



## The Effects of Banana Blossom (*Musa Acuminate Colla*) Consumption on Increased Breast Milk Production in the Work Area of Talaga Jaya

Masmuni Wahda Aisya<sup>1</sup>, Fatmah Zakaria<sup>1</sup>, Wirna Daud<sup>1</sup>

<sup>1</sup>Muhammadiyah University of Gorontalo, Indonesia

\*Corresponding Author: Masmuni Wahda Aisya



### Article Info

#### Article history:

Received 4 August 2020

Received in revised form 18 August 2020

Accepted 25 August 2020

#### Keywords:

Breast Milk

Production

Banana Blossom

### Abstract

Breast Milk (ASI) is the best food for babies, in increasing milk production, breastfeeding mothers are advised to consume banana bud because it contains lactagogum compounds that can increase milk production, especially in mothers who experience milk production problems. This research aims to determine the effect of Banana Blossom consumption on increasing milk production in the work area of Talaga Jaya Health Center. The design was Quasi Experimental with Pre-post Nonequivalent Control Group Design. The population in this study were all breastfeeding mothers in the working area of Talaga Jaya Health Center totaling 122 people. The sample in this research used purposive non-probability sampling with purposive sampling technique with an observation sheet as data collection technique. The data were analyzed using Wilcoxon Signed Rank Test to see differences in the frequency of breast milk production before and after consumption of the Banana Blossom while the Chi Square test is there to see the effect of Banana Blossom consumption on breast milk production with a P value  $<0.05$ . The results showed there was a significant effect on increasing milk production in nursing mothers with a p-value of  $0.002 < 0.05$ .

### Introduction

Breast Milk is the milk formed by humans for babies and is the main source of sustenance for babies who have not been talented to digest hard nutrition (Rahayuningsih et al, 2016) Breast milk is produced as a result of the combined work of hormones and reflexes. During pregnancy, woman experience changes in hormones serve to prepare the mammary gland tissue to produce breast milk immediately after giving birth. Even starting at 6 months of gestation, there will be changes in hormones that cause the breasts to start producing breast milk, when the baby starts sucking breast milk, there will occur two reflexes in the mother that will cause the milk to come out at the right time and the right amount too (Hubaya, 2016)

Hubaya (2016) said that the flow of breast milk production is strongly influenced by hormonal factors, namely prolactin and oxytocin hormone. The prolactin hormone plays a role in the process of milk production. This hormone is produced by the pituitary gland, which is located in the brain which affects various physiological functions of the body. The process when the baby is breastfeeding, sensory stimulation will be sent to the brain, then the brain responds by releasing the hormone which will return to the breast through the bloodstream and stimulate the milk-making cells to produce milk.

Low milk production is the main obstacle for mothers to provide breast milk, one of the causes is the lack of nutritional quality in the food consumed by the mother. The food consumed by the mother can indirectly affect the production of breast milk, both in terms of quality and quantity of milk produced. A breastfeeding mother does not need to overeat, but

it is sufficient to maintain a balance of nutritional consumption, if the value of breastfeeding reduces food or stifles hunger, it will reduce the production of breast milk.

Data from the United Nations Children's Fund (UNICEF) and the World Health Organization (WHO) in 2017 in collaboration with the global breastfeeding collective which evacuated 194 countries found that only 40% of children under 6 months were exclusively breastfed and only 23 countries exclusive breastfeeding above 60% (UNICEF, 2017). The main results of Basic Health Research (Riskesmas) in 2018 were the percentage of exclusive breastfeeding in Indonesia, namely 37.3% (Ministry of Health of the Republic of Indonesia, 2018).

Data from the Gorontalo Provincial Health Office claimed that exclusive breastfeeding coverage only reached 47.8% (Health Government of Gorontalo, 2018 ) and data from the Gorontalo District Health Office in (2018) reported that breastfeeding coverage from 21 sub-districts in Gorontalo District only reaches 54%, and in particular the working area of Puskesmas Talaga Jaya, exclusive breastfeeding coverage is only 35% (Health Organization of telaga jaya, 2018).

Various policies and efforts have been done by the government to achieve the target of exclusive breastfeeding coverage. Until now, there are several regulations related to exclusive breastfeeding in Indonesian such as the Republic of Indonesia Minister of Health Regulation No. 240 / MENKES / PER / V regarding breast milk substitutes, RI Kepmenkes No. 237 / Menkes / SK / IV / 1997 concerning Marketing of Breastmilk Substitutes, Government Regulation No. 69 of 1999 concerning Food Labels and Ads, and the Republic of Indonesia's Minister of Health Decree No. 450 / Menkes / SK / IV / 2004 concerning Exclusive Breastfeeding for Babies in Indonesia, and the most recent is Government Regulation Number 33 of 2012 concerning Exclusive Breastfeeding Article 6 which reads "every mother who gives birth must provide exclusive breastfeeding to the baby she is born, (Indonesian Health Government, 2013).

Breastfeeding mothers with low milk production will cause several disadvantages to the baby, including the baby will turn yellow, the baby rarely defecates and has BAK due to a lack of supply of breast milk to the baby so that there are no leftovers of food and drink to be thrown away, restless babies who characterized by babies who are fussy and keep crying because they feel hungry and the opportunity to fulfill their needs for nutrition is optimal (Apriza, 2016) Food is one of the factors that can affect milk production, so mothers who are breastfeeding should receive additional food to avoid a decline in the production of breast milk (Wahyuni et al, 2012).

One of the efforts to increase breast milk production is by consuming boiled Banana Blossom containing lactagogum compounds that has been proven in several studies to increase milk production. Research conducted by Riani (2016) states that there is an effect of Banana Blossom consumption on increasing milk production in breastfeeding mothers as well as research conducted by Tjhajani (2014) which states that there is an effect of Banana Blossom consumption on increasing breast milk production in postpartum mothers.

Banana Blossom plant (*Musa acuminata* Colla) is frequently consumed as a herbal in many Asian countries such as Indonesia, Malaysia, Sri Lanka, and the Philippines, Wickramarachchi & Ranamukhaarachchi (2005). The results of observations and interviews with 3 breastfeeding mothers and one of the village midwives in the work area of the Talaga Jaya Community Health Center indicates that there are still many people, especially mothers who do not know what foods can increase breast milk production, and most breastfeeding mothers say their milk production is low so that causing breastfeeding mothers to choose to

stop breastfeeding their babies, so from this problem the researchers conducted research on whether there was an effect of Banana Blossom consumption on increasing milk production in the Talaga Jaya Community Health Center Work Area.

## Methods

The type of research used in this study was a quasi-experimental study with a quantitative approach and a pre test-post-intervention design using a non equivalent control group design. The independent variable in this study is the consumption of Banana Blossom and the dependent variable is the increase in milk production. This research was carried out in the Talaga Jaya Community Health Center Work Area from September 03 to September 12 2019.

The number of population is 122 people. The sample in this study is part of the total population, namely 22. The sampling technique was carried out by the purposive sampling method. The data collection technique was obtained from the results of interviews and observations. This study used 2 statistical tests, namely the Wilcoxon signed rank test to see the difference in the frequency of milk production before and after consumption of banana blossoms, while the chi square test to see the effect of Banana Blossom consumption on breast milk production. Knowing and paired sample t-test and chi square test.

## Results and Discussion

### Analisis Univariat

Table 1. shows that at the age level in the intervention group, there were 8 people (72.7%), as well as the control group 9 people are aged 20-35 years (81.8%). The level of elementary education in the intervention group was 8 people (72.8%) as well as the control group at the secondary education level as many as 6 (54.5%) people. The employment status of respondents in the intervention group was 11 people (100%) who worked as house wives as well as 9 people in the control group who worked as house wives (81.8%).

Tabel 1. General Characteristic of Respondents

Age	Intervention Group		Control Group	
	n	(%)	n	(%)
<20 and >35	3	27.3%	2	18.2%
20-35	8	72.7%	9	81.8%
<b>Total</b>	<b>11</b>	<b>100%</b>	<b>11</b>	<b>100%</b>
<b>Education</b>				
Elementary	8	72.8%	5	45.5%
Intermediate	3	27.3%	6	54.5%
Tertiary	-	-	-	-
<b>Total</b>	<b>11</b>	<b>100%</b>	<b>11</b>	<b>100%</b>
<b>Occupation</b>				
House Wife	11	100%	9	81.8%
Private	0	0%	2	18.2%
<b>Total</b>	<b>11</b>	<b>100%</b>	<b>11</b>	<b>100%</b>

Source: Primary Data (2019)

Table 2. shows that in the intervention group consisting of 11 breastfeeding mothers at the time of the pre-test it was known that the highest respondents who had breast milk production did not increase by 11 (100%) people and the lowest respondents who had breast milk

production increased by 0%, after being given Banana Blossom consumption for 7 days and a post test was carried out it was known that the highest respondent who had increased milk production was also 11 (100%) people and the lowest respondent who had breast milk production was 0%,

Table 2. Frequency distribution of breast milk production before and after consumption of banana blossoms in the intervention and control groups

Breastmilk Production	Intervention Group				Control Group			
	Pretest		Posttest		Pretest		Posttest	
	n	%	n	%	n	%	n	%
Increased	0	0%	11	100%	0	0%	2	18.2%
Not increased	11	100%	0	0	11	100%	9	81.8%
Total	<b>11</b>	<b>100%</b>	<b>11</b>	<b>100%</b>	<b>11</b>	<b>100%</b>	<b>11</b>	<b>100%</b>

Source: primary data (2019)

whereas in the control group which consisted of 11 breastfeeding mothers at the time of the pre-test, it was found that 11 (100%) respondents who had breast milk production did not increase as much as 11 (100%) respondents who had increased milk production by 0 (0%) then carried out a post test 7 days later, It is known that the highest respondent who had breast milk production did not increase by 9 (81.8%) and the lowest respondent was the respondent who had increased milk production by 2 (18.2%).

### Bivariate Analysis

Table 3. displays the analysis of differences in breast milk production before and after consumption of Banana Blossom in the intervention group. It showed that the minimum value of the minimum percentage of total value is 4% and the highest percentage of total value is 5% and after consuming Banana Blossom the lowest percentage of total value is 8% and the percentage of the highest total value is 9%, this shows that after consuming Banana Blossom there is an increase in the percentage of the total value of breast milk production, based on the Wilcoxon signed rank test, it can be seen that the value of P Value is 0.002 < ( $\alpha$ ) 0.0 This indicates that there is an increase in breast milk production in the Talaga Jaya Health Center work area after consuming Banana Blossom

Table 3. Analysis of differences in breast milk production before and after consumption of banana blossoms in the intervention group

Breakfast Production Bivariat	n	Median (Min-Max)	SD	P value
Pretest	1 1	5,00 (4-5)	0,30 2	0,002
Posttest	1 1	9,00 (8-9)	0,46 7	

Source: Processed primary data (2019)

Table 4. shows that at the min-max value of milk production in the control group during the pretest, the lowest percentage of total value was 4% and the highest percentage was 5%, while after the posttest was carried out the lowest percentage of total value was 3% and the highest percentage of total value was 6%, based on Wilcoxon Signed Rank test shows that the value of P  $\rightarrow$  Value 0.222 > ( $\alpha$ ) 0.05 indicating that there is no increase in breast milk production in the control group.

Table 4. Analysis of differences in milk production in the control group

<b>Breastmilk production Variable</b>	<b>n</b>	<b>Median (Min-Max)</b>	<b>SD</b>	<b>P value</b>
<i>Pretest</i>	11	5,00 (4-5)	0,405	0,222
<i>Posttest</i>	11	5,00 (3-6)	1,120	

Table 5. shows that milk production in the group that was given banana flower consumption at the time of the pretest was 11 (100%) respondents with the category of milk production not increasing and 0 (0%) respondents in the category of increased milk production, when the posttest was carried out there was an increase in production. Breastfeeding, namely 11 (100%) respondents with increased milk production category and 0 (0%) respondents with no increase category, while in the group that was not given banana flower consumption at pretest there were 11 (100%) respondents with the category of milk production not increasing and 0 (0%) respondents with the category of milk production is not increasing

Table 5. Frequency distribution of breast milk production before and after consumption of banana flower in the intervention group and the control group.

<b>Consumption of Banana Blossom Variable</b>	<b>Breast milk production</b>				<b>n</b>	<b>P Value</b>
	<i>Pre test</i>		<i>Post test</i>			
	<b>Not increased</b>	<b>increased</b>	<b>Not increased</b>	<b>Increased</b>		
Given	11	0	0	11	11	0,004
Not given	11	0	9	2	11	

Researchers found that the majority of breastfeeding mothers who experience problems in breast milk production are due partly to a lack of nutrients in the food they consume. Nurliawati (2010) states that the amount and quality of breast milk is influenced by the nutrition of the mother, but the food consumed by the mother does not directly affect the amount and quality of breast milk, in the mother's body there are various food substances needed for breast milk production so that if the breastfeeding mother lacks nutrients for a period of time, it causes the production of breast milk to decrease and eventually stop.

This research is in line with research conducted by Hubaya (2009), where breastfeeding is more common in mothers who consume a complete diet every day. Nurliawati (2010), the amount and quality of breast milk production is strongly influenced by the mother's nutrition, during breastfeeding you need quite a lot of additional carbohydrates, proteins, fats, vitamins and minerals to maintain the quality of milk production and prevent decrease in milk production.

Efforts to increase breast milk production can be done by consuming Banana Blossom. Researchers conducted this research by providing intervention for 7 consecutive days, before giving the intervention, the researcher measured the milk production of each respondent in both the intervention group and the control group using the observation sheet then a day after the pretest was carried out in the intervention group the researcher gave Banana Blossom stew and in the group control was not given any intervention.

After 7 days, the researchers conducted a posttest in the intervention group and the control group by measuring the milk production of breastfeeding mothers using an observation sheet, after being given Banana Blossom stew, (100%) respondents experienced an increase in milk

production and this shows that there is a significant change in production. Breastfeeding for breastfeeding mothers where before consuming banana flower the milk production in the intervention group did not increase by 11 (100%) respondents and after consuming Banana Blossom , all respondents in the intervention group experienced an increase in milk production. The respondent's milk production increased while in the control group, there were 2 breastfeeding mothers who also experienced an increase in breast milk production because they consumed breastfeeding smoothing foods other than Banana Blossom s.

The results of this study show that breastfeeding mothers who experience an increase in milk production, the majority have a profession as an IRT compared to mothers who have a profession as private workers, this is because mothers who work as IRTs have more time to give breast milk to their babies compared to mothers who are more spending a lot of time completing work outside the home so that the frequency of breastfeeding becomes irregular, this is one of the factors that can affect breast milk production. This research is supported by research conducted by Warsini (2015) which states that mothers who work as domestic workers have success in producing breast milk or giving exclusive breastfeeding compared to mothers who work outside the home<sup>15</sup>, besides that the lack of nutritional intake in breastfeeding mothers can result in the process. in interrupted milk production.

Researchers processed the Banana Blossom into Banana Blossom stew and then gave it to nursing mothers in the intervention group for 7 consecutive days every morning as much as 250 grams, so that consumption of Banana Blossom stew has an effect on increasing breast milk production in nursing mothers in the intervention group in the Talaga Jaya Public Health Center According to the theory, the increase in breast milk production is caused by boiled Banana Blossom which has nutrients that can help increase milk production. Banana Blossom is a type of plant that contains lactagogum which has the potential to stimulate the hormones oxytocin and prolactin such as alkaloids, polyphenols, steroids, flavonoids and other substances which are most effective in increasing and accelerating breast milk production.

Hubaya (2015) increases breast milk production is influenced by the presence of polyphenols and steroids that affect the prolactin reflex to stimulate alveoli which are active in the formation of breast milk. The price of Banana Blossom is quite cheap, easy to get and in almost every yard of the house there is a banana flower plant so that breastfeeding mothers who experience problems in breast milk production or want to maintain the quality of their milk no longer need to worry because consuming Banana Blossom has been proven to be able to increase milk production. This is in line with the results of Harismayanti's (2018) research that there is an increase in breast milk production in postpartum mothers after consuming Banana Blossom s.

Table 3 shows the results of the bivariate analysis using the Wilcoxon signed rank p-value test of  $0.002 < \alpha (0.05)$ , this shows that there is a significant difference in the consumption of banana blossoms on the increase in breast milk production in nursing mothers in the intervention group, based on the assumption at the beginning of the study that breastfeeding mothers with complaints of breastfeeding are few. This is due to the fact that the majority of breastfeeding mothers lack knowledge of foods that can increase milk production.

Banana Blossom stew is very influential in increasing breast milk production, this can be seen from the difference in milk production before and after consuming Banana Blossom stew where all breastfeeding mothers in the intervention group experienced a very significant increase in milk production compared to the control group, this is in line with the research conducted by Riani (2016) entitled the effect of consumption of Banana Blossom stew on the

excretion of breast milk in breastfeeding mothers in the working area of the Kampar Community Health Center with a total population of 20 breastfeeding mothers <40 days whose results said that there was an effect of consumption of Banana Blossom stew on breast milk excretion in breastfeeding mothers. .

Table 4 shows the results of the bivariate analysis using the Wilcoxon signed rank test, it was obtained  $p\text{-value } 0.022 > \alpha (0.05)$ , this shows that there was no significant difference before and after in the control group, according to field facts in breastfeeding mothers who were not given whole Banana Blossom stew. Respondents with the category of breastfeeding production did not increase and after 7 days, the measurement of breast milk production was again carried out. The results showed that there were 2 out of 11 respondents who experienced an increase in milk production, this was because they consumed breastfeeding smoothing foods other than Banana Blossom .

Researchers obtained the results of this study that the posttest production results of breastfeeding mothers in the intervention group after consuming Banana Blossom stew experienced a significant increase, based on table 5 shows the results of bivariate analysis using the chi square test after being given treatment in the intervention group and the control group, the  $p\text{-value } 0.004 < \alpha (0.05)$ , it can be concluded that there is a significant effect of Banana Blossom consumption on increasing milk production in the Talaga Jaya Community Health Center Work Area.

The effect of Banana Blossom stew on increasing breast milk production shows a positive effect where all respondents experience an increase in milk production, from the results of the bivariate analysis, it is known that breast milk production of breastfeeding mothers in the intervention group at the time of the pretest all respondents with the category of milk production did not increase and after consuming banana stew for 7 consecutive days all of the respondents' breastfeeding production experienced an increase, whereas in the control group before consumption of Banana Blossom at the pretest there were 11 respondents with the category of milk production not increasing, then after 7 days without intervention, only 2 respondents experienced an increase in breast milk production.

This research is in line with research conducted by Riani (2016) that Banana Blossom contains lactagogum. Lactagogum has the potential to stimulate the hormones oxytocin and prolactin such as alkaloids, polyphenols, steroids, palonoid and other substances that are most effective in increasing breast milk production.

## Conclusion

The results showed the description of breast milk production before consuming heart stew in the intervention group there were 11 (100%) respondents with the category of milk production did not increase and in the control group 11 (100%) with the category of milk production did not increase and the picture of breast milk production after consuming boiled banana flower in the intervention group there were 11 (100%) respondents who experienced an increase in milk production while in the control group there were 2 (18.2%). The results of the bivariate analysis obtained a  $p\text{-value } 0.004 < \alpha 0.05$ , which means that there is a significant effect of Banana Blossom consumption on increased milk production in the Talaga Jaya Community Health Center.

## References

Apriza. (2016). Pengaruh Konsumsi Rebusan Jantung Pisang Terhadap Ekskresi ASI pada Ibu Menyusui di Desa Kuapan Wilayah Kerja Puskesmas Tambang Tahun 2016.

- Dinas Kesehatan Kabupaten Gorontalo. (2019). *Jumlah cakupan ASI eksklusif di Dinas Kesehatan Kabupaten Gorontalo ASI eksklusif di Dinas Kesehatan Kabupaten Gorontalo*
- Dinas Kesehatan Provinsi Gorontalo. (2018). *Jumlah cakupan ASI eksklusif di Dinas Kesehatan Provinsi Gorontalo*
- Hubaya, S., Karima, S., & Sulima, H. G. (2016). Pengaruh Konsumsi Jantung Pisang Kepok Terhadap Peningkatan Produksi ASI Pada Ibu Menyusui Di Wilayah Kerja Puskesmas Gambesi Kota Ternate. *Jurnal Kesehatan Vol.VIII No.1*
- Ismarani Y., Irma., Utami W., & Ngesti, S. (2017) Kaitan Pola Makan Seimbang Dengan Produksi ASI Ibu Menyusui. *Jurnal Care Vol. 4, No.3, Tahun 2016*
- UNICEF (2017). *Babies and mothers worldwide failed by lack of investment in breastfeeding.* (pada <https://www.unicef.org>). Diakses pada 14 Juli 2019.
- Ministry of Health of the Republic of Indonesia. (2018). Hasil Utama RISKESDAS 2018.
- Minister of Health RI. (2013). Peraturan Menteri Kesehatan Republik Indonesia Tahun 2013 No.39.
- Nurliawati, E. (2010). Faktor-Faktor Yang Berhubungan Dengan Produksi Air Susu Ibu Pada Ibu Pasca Seksio Sesarea di Wilayah Kota Dan Kabupaten Tasikmalaya. Thesis. Universitas Indonesia
- Puskesmas Talaga Jaya. (2018). Jumlah Cakupan ASI Eksklusif Tahun 2018
- Rahayuningsih, T., Mudigdo, A., & Murti, B. (2016). Effect of Breast Care and Oxytocin Massage on Breast Milk Production: A study in Sukoharjo Provincial Hospital. *Journal of Maternal and Child Health, 1(2)*, 101-109.
- Riani. (2016). Pengaruh Konsumsi Jantung Pisang Terhadap Ekskresi ASI Pada Ibu Menyusui Di Desa Ranah Wilayah Kerja Puskesmas Kampar Tahun 2016. *Jurnal Ners Universitas Pahlawan ISSN 2580-2194*.
- Tjahjani, E. (2014). Pengaruh Konsumsi Jantung Pisang Terhadap Kelancaran ASI Pada Ibu Nifas. Akademi Akademi Kebidanan Griya Husada. Skripsi. Akademi Kebidanan Griya Husada
- Wahyuni, E., Sri, S., & Nurliani. (2012). Pengaruh Konsumsi Jantung Pisang Batu Terhadap Peningkatan Produksi ASI Di Wilayah Puskesmas Srikunoro, Kecamatan Pondok Kelapa, Bengkulu Tengah Tahun 2012. *Buletin Penelitian Sistem Kesehatan Vol. 15 No. 4 Oktober 2012: 418-424*.
- Warsini. (2015). Hubungan Antara Jenis Persalinan, Tingkat Pendidikan, Tingkat Pendapatan dan Status Bekerja Ibu dengan Keberhasilan ASI Eksklusif Enam Bulan di Kecamatan Baki Kabupaten Sukoharjo. Program Pascasarjana Universitas Sebelas Maret. *Jurnal Normal Human Breast Tissue. The American Journal of Clinical Nutrition*
- Wickramarachchi, K. S., & Ranamukhaarachchi, S. L. (2005). Preservation of fiber-rich banana blossom as a dehydrated vegetable. *Science Asia, 31*, 265-271.