

## THE INFLUENCE OF BANANA BLOSSOM CONSUMPTION ON INCREASING BREAST MILK PRODUCTION IN POSTPARTUM MOTHERS

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### Abstract

*This study examines the influence of banana blossom (*Musa spp.*) consumption on breast milk production in postpartum mothers. Banana blossoms are known to be rich in bioactive compounds such as flavonoids, saponins, and tannins, which play a role in influencing lactation hormones, particularly prolactin, and have the potential to increase breast milk production. Using a pre-test and post-test experimental design, breast milk volume was measured before and after a dietary intervention in ten postpartum mothers. The study results showed a significant increase in breast milk production following banana blossom consumption, with the average volume rising from 466.30 ml (SD = 183.30) to 2406.20 ml (SD = 373.43),  $p < 0.001$ . These findings support previous studies (Buntuchai et al., 2017; Yimyam & Pattamapornpong, 2022) demonstrating the effectiveness of banana blossom as a natural galactagogue and highlight its potential as an affordable dietary intervention to enhance lactation outcomes. This research provides additional insights into the role of galactagogues in postpartum care, offering a practical solution to improve breastfeeding success in mothers.*

**Keyword:** *Banana Blossom, Postpartum Mothers, Breast Milk*

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## 1. Introduction

Exclusive breastfeeding is crucial for supporting the health and development of infants and plays a role in boosting immunity. However, many mothers face challenges in producing sufficient breast milk, particularly during the postpartum phase and among those who undergo cesarean deliveries [1]. In traditional cultures, consuming natural ingredients such as banana blossom (*Musa spp.*) has long been believed to have galactagogue effects, which enhance breast milk production. A study by [1] found that beverages made from banana

blossoms can increase breast milk volume in postpartum mothers, especially after cesarean deliveries, thereby supporting the use of this traditional food in various cultures, including Indonesia and Malaysia.

The bioactive components in banana blossoms, such as flavonoids and saponins, are believed to stimulate prolactin hormones essential for breast milk production [2]. Research in Thailand has shown a positive correlation between the consumption of banana blossoms and increased breast milk production, further reinforcing the effectiveness of using this

plant as a galactagogue in efforts to enhance milk production [3].

Low breast milk production is a common issue faced by many postpartum mothers, particularly those who lack adequate nutritional intake [4]. Factors such as insufficient family support, limited knowledge about lactation nutrition, and socio-cultural challenges exacerbate this problem [3,5]. To assist mothers in increasing breast milk production, several natural dietary interventions have gained significant attention, including the utilization of traditional foods with galactagogue effects like banana blossoms [6].

The utilization of banana blossom as a lactogenic food is supported by scientific evidence showing that this plant can increase the levels of prolactin and oxytocin, the two primary hormones involved in the production and release of breast milk [1,2]. Considering its practicality and availability, banana blossom is an affordable and accessible option to support the success of exclusive breastfeeding.

Research has revealed that banana blossoms contain bioactive compounds with the potential to enhance prolactin levels. For instance, a study by [3] demonstrated that traditional foods with galactagogue properties, including banana blossoms, can stimulate prolactin production, contributing to improved quality and quantity of protein in breast milk. These findings are supported by [1], who reported an increase in breast milk production in postpartum mothers after consuming beverages made from banana blossoms.

Additionally, other studies have identified that compounds such as tannins in banana blossoms can enhance prolactin levels and support breastfeeding success [7]. This mechanism also involves the action of flavonoids and saponins, which act as dopamine antagonists to stimulate prolactin secretion, thereby promoting breast milk production [2]. Beyond prolactin, the hormone oxytocin, which facilitates milk ejection, is also influenced by banana blossom consumption,

providing a dual effect in supporting lactation success [8].

While substantial evidence supports the effectiveness of banana blossoms in boosting breast milk production, several aspects still require further investigation, such as the optimal dosage, specific bioactive mechanisms, and the long-term impact on maternal and infant health. Existing research has primarily focused on the immediate effects of banana blossoms on breast milk without examining individual response variations [9]. Moreover, studies on the benefits of banana blossoms tend to be limited to short-term observations, highlighting the need for long-term studies to better understand the extended effects of banana blossom consumption on mothers and infants.

This gap presents an opportunity for more in-depth research to explore the appropriate dosage, optimal processing methods, and additional effects of banana blossom consumption on maternal and infant well-being. Further studies on the interaction of banana blossoms with other nutritional aspects are also essential to provide more holistic recommendations for breastfeeding mothers.

This study aims to evaluate the impact of banana blossom consumption on increasing breast milk production in postpartum mothers. As an easily accessible non-pharmacological alternative, the research seeks to address gaps in the literature regarding the utilization of banana blossoms as a natural galactagogue. The novelty of this study lies in the quantitative measurement of the effects of banana blossoms on breast milk production and hormonal responses, particularly in the postpartum context, with a focus on the synergistic effects of its bioactive compounds.

The scope of the study includes measuring breast milk volume before and after banana blossom consumption in postpartum mothers, as well as analyzing the effects of bioactive compounds on prolactin and oxytocin levels. This study is expected to provide practical contributions to nutritional strategies for

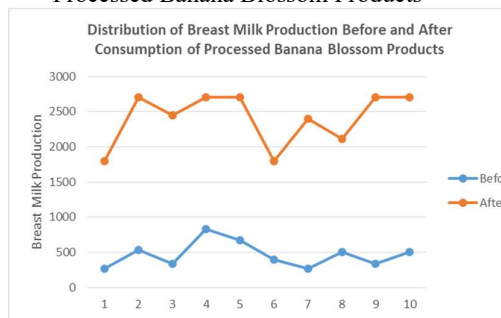
postpartum mothers and facilitate further research on the long-term effects of banana blossoms in supporting lactation success and infant health.

**2. Method**

This study employed a pre-test and post-test design without a control group to evaluate the effect of banana blossom consumption on increasing breast milk production in postpartum mothers. The research subjects were 10 breastfeeding mothers who met the inclusion criteria: postpartum mothers with infants aged 0-6 months, no lactation disorders, and willingness to participate in the intervention throughout the study period.

**3. Results and Discussion**

**Figure 1.** Distribution of Breast Milk Production Before and After Consumption of Processed Banana Blossom Products



**Table 1.** Average Breast Milk Production of Postpartum Mothers Before and After Banana Blossom Consumption

Banana Blossom Consumption	n	Min	Max	Mean	SD
Breast Milk Production Before Banana Blossom Consumption	10	267	833	466,30	183,298
Breast Milk Production After Banana Blossom Consumption	10	1800	2700	2406,20	373,431

The data presented in Table 1 and Figure 1 demonstrate the impact of banana blossom consumption on breast

milk production in postpartum mothers. Before the intervention, the average breast milk production was relatively low, with a mean volume of 466.30 ml and a standard deviation of 183.298 ml. After the dietary intervention involving banana blossom consumption, the production volume significantly increased to an average of 2406.20 ml with a standard deviation of 373.431 ml. This increase highlights the positive effects of banana blossom, rich in bioactive compounds, on lactation [3].

The increase in breast milk production can be attributed to the bioactive compounds found in banana blossom, such as flavonoids, saponins, and tannins, which are known to stimulate the secretion of prolactin, a hormone essential for breast milk synthesis [3]. Flavonoids act as dopamine antagonists, facilitating the release of prolactin by reducing dopamine levels, which typically inhibit prolactin secretion. Saponins also promote prolactin production, further supporting the milk synthesis process. This hormonal influence explains the dramatic increase in breast milk production observed in mothers consuming banana blossom, as evidenced by the comparative data in the table and chart [10].

The statistical significance of these findings is underscored by the comparison of measurements before and after the intervention. Studies such as those by [1] reinforce these results, showing that dietary interventions with banana blossom consistently and sustainably increase breast milk volume. Further controlled group studies validate these effects, indicating that without the intervention, mothers maintain more stable milk production levels in line with the baseline. These findings, therefore, emphasize the effectiveness of banana blossom as a natural galactagogue, providing critical support for breastfeeding mothers aiming to enhance their milk supply.

The data in Table 1 and Figure 1 indicate a significant increase in breast milk production among postpartum

mothers after consuming banana blossom. The average milk production before banana blossom consumption was 466.30 ml with a standard deviation of 183.298 ml. After consumption, milk production increased to 2406.20 ml with a standard deviation of 373.431 ml. This increase suggests that banana blossom consumption can serve as an effective natural galactagogue to enhance breast milk volume [3,1].

The success of banana blossom in increasing breast milk production can be linked to its bioactive compounds, such as flavonoids, saponins, and tannins, which have been shown to stimulate prolactin. Flavonoids act as dopamine antagonists, reducing dopamine levels that inhibit prolactin release, thereby enhancing milk synthesis [3,1]. Saponins play a role in stimulating higher prolactin secretion, while tannins help balance hormones that support effective lactation processes [3].

Statistical data support these research findings, showing a significant increase in breast milk volume following the dietary intervention with banana blossom. Consistent with the findings of [1], banana blossom consumption resulted in consistent increases in breast milk volume among breastfeeding mothers. Additionally, [9] reported that extracts of *Musa balbisiana*, a variety of banana blossom, increased breast milk production with a p-value of 0.003, demonstrating a strong effect of this dietary intervention. Thus, banana blossom has the potential to be an effective natural alternative for supporting increased breast milk production in postpartum mothers.

Based on the research results presented in Table 2, there is a significant increase in breast milk production among mothers after banana blossom consumption. The average milk production during the pre-test condition was 466.30 ml with a standard deviation of 183.298 ml, while the post-test condition showed an increase to 2406.20 ml with a standard deviation of 373.431 ml. Statistical analysis revealed a t-value of -18.958 with a p-value < 0.001,

indicating that the increase in breast milk production is statistically significant. These findings align with the research by (3), which stated that banana blossom consumption is closely related to increased breast milk volume.

**Table 2.** The Effect of Banana Blossom Consumption on Increased Breast Milk Production in Postpartum Mothers

Banana Blossom Consumption	Mean	n	SD	Std. Error	t	p-value	Difference Mean
Breast Milk Production (pre test)	466,30	10	183,298	57,964			
Breast Milk Production (post test)	2406,20	10	373,431	118,089	-18,958	0,000	-1939,0

The positive effects of banana blossom consumption on breast milk production are believed to stem from its bioactive compounds, such as flavonoids, saponins, and tannins. Flavonoids are known to lower dopamine levels, which inhibit prolactin secretion, the primary hormone involved in breast milk production [1]. In this case, flavonoids act as dopamine antagonists, promoting increased prolactin secretion, thereby aiding in the enhancement of breast milk production [3]. Additionally, saponins found in banana blossom are also known to stimulate prolactin secretion, further reinforcing the galactagogue effects of banana blossom [10,11].

Comparative studies involving other natural galactagogues indicate that banana blossom has comparable or even superior potential in boosting breast milk production. For instance, a study by [12] on fenugreek tea consumption showed a significant increase in breast milk volume of  $73.2 \pm 53.5$  ml/day, compared to  $31.1 \pm 12.9$  ml/day in the control group ( $p = 0.004$ ). However, this study highlights the effectiveness of banana blossom, which demonstrated a greater increase in breast milk production. These findings further emphasize that banana blossom consumption can be an effective and significant natural alternative for

enhancing breast milk production in breastfeeding mothers.

Breast milk production is influenced by hormonal and nutritional factors. The hormones prolactin and oxytocin play crucial roles in the production and release of breast milk. Effective breast stimulation and adequate nutritional intake can enhance prolactin secretion, leading to increased milk production. Proper nutrition is essential for breastfeeding mothers, as nutritional deficiencies can hinder breast milk production [13].

Banana flowers, which contain lactagogues, have the potential to stimulate the hormones oxytocin and prolactin. Compounds such as alkaloids, polyphenols, steroids, flavonoids, and other substances are highly effective in enhancing and facilitating breast milk production. The prolactin reflex, which hormonally drives milk production, is triggered when a baby suckles at the mother's nipple. This stimulation sends a neurohormonal signal from the nipple and areola to the pituitary gland via the vagus nerve, ultimately reaching the anterior lobe. The anterior lobe then releases prolactin into the bloodstream, which reaches the milk-producing glands. These glands are then activated to produce breast milk [12].

Another study by Rizki Wiji and Heni Heriyeni in 2024 showed similar results. They found that consuming the banana blossom of *Musa balbisiana* Colla significantly impacted milk production in postpartum mothers. This study supports the use of banana blossoms as a natural alternative to boost milk production [13]. The consumption of banana blossoms has long been believed to enhance breast milk production in postpartum mothers. Several studies have been conducted to examine the effectiveness of banana blossoms in stimulating milk production. One study found that reduced milk production in the early days postpartum is often due to insufficient stimulation of prolactin and oxytocin hormones, which play a key role in milk production. Their research discovered that consuming

banana blossoms can help increase milk production in postpartum mothers [14].

Furthermore, a study conducted by Joharmi, Atika, and Juliana in 2020 found a significant effect of banana blossom consumption on increasing breast milk production in postpartum mothers. They concluded that the increase in breast milk production occurred due to the lactagogue content in banana blossoms, which effectively stimulates the hormones oxytocin and prolactin [15]. Additionally, a study published in the *BIMTAS Journal* reported that the breast milk production of postpartum mothers before consuming banana blossom averaged 37.17 ml, and after consumption, it increased to 59.55 ml. Statistical analysis showed a p-value of 0.000, indicating a significant effect of banana blossom consumption on increasing breast milk production [16].

#### 4. Conclusion

This study concludes that the consumption of banana blossom (*Musa spp.*) has a significant effect on increasing breast milk production in postpartum mothers. This is supported by results showing a significant increase in breast milk volume after the intervention, from an average of 466.30 ml to 2406.20 ml. The bioactive compounds found in banana blossom, such as flavonoids, saponins, and tannins, are believed to play an important role in enhancing the secretion of prolactin, a hormone necessary for lactation.

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