape where as many as 22 panelists (73.4%) stated their likes and loved the color produced. The results of the Kruskal Wallis test obtained

p (0.002) <  $\alpha$  (0.05), then Mann Whitney test was conducted where there were statistically significant differences in F1 and F2 with p (0.040) <  $\alpha$  (0.05) and in F1 and F3 with p (0.001) <  $\alpha$  (0.05), but there is no significant difference between F2 and F3 with p (0.099) >  $\alpha$  (0.05).

In the aroma aspect, the product that has the highest level of preference is F3, where as many as 21 panelists (70.0%)

stated their likes and loved the aroma. The results of the Kruskal Wallis test obtained p (0.001) <  $\alpha$  (0.05), then the Mann Whitney test was conducted where there were statistically significant differences in F1 and F3 with p (<0.001) <  $\alpha$  (0.05) and in F2 and F3 with p values (0.018) <  $\alpha$  (0.05), but there is no significant difference between F1 and F2 with p values (0.133) >  $\alpha$  (0.05).

**Table 2. Hedonic Test Results**

Formula Type	Hedonic Aspects			
	Color (%)	Aroma (%)	Taste (%)	Texture(%)
Formulation 1	40,0	16,7	13,4	36,6
Formulation 2	66,7	43,3	53,3	60,0
Formulation 3	73,4	70,0	66,7	66,7

In the aroma aspect, product that has the highest level of preference is F3 where as many as 20 panelists (66.7%) stated like and very like. The results of the Kruskal Wallis test showed that the results of p (<0.001) <  $\alpha$  (0.05), followed by the Mann Whitney test where there were statistically significant differences in F1 and F2 with p (<0.001) <  $\alpha$  (0.05) and in F1 and F3 with p (<0.001) <  $\alpha$  (0.05), but there is no significant difference between F2 and F3 with p (0.115) >  $\alpha$  (0.05).

Product that has the highest level of preference in the texture aspect is F3 where as many as 19 panelists (63.9%) stated their likes and likes very much. The results of the Kruskal Wallis test showed that the results of p (0,032) <  $\alpha$  (0,05), then performed the Mann Whitney Test where there were statistically significant differences in F1 and F2 with p values (0,043) <  $\alpha$  (0,05) and in F1 and F3 with p value (0.015) <  $\alpha$  (0.05), but there is no significant difference between F2 and F3 with p value (0.621) >  $\alpha$  (0.05).

#### **Analysis of Anthocyanin and Fiber Content**

The sample analyzed was F3 sample with a balance of 75% 25% tape of black

and strawberry sticky rice. The results of anthocyanin content analysis and Black Tapai Berry Ice Sherbet product fibers can be seen in table 3.

**Table 3. Results of Analysis of Anthocyanin and Fiber Content**

Parameters	Result	Unit
Anthocyanin	221,0	ppm
Fiber	3,25	%

Based on table 3, the results of the analysis showed that the anthocyanin content contained in the Black Tapai Berry Ice Sherbet product was 221 ppm, when converted into milligrams (mg) the anthocyanin contained in the product was 22.1 milligrams of anthocyanin in 100 grams of product. As for fiber content, the results of the analysis showed that the fiber content contained in the Black Tapai Berry Ice Sherbet product was 3.25%, equivalent to 3.25 grams of fiber in 100 grams of product. The results of the anthocyanin and fiber analysis obtained were then compared with the adequacy. Comparison of anthocyanin and fiber levels with nutritional adequacy can be seen in table 4.

**Tabel 4. Perbandingan Kadar Antosianin Dan Serat Dengan Kecukupan Gizi**

Parameters	Nutritional Value Per Portion	Recommended Nutrition Adequacy	% Recommended Nutrition Adequacy
Antosianin (mg)	22,1	10 <sup>12</sup>	221%
Serat (g)	3,25	2,5	130%

Keterangan : Kecukupan gizi dihitung berdasarkan persentase makanan selingan (10%) disesuaikan dengan rekomendasi kebutuhan

Table 4 shows the comparison of the levels of antosiani products with nutritional adequacy, anthocyanin levels of Black Tapai Berry Ice Sherbet products, which fulfill 221% of anthocyanin needs. So that one portion of the Black Tapai Berry Ice Sherbet product has met the needs of anthocyanins for interlude. While the fiber content of Black Tapai Berry Ice Sherbet products meets 130% of the fiber requirements. So that one portion of the Black Tapai Berry Ice Sherbet product has met the fiber needs for interlude.

## DISCUSSION

### Hedonic Test

The assessment of the quality of food ingredients generally depends on several factors including taste, color, texture, and nutritional value, but before these factors are considered visually, the color factor is sometimes very decisive. The color in the visual is generally influenced by the raw material<sup>13</sup>.

Based on the hedonic test of Black Tapai Berry Ice Sherbet products, it was found that in F1 with a balance of black sticky rice tape compared to strawberries 25%: 75% as many as 18 panelists or as much as 40.0% said they liked and really liked the product color. F2 with a balance of 50%: 50% as many as 20 panelists or 66.7% expressed likes and likes very much, and at F3 with a balance of 75%: 25% as many as 22 panelists or 73.4% said they liked and really liked the color of the product Black Tapai Berry Ice Sherbet. So that it can be said that F3 is a superior product with the highest level of preference among other products.

The color expected from the Black Tapai Berry Ice Sherbet product is a reddish purple color derived from the anthocyanin pigment of black and strawberry sticky tape. The purple color of the product is produced from anthocyanin tape, black sticky rice, while the red color of the product comes from strawberries, namely from polyphenol compounds such as anthocyanins<sup>14</sup>.

Kruskal Wallis statistic test showed p value (0.002) <  $\alpha$  (0.05), so it can be concluded statistically there is a different effect between black and strawberry sticky tape on the color of Black Tapai Berry Ice Sherbet produced. Furthermore, Mann Whitney test was conducted to determine differences in the three types of treatment. Based on the Mann Whitney test results can be known in the treatment of F1 and F2 with (p (0.040) <  $\alpha$  (0.05)) and the treatment of F1 and F3 (p (0.001) <  $\alpha$  (0.05)) which have differences in color produced on Black Tapai Berry Sherbet products.

The aroma is a sensory sensation experienced by the five senses of smell. In the food industry, the odor test is very important because it can quickly give results regarding consumer's preference for the product. The scent on Black Tapai Berry Ice Sherbet products is not the main quality determinant, but still an important parameter.

Based on the results of the hedonic test, on the product aroma aspect of Black Tapai Berry Ice Sherbet, F1 with a balance of black sticky rice tape compared to strawberry 25%: 75% as many as 8 panelists or as much as 26.7% said they like and really like the aroma of the

product. In the second formula with a balance of 50%: 50% as many as 13 panelists or 43.3% expressed likes and likes very much, and in the third formula with a balance of 75%: 25% as many as 21 panelists or 70.0% stated like and very like to the aroma of Black Tapai Berry Ice Sherbet products.

The expected aroma of the Black Tapai Berry Ice Sherbet product is neutral flavor, where the aroma of black and strawberry sticky tape does not dominate too much. Based on organoleptic (hedonic) testing from the aroma aspect, Black Tapai Berry Ice Sherbet products with a 75%: 25% balance become superior products compared to other counterparts.

Statistical tests were conducted to determine the effect of a black sticky rice strawberry with strawberry on the Black Tapai Berry Ice Sherbet texture produced, namely using the Kruskal Wallis test. Based on the results of the analysis of the texture obtained p value  $(0.032) < \alpha (0.05)$ , it can be concluded statistically there is a different effect between the black and strawberry sticky tape on the resulting Black Tapai Berry Ice Sherbet texture. Furthermore, Mann Whitney Test was conducted to determine the differences in the three types of treatment. Based on the Mann Whitney test results obtained that the balance that has the effect of differences in taste are in F1 and F2 with p values  $(0.043) < \alpha (0.05)$ , and in F1 and F3 with p values  $(0.015) < \alpha (0.05)$ .

### **Analysis of Anthocyanin and Fiber Content**

The anthocyanin content of the Black Tapai Berry Ice Sherbet product was analyzed quantitatively using a differential pH method. Based on the results of the analysis, the levels of anthocyanins contained in Black Tapai Berry Ice Sherbet products are 221 ppm or as much as 22.1 mg / 100 grams of product. When compared with nutritional adequacy, the levels of anthocyanins contained in Black

Tapai Berry Ice Sherbet products meet 221% adequacy.

Anthocyanins are compounds that have low stability. Anthocyanin stability is strongly influenced by the chemical structure and concentration of anthocyanins, pH, temperature, the presence of enzymes, oxygen and light, and the presence of other compounds such as ascorbic acid, pigments, proteins, metals, and sugars<sup>15</sup>.

The biggest anthocyanin contributor among the two main food ingredients is black sticky tape. Anthocyanin content in 100 grams of black sticky rice tape is 25.7 mg, while anthocyanin content in 100 grams of strawberries is 21.1 mg<sup>7,16</sup>. When compared to the main ingredient, namely black and strawberry sticky tape, Black Tapai Berry Ice Sherbet products have atocyanine content that is greater than strawberries and smaller than black sticky tape. The contribution of black glutinous tape to a product can be said to be very large, based on research by Aminah, et al (2017) showing brownies with black sticky tape raw material have a high anthocyanin level of 1,144.41 ppm or equivalent to 114,441 mg / kg of product<sup>17</sup>. Research by Fauziyah, et al (2017) showed that snack bar products made from black sticky tape had anthocyanin levels of 1,115.28 ppm, equivalent to 111,528 mg of anthocyanin in 1 kg of product<sup>18</sup>. Based on this, Black Tapai Berry Ice Sherbet products have the advantage of being made from ingredients that have high levels of anthocyanins, making Black Tapai Berry Ice Sherbet products as an alternative to high anthocyanin products.

Fiber is a component of plant tissues that is resistant to hydrolysis by enzymes in the stomach and small intestine. Foods rich in fiber, have a longer digestion time in the stomach, then the fiber will draw water and give a feeling of fullness longer so as to prevent eating more food. Foods with high crude fiber content usually contain low calories, low levels of sugar

and fat which can help reduce the occurrence of obesity<sup>5</sup>.

Fiber content of Black Tapai Berry Ice Sherbet products was analyzed quantitatively using gravimetric enzymatic methods. Based on the results of the analysis, the fiber content contained in the Black Tapai Berry Ice Sherbet product is 3.25% per 100 grams of product or equivalent to 3.25 grams of fiber in 100 grams of product. When compared with nutritional adequacy, the fiber content found in 100 grams of Black Tapai Berry Ice Sherbet products is sufficient 130% of nutritional adequacy.

The biggest fiber contributor between the two main food ingredients is black sticky tape. The fiber content in 100 grams of black sticky rice tape is 5.9 grams, while the fiber in 100 grams of strawberries is 2 grams 7.19.

The high fiber content in Black Tapai Berry Ice Sherbet products is inseparable from the contribution of the constituent ingredients. Research by Aminah, et al (2017) shows brownies with black sticky tape as raw material having a fiber content of 3.84 grams<sup>17</sup>. Research by Fauziyah, et al (2017) shows that snack bar products made from black sticky tape have fiber content of 6.31 grams<sup>18</sup>. This shows that Black Tapai Berry Ice Sherbet products made from black sticky tape can be used as an alternative to high fiber intervals.

## CONCLUSION

There is a difference in the balance between the organoleptic properties of Black Tapai Berry Ice Sherbet products in terms of color, aroma, taste and texture. Based on the results of the hedonic test, F3 with a 75%: 25% balance excels in all aspects, namely color, aroma, and taste, and texture. Anthocyanin test results on the Black Tapai Berry Ice Sherbet third formula product at 221 ppm or equivalent to 22.1 mg / 100 grams meet 221% of nutritional adequacy. The results of the

third fiber test on Black Tapai Berry Ice Sherbet products amounted to 3.25 g / 100 g to meet 130% nutritional adequacy.

## SUGGESTION

This product cannot be applied as an alternative to prevent obesity to the public because it is only examined from the aspect of preference (hedonic) and nutrient content. Therefore, researchers expect further research on the effect of giving Black Tapai Berry Ice Sherbet products to samples with obesity. Further research can be further investigated regarding the product shelf life to obtain information about the durability of Black Tapai Berry Ice Sherbet products. It is hoped that this product can be developed and known to the public as a high-calorie low-calorie anthocyanin and fiber frozen product by collaborating with various related parties such as home or commercial industries.

## THANK-YOU NOTE

Our thanks go to the panelists and all parties involved in this research.

## REFERENCES

1. Andiani M, Wirjatmadi B. 2012. *Pengantar Gizi Masyarakat*. Jakarta: Kencana. 114-125.
2. Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan RI. *Riset Kesehatan Dasar (Riskesdas) 2013*. 2013. Jakarta: Lembaga Penerbitan Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan RI.
3. Kern PA, Gregorio GBD, Lu T, Rassouli N, Ranganathan G. 2003. *Adiponectin Expression From Human Adipose Tissue*. *Diabetes*. 52: 1779-1785.
4. Wu T, Tang Q, Gao Z, Yu Z, Song H, Zheng X. 2013. *Blueberry and Mulberry Juice Prevent Obesity*



- Development in C57BL/6 Mice*. PLoS ONE. 8(10): e77585.
5. Santoso A. 2011. *Serat Pagan (Dietary Fiber) dan Manfaatnya Bagi Kesehatan*. Magistra. 75:35-40.
  6. Setyawardhani RD. 2008. *Pengaruh Jenis Kemasan Dan Volume Ketan Terhadap Fermentasi Serta Perubahan Mutu Tape Ketan Hitam Selama Penyimpanan* [Skripsi]. Bogor: Institut Pertanian Bogor.
  7. Fauziyah N. 2015. *Hubungan Konsumsi Tape Ketan Hitam dengan Pencegahan Sindroma Metabolik* [Disertasi]. Depok: Universitas Indonesia.
  8. Lopes da Silva F, Escribano-Bailon MT, Alonso JJP, Rivas-Gonzalo J, Santos-Buelga C. 2005. *Anthocyanin Pigments in Strawberry*. LWT. 40: 374-382.
  9. Prior RL, Wu X, Gu L, Hager TJ, Hager A, Howard LR. 2008. *Whole Berries versus Berry Anthocyanins: Interaction with Dietary Fat Levels in the C57BL/6J Mouse Model of Obesity*. J. Agric. Food Chem. 56: 647-653.
  10. Goff HD, Hartel RW. 2013. *Ice Cream. Seventh Edition*. New York: Springer Science+Business New York. 444-448.
  11. Badan Standarisasi Nasional. Petunjuk Pengujian Organoleptik dan atau Sensori. 2006. SNI 01-2346-2006.
  12. Elisa P, Fulvio M, Johnson, Creina S. 2013. *The Case of Anthocyanin Consumption to Promote Human Health: A Review Comprehensive Reviews in Food Science and Food Safety*. Volume 12. (Diunduh 22 Mei 2018). Available from: <https://onlinelibrary.wiley.com/doi/pdf/10.1111/1541-4337.12024>
  13. Winarno FG. 2002. *Kimia Pangan dan Gizi*. Jakarta: Gramedia Pustaka.
  14. Giampieri F, Tulipani S, Alvarez-Suarez J, Quiles J, Mezzetti B, Battino M. 2012. *The Strawberry : Composition, Nutritional Quality And Impact On Human Health*. Nutrition. 28: 9-19.
  15. Satyatama DI. 2008. *Pengaruh Kopigmentasi Terhadap Stabilitas Warna Antosianin Buah Duwet (Syzygium cumini)* [Tesis]. Bogor: Institut Pertanian Bogor.
  16. Tsuda T, Horio F, Uchida K, Aoki H, Osawa T. 2003. *Dietary Cyanidin 3-O-β-D-Glucoside-Rich Purple Corn Color Prevents Obesity and Ameliorates Hyperglycemia in Mice*. J. Nutr. 133: 2125-2130.
  17. Aminah M, Hastuti W, Par'i HM. 2017. *Kandungan Zat Gizi, Tingkat Kesukaan Serta Efektifitas Pemberian Brownies Tape Ketan Hitam Terhadap Penurunan Lingkar Pinggang Pada Obesitas Abdominal* [Laporan Penelitian]. Bandung: Politeknik Kesehatan Kementerian Kesehatan Bandung.
  18. Fauziyah N, Syarief O, Suparman, Hendriyani H. 2017. *Studi Efikasi Pemberian Snack Bar Tinggi Antioksidan dan Serat Berbasis Tape Ketan Hitam Terhadap Profil Lipida Darah Pada Penderita Dislipidaemia* [Laporan Penelitian]. Bandung: Politeknik Kesehatan Kementerian Kesehatan Bandung.
  19. USDA. 2016. *Basic Report 09316, Strawberries, raw*. National Nutrient Database for Standard Reference.

