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EFFECT BANANA LEAVES OF HALMAHERA (MOSES PARADISIACA L.). CONSUMPTION ON BREAST MILK PRODUCTION IN POST-PART MOTHERS IN LELEOTO VILLAGE, SOUTH TOBELO DISTRICT, NORTH HALMAHERA REGENCY 2025

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ABSTRACT

Background: Breast milk is the best source of nutrition for babies because its contents are tailored to their needs to support growth, boost immunity, prevent various diseases, and support the development of intelligence. *Banana Leaves* contain lactagogic compounds, including *alkaloids, polyphenols, steroids, and flavonoids*, as well as other bioactive components that play a role in stimulating the secretion of the hormones oxytocin and prolactin, thus contributing to increased and smooth breast milk production. **Research Method:** This research is Experimental research with a *Quasi-Experimental Design With Pre-Post tests*. **Research Results:** For this study, a normality test was performed and the *paired samples t-test* was used, namely the testing procedure for the same group (dependent) with the significance level of the t-test results being $p < 0.005$.

Conclusion: There was a significant effect in both the experimental and control groups. The p-value ($p = 0.001 < 0.05$) indicates that the administration of Kepok banana blossom vegetable increased breast milk production in postpartum mothers in Leleoto Village, South Tobelo District, North Halmahera Regency.

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PRELIMINARY

Breast milk is the optimal source of nutrition for infants because its composition physiologically matches the needs of growth and development. In addition to fulfilling essential nutritional needs, breast milk also has important immunological functions, boosting immunity, preventing various infectious diseases, and supporting the infant's cognitive development. However, some breastfeeding mothers face challenges in the form of suboptimal milk production or output. This condition can potentially lead to inadequate breast milk intake for infants, prompting mothers to resort to formula as an alternative source of nutrition.

Globally, breastfeeding rates remain very low. UNICEF data shows that only 39% of infants under 6 months of age are not breastfed, and only 40% are successfully breastfed worldwide.¹

Breast milk is the primary food needed for newborns aged 0-6 months. The global prevalence of exclusive breastfeeding is around 38%, with maternal failure to breastfeed occurring at around 10-15%. In Indonesia, only about 9 out of 10 mothers breastfeed. Breast milk is produced through the combined activity of the baby's hormonal system and sucking reflex, including the hormones prolactin and oxytocin.²

The coverage of exclusive breastfeeding in Ternate City, North Maluku Province, was reported to have exceeded 60% between 2017 and 2019. However, by 2023 and 2024, this figure was still below the national target, despite various interventions, including strengthening motivation and support for breastfeeding mothers. At the national level, the exclusive breastfeeding

rate in 2022 reached 69.7%, exceeding the target of 45%. In contrast, several regions in eastern Indonesia, including North Maluku Province, still show relatively low achievement, influenced by limited health service infrastructure and local social and cultural factors.³

Efforts to increase breast milk production can be achieved by providing adequate nutritional intake, particularly from local biodiversity-based food sources, such as banana blossoms and papaya leaves.⁴

Banana leaves contain lactagogic compounds, including alkaloids, polyphenols, steroids, and flavonoids, as well as other bioactive components that play a role in stimulating the secretion of the hormones oxytocin and prolactin, thus contributing to increased and smooth breast milk production. Furthermore, banana blossoms are a source of vitamins A, B1, and C, and contain essential minerals such as iron, calcium, and phosphorus, which are important for meeting the physiological needs of breastfeeding mothers.⁵

Based on an initial survey conducted by researchers, which included interviews with midwives in Leleoto Village, 15 mothers gave birth between February and March, while 10 postpartum mothers exclusively breastfed. However, not all mothers produced abundant breast milk. Of the 10 breastfeeding mothers, only 5 had a steady milk supply, while 5 had a slow milk supply.

METHOD

This research is Experimental research with a *Quasi-Experimental Design With Pre-Post tests*.

This study aims to analyze the effect of banana heart vegetable (*Musa paradisiaca*) consumption on breast milk production in postpartum mothers in Leleoto Village, South Tobelo District, North Halmahera Regency. The intervention group in this study were patients who were about to undergo an intervention procedure with banana heart vegetable (*Musa paradisiaca*).

This research was conducted in Leleoto Village, Tobelo District, North Halmahera Regency, from September to December 2023. The total population in this study was drawn from 10 postpartum mothers breastfeeding their babies. The sample size for this study was 10 individuals, meeting the inclusion criteria.

RESULTS

Table 1. Frequency Distribution of Respondents by Gender.

Gender	N	%
20-30 Tahun	6	60
30-35 Tahun	2	20
>35 Tahun	2	20
Total	10	100

Based on Table 1, the majority of respondents were in the 20-30 years age range, totaling 6 people (60%), a minority aged 30-35 years totaling 2 people (20%), and >35 years totaling 2 people (20%).

Table 2. Frequency Distribution of Respondents by Education.

Education	N	%
SD	1	10.0
SMP	4	40.0
SMA	5	50.0
Total	10	100

2021 Primary Data Source

Based on Table 2, the majority of respondents' final education level was at high school level, totaling 5 people (50%), junior high school level totaling 4 people (40%), and a minority was at elementary school level totaling 1 person (10%).

Table 4. Frequency Distribution of Respondents by Occupation.

Job	N	%
Hurry	1	12.0
Entrepreneur	3	37.0
IRT	4	50.0
Total	8	100

Source primary data 2021

As for the work of the respondents from table 4 above, it is explained that 8 respondents (100%) found that the majority of respondents were housewives, namely 4 people (50.0%), entrepreneurs as many as 3 people (37.5%) and work as laborers, namely 1 people (12.0%).

Table 5. Distribution Respondent characteristics based on parity number.

Job	N	%
Primipara	2	20.0
Multipara	8	80.0
Total	10	100

Based on table 5, the number of parities in respondents, the majority were multiparas, amounting to 8 people (80%), while the minority were primiparas, amounting to 2 people (20%).

Table 6. Breast milk production (ml) in the experimental group before and after treatment

Pre-test	Post-test
60 ml	90 ml
45 ml	70 ml
50 ml	75 ml
40 ml	60 ml
30 ml	55 ml

Source primary data 2025

Based on table 6, breast milk production was measured in the experimental group of 5 respondents, there was an increase in breast milk production.

Table 7. Breast milk production (ml) in the Control group Pre-test and Post-test measurements

Pre-test	Post-test
45 ml	60 ml
20 ml	25 ml
50 ml	65 ml
40 ml	45 ml
30 ml	55 ml

Source primary data 2025

Based on table 7. Breast milk production in the control group of 5 people increased in the pre-test and post-test measurements.

Table 8. Breast milk production (ml) in the intervention and control groups before treatment with the Shapiro Wilk test (data normality test)

Variable	N	Statistic	Signifikan
Pre-test eksperimen	5	0.999	1.000
Pre-test kontrol	5	0.957	0.787

Based on Table 8. breast milk production in the experimental group before treatment with 5 respondents had a statistical value of 0.999 and a significance value of 1.000. In the control group with 5 respondents, the statistical value was 0.957 and a significance value of 0.787. The results obtained were <0.05 , so the data were normally distributed.

Table 9. Breast milk production (ml) in the experimental and control groups after treatment with the Shapiro Wilk test (data normality test)

Variable	N	Statistic	Signifikan
Post-test eksperimen	5	0.964	0.833
Post-test kontrol	5	0.912	0.482

Based on table 9. Breast milk production in the experimental group after being given treatment to 5 respondents had a statistical value of 0.964 and a significant value of 0.833, in the control group breast milk production in 5 respondents had a statistical value of 0.912 and a significant value of 0.482. The data obtained were <0.05 so they were normally distributed.

Bivariate Analysis

Bivariate analysis aims to correlate the two variables studied to determine the extent of their influence on the pre-test and post-test. To compare mean and significance values, a paired samples t-test was conducted with a confidence level of $P < 0.05$.

Table 10. Differences in Mean and Significant Values in the Intervention and Control Groups t-test (Paired samples test)

Variable	N	Statistic	Mean	Significance (One sided p and Two sided p)
Pre-test eksperimen	5	0.999	3.536	0,001 < 0,05
Post-test eksperimen	5	0.964	25.000	0,001 < 0,05
Pre-test kontrol	5	0,957	6.519	0,001 < 0,05
Post-test kontrol	5	0,912	24.000	0,001 < 0,05

Based on table 10. The mean value in the intervention group before being given treatment was 3,536 and the P value was found to be less than 0.05 before treatment, the P value = 0.001 and after treatment, the P value = 0.001. The results were <0.05, and the mean value after the intervention increased by 25,000.

In the pre-test control group, the mean value was 6,519 while the P value was less than 0.05 in the pre-test, the P value = 0.001 and the post-test, the P value = 0.001, the result was <0.05 for the mean post-test value in the control group of 24,000. Based on these results, H_0 was rejected and H_a was accepted, there was an Effect of Banana Heart Vegetable Consumption on Increasing Breast Milk Production in Postpartum

Mothers in Leleoto Village, South Tobelo District, North Halmahera Regency.

DISCUSSION

The research results that have been obtained, the first for the characteristics of respondents based on age, respondents aged 20-30 years numbered 6 people (60%), respondents aged 30-35 years numbered 2 people (20%), and respondents aged > 35 years numbered 2 people (20%).

The second characteristic of respondents is based on the last education in this study, the last education of respondents at elementary school level was 1 person (10%), at junior high school level there were 4 people (40%), and at high school level there were 5 people (50%).

The fourth respondent characteristic was based on parity. Two respondents were primiparas (20%), and eight were multiparas (80%). First-time mothers had no experience breastfeeding, while mothers with previous children had experience, which influenced their breastfeeding practices.

For this study, a normality test was performed and the *paired samples t-test* was used, namely the testing procedure for the same group (dependent) with the significance level of the t-test results being $p < 0.005$.

The process of breast milk production is regulated by the hormones prolactin and oxytocin. Maternal factors that influence breast milk production include alcohol consumption and the use of contraceptives before pregnancy and during the postpartum period.

Banana blossoms have many benefits, and the properties of banana blossoms are thought to be due to their chemical

constituents. In addition to containing lactagogue, which can stimulate the hormones prolactin and oxytocin, banana blossoms also have pharmacological functions as antimicrobials, antiallergics, antioxidants, analgesics, and diuretics.

In addition to these functions, banana blossoms also function to help hair growth, as muscle relaxants, and as wound healing agents. However, many people are unaware of the benefits of banana blossoms, especially for postpartum mothers, in increasing breast milk production.

CONCLUSION

Based on the results of the research conducted and the discussion, the following conclusions can be drawn:

1. There was a significant effect in both the experimental and control groups. The p-value ($p = 0.001 < 0.05$) indicates that the administration of Kepok banana blossom vegetable increased breast milk production in postpartum mothers in Leleoto Village, South Tobelo District, North Halmahera Regency.
2. Breast milk production in postpartum mothers is influenced by the hormones prolactin and oxytocin. Some mothers experience problems with breastfeeding; many factors influence breast milk production in both mothers and babies. These factors include the mother's use of contraceptives and the baby's sucking ability, as the more frequently the baby breastfeeds, the more breast milk production increases. Nutrition also plays a role; postpartum mothers should consume foods containing protein to increase breast milk production.

3. One way to increase breast milk production is by consuming banana blossom vegetables, as the lactagogue content, such as alkaloids, polyphenols, steroids, and flavonoids, can stimulate the hormones prolactin and oxytocin, increasing and facilitating breast milk production. However, this is not widely known. Research has shown that giving banana blossom vegetables to postpartum mothers significantly increases breast milk production. These findings provide new insights for researchers and the public.

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