



The Effect of Providing *Coleus amboinicus lour* Ice Cream on Breast Milk Production

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ABSTRACT

Background: Exclusive breastfeeding for six months is one of the global strategies to improve growth, development, health and survival of infants. However, the coverage of failing in providing exclusive breastfeeding are still high in many countries. Lactagogum is a substance that can increase milk production, lactagogum can be found in the *Coleus amboinicus lour* plant.

Purpose: To identify the effect of providing *Coleus amboinicus lour* ice cream on breast milk production.

Methods: This research employed an experimental study with a quasi-experimental research design and three group pre-test and post-test design on 15 respondents. The variables used are consuming *Coleus amboinicus lour* as the independent variable and milk production for the dependent variable. Statistical test using univariate and bivariate data analysis and Paired sample t test, using SPSS V. 26

Results: The results showed that 3 groups consisted of 15 respondents with the average breast milk production based on the baby's weight of 3020 grams before consuming ice cream, 2940 grams after consuming 15 grams of ice cream, and 3040 grams after consuming 25 grams of ice cream. Besides, the frequency value of the baby's weight after the treatment increased to 3051 grams, 3120 grams with 15 grams of ice cream, 3258 grams with 25 grams of ice cream. The Paired sample t-test obtained $p = 0.0005$ ($p < 0.05$) and the independent t-test obtained a sig value of 0.015 and a sig. 0.008 (< 0.05)

Conclusion: It can be concluded that there is an effect of giving *Coleus amboinicus lour* ice cream on the increase of breast milk production. It is suggested to provide *Coleus amboinicus lour* ice cream can be a solution in providing exclusive breastfeeding services for smooth breastfeeding.

Keywords: *Coleus amboinicus lour*; Breastfeeding mothers; Breast milk Production.

BACKGROUND

Exclusive breastfeeding for six months is one of the global strategies to improve the growth, development, health, and survival of the baby. To reduce baby's morbidity and mortality, UNICEF and WHO recommend exclusive breastfeeding for at least 6 months and continuing breastfeeding until two years old.

Referring to WHO (2015), the coverage of exclusive breastfeeding reached 25% in Central Africa, 32% in Latin America and the Caribbean, 30% in East Asia, 47% in South Asia, and 46% and developing countries. Overall, only less than 40% of children under six months are exclusively breastfed (Wake & Mittiku, 2021).

The Ministry of Health of the Republic of Indonesia (2016) reported that the coverage of exclusive breastfeeding in Indonesia has increased each year but has not been able to reach the target achievement indicators. The coverage of exclusive breastfeeding in Indonesia in 2013 was 42% and increased to 65% in 2016, but it still has not reached the national target of 80% (Suryanti et al., 2021).

Statistics Indonesia or the National Socioeconomic Survey (SUSENAS) for Jambi Province, reported exclusive breastfeeding coverage of 62.67% in 2018, 64.87% in 2019, and 65.22% in 2020. While the national target of exclusive breastfeeding is 80% (Qiftiyah et al., 2021).

The coverage of exclusive breastfeeding is influenced by some factors, namely breastfeeding counselors, education, outreach, advocacy, and campaigns related to breastfeeding and supplementary feeding. The coverage of exclusive breastfeeding in West Tanjung Jabung District decreased from 78.2% in 2018 to 77.6% in 2019 (Cozma-Petruț et al., 2021).

Breast milk is produced in the 2nd trimester of pregnancy or in the 16th week of gestational age when the hormone prolactin has started to actively work. This hormone begins to produce breast milk to prepare for the availability of breast milk when the baby is born until the completion of the breastfeeding period. The use of lactagogue substances can increase the rate of secretion and production of breast milk. Various studies have revealed that some food ingredients in Indonesia function as lactagogue which can be a strategy for overcoming the failure of exclusive breastfeeding due to low breast milk secretion and production (Silawati & Murnita, 2020).

Coleus amboinicus lour is a food plant that has various functions and contains flavonoids such as quercetin, epigenin, luteolin, salvigenin, genkwanin and lactagogum. This plant can cure various diseases such as malaria, hepatopathy, kidney stones, hiccups, bronchitis, intestinal worms, colic and seizures, and even chronic asthma. This plant is proven to contain high levels of iron and carotene. Besides, consumption of this plant can increase levels of iron, potassium, zinc and magnesium to increase breast milk production and baby's weight (Prahesti et al., 2020).

Coleus amboinicus lour leaves have the potential to be developed both in terms of their benefits as a lactagogum. The plant is very easy to grow with a short harvest life. In certain areas, especially in Jambi Province, not many local people know about the benefits of these plants. *Coleus amboinicus lour* leaves have been made into a powder that can be processed into processed ice cream. Thus, the researcher is interested in making *Coleus amboinicus lour* ice cream which is attractive for breastfeeding mothers.

Based on an initial survey at Puskesmas Sukarejo in Betara Sub-district in 2021 conducted by researchers, exclusive breastfeeding here reached 58.26% and it was

found that 5 breast feeding mothers complained that breastfeeding was not smooth. In the West Tanjung Jabung District, especially Betara sub-district, many people do not know the benefits of the *Coleus amboinicus* flour.

Therefore, this study focuses on the effect of providing *Coleus amboinicus* flour Ice Cream on breast milk production in the working area of Puskesmas Sukarejo in 2021.

OBJECTIVE

This study aims to identify the effect of giving *Coleus amboinicus* flour ice cream on breast milk production.

METHODS

The type of research used is experimental research, a research procedure carried out by providing treatment/intervention to the subjects to be studied, with the aim of assessing the effect of a treatment on the independent variable on the dependent variable. Using a three-group pre-posttest research design with a control group and two treatment groups. The design in this study uses a quasi-experimental (quasi-experimental). The study sample consisted of 15 respondents and will be divided into 3 groups each consisting of 5 breastfeeding mothers in the control group, 5 breastfeeding mothers receiving 15 grams of *Coleus amboinicus* flour and 5 breastfeeding mothers receiving 25 grams of *Coleus amboinicus* flour.

The research was conducted in September 2021 in the Working Area of the Sukarejo Health Center, Betara District. Sampling using purposive sampling method with non-random sampling techniques. The sample size of pregnant women was 15 postpartum mothers who met the researcher's criteria, namely not consuming breast milk supplements, breastfeeding post partum for 14 days, no allergies to milk, no history of sinus and term pregnancies.

The instrument used uses an observation sheet that contains the development of increasing baby weight. The collected data were analyzed using univariate and bivariate methods. Tested using statistical analysis using the Paired sample t-test using SPSS V.26.

The research procedure was by processing the wake plant (*Coleus amboinicus* flour) into flour and processing it into ice cream with doses of 15 and 25 grams of *Coleus amboinicus* flour. Before giving ice cream to the research respondents, the baby's weight was weighed. After 7 days the respondents consumed ice cream without *Coleus amboinicus* flour content and with 15 and 25 grams of *Coleus amboinicus* flour, the researchers again weighed the baby's weight to assess the effect of consuming *Coleus amboinicus* flour ice cream for 7 days.

This study used informed consent forms and obtained research ethics permits from the Ethics Institute at the University of Fort De Kock Bukit Tinggi.

RESULTS

Table 5.2

The Average baby's weight before consuming ice cream without *Coleus amboinicus* flour in the working area of Puskesmas Sukarejo

Baby's weight	N	SD	Mean (gr)	Min	Max
			302		
Pre	5	303	0	2600	3400

Based on table 5.2, the average milk production of 5 respondents based on the baby's weight before consuming ice cream without *Coleus amboinicus lour* flour shows an SD value of 303 and a minimum value of 2600 and a maximum of 3400.

Table 5.3
The Average baby's weight before consuming ice cream with 15 grams of *Coleus amboinicus lour* flour in the working area of Puskesmas Sukarejo

Baby's weight	N	SD	Mean (gr)	Min	Max
			294		
Pre	5	194	0	2700	3200

Based on table 5.3, the average milk production of 5 respondents based on the baby's weight before consuming ice cream with 15 grams of *Coleus amboinicus lour* flour obtain an SD value of 194 and a minimum value of 2700 and a maximum of 3200.

Table 5.4
The Average baby's weight before consuming ice cream with 25 grams of *Coleus amboinicus lour* flour in the working area of Puskesmas Sukarejo

Baby's weight	N	SD	Mean (gr)	Min	Max
			304		
Pre	5	378	0	2500	3400

Based on table 5.4, the average milk production of 5 respondents based on the baby's weight before consuming ice cream with 25 grams of *Coleus amboinicus lour* flour obtain an SD value of 378 and a minimum value of 2500 and a maximum of 3400.

Table 5.5
The Average baby's weight after consuming ice cream without *Coleus amboinicus lour* flour in the working area of Puskesmas Sukarejo

Baby's weight	N	SD	Mean (gr)	Min	Max
			305		
Post	5	307	1	2600	3410

Based on table 5.5, the average milk production of 5 respondents based on the baby's

weight after consuming ice cream without *Coleus amboinicus lour* flour obtain an SD value of 307 and a minimum value of 2600 and a maximum of 3410.

Table 5.6
The Average baby's weight after consuming ice cream with 15 grams of *Coleus amboinicus lour* flour in the working area of Puskesmas Sukarejo

Baby's weight	N	SD	Mean	Min	Max
			(gr)		
			312		
Post	5	189	0	2886	3371

Based on table 5.6, the average milk production of 5 respondents based on the baby's weight after consuming ice cream with 15 grams of *Coleus amboinicus lour* flour obtain an SD value of 189 and a minimum value of 2886 and a maximum of 3371.

Table 5.7
The Average baby's weight after consuming ice cream with 25 grams of *Coleus amboinicus lour* flour in the working area of Puskesmas Sukarejo

Baby's weight	N	SD	Mean	Min	Max
			(gr)		
			325		
Post	5	396	8	2680	3650

Based on table 5.7, the average milk production of 5 respondents based on the baby's weight after consuming ice cream with 25 grams of *Coleus amboinicus lour* flour obtain an SD value of 396 and a minimum value of 2680 and a maximum of 3650.

Table 5.8
The Effect of before and after Consuming *Coleus amboinicus lour* Ice Cream on Baby's Weight in the Working Area of Puskesmas Sukarejo in 2021

	Group	Mean (gr)	SD	p-value
Pre	Ice cream	3020	303	0,005
	Ice cream + 15gr flour	2940	194	
	Ice cream + 25 gr flour	3040	378	
Post	Ice cream	3051	307	
	Ice cream + 15gr flour	3120	189	
	Ice cream + 25 gr flour	3258	396	

Based on table 5.8, the average value of the frequency of the baby's weight was 3030 grams before consuming ice cream without *Coleus amboinicus lour*, 2940 grams after giving ice cream with 15 grams of flour, 3040 grams after giving 25 grams of flour. The frequency value of the baby's weight increased to 3051 after consuming ice

cream without *Coleus amboinicus lour*, 3120 after consuming ice cream with 15 grams of flour, 3258 after consuming ice cream with 25 grams of flour. The statistical test using the Paired sample t-test obtained $p = 0.0005$ ($p < 0.05$). It means that there is an effect of giving ice cream with *Coleus amboinicus lour* flour on breast milk production based on the baby's weight.

Table 5.9
The Effect of Giving *Coleus amboinicus lour* Ice Cream on Breast Milk Production in the Working Area of Puskesmas Sukarejo 2021

Model	Unstandardized		Standardize		Sig.
	Coefficients		d		
	B	Std. Error	Beta	T	
(Constant)	1673.371	237.492		7.046	.020
15 GRAM	14.219	1.767	2.160	8.045	.015
25 GRAM	4.249	.394	2.895	10.783	.008

Based on Table 5.9, the effect of the control group and the treatment group with 15 grams of *Coleus amboinicus lour* flour has a sig. value of 0.015. The effect of the control group and the treatment group of 25 grams of *Coleus amboinicus lour* flour has a sig. value of 0.008. It proves that the treatment of 15 and 25 grams of *Coleus amboinicus lour* flour obtain values of $p = 0.015$ and $p = 0.008$ (< 0.05).

DISCUSSION

The results of the study showed a more significant effect of the intervention on breast milk production with a p-value of 0.0005 ($p < 0.05$). The intervention group with 25 grams of *Coleus amboinicus lour* flour has a higher increase in milk production on day 7 after consuming *Coleus amboinicus lour* ice cream. It is assumed that breast milk production can increase or decrease depending on the stimulation of the mammary glands and maternal nutritional status. Before the treatment, the average weight of a baby aged 14-15 days was 2500-2700 grams. It can be said that the baby's age affects the baby's weight. However, based on the observations during the fieldwork, the diet of postpartum mothers was not nutritious or did not meet the needs of breastfeeding mothers. Most mothers only consumed rice and soy sauce without additional side dishes and vegetables for 40 days during the postpartum period. Breastfeeding mothers should be able to consume foods that can stimulate breast milk production.

This is in line with a previous study by Makela (2023) concerning infant growth and exclusive breastfeeding that breastfeeding mothers who received counseling stated that they often experience problems of insufficient breast milk production, do not understand proper lactation techniques, want to breastfeed again after giving the baby prelacteal feeding (sugar/dextrose water, formula milk in the first days of birth), and maternal abnormalities such as sore nipples swollen breasts, and busy working. Meanwhile, the problem in infants is sick or abnormalities. Breast milk production can be increased by doing early and routine breast care, improving breastfeeding techniques or consuming foods that can affect milk production.

The results of the study and measurement after providing ice cream with *Coleus amboinicus lour* flour for 10 respondents and ice cream without additional *Coleus amboinicus lour* flour for 5 respondents showed that the baby's weight increases at the age of 17-19 days. This is in line with a previous study (Hasianna et al., 2021) concerning the use of *Coleus amboinicus lour* flour in increasing prolactin in breastfeeding Wistar rats for 5 groups consisting of 5 animals each with 108 mg, 216 mg, and 432 mg of *Coleus amboinicus lour* leaf powder, administration of donperidone as a positive control, and 10% CMC as a negative control. It found that *Coleus amboinicus lour* leaves are effective in increasing prolactin levels with an increase in milk production by 17%.

It is assumed that the difference between before and after the administration of ice cream without *Coleus amboinicus lour* flour and with *Coleus amboinicus lour* flour of 15.25 grams, there was an average increase in milk production before and after the treatment, namely 31 grams in the control group. The experimental group experienced an increase of 180 grams with 12 grams of *Coleus amboinicus lour* flour and it increased to 218 grams with 25 grams of *Coleus amboinicus lour* flour. It is because the content in the *Coleus amboinicus lour* contains lactagogum which affects milk production. The more lactagogum content consumed by breastfeeding mothers, the higher the increase in breast milk production and the baby's weight. Based on the results of this study, giving ice cream containing *Coleus amboinicus lour* can be recommended to breastfeeding mothers to increase milk production in the working area of Puskesmas Sukarejo.

It is assumed that giving ice cream without *Coleus amboinicus lour* flour and with 15 grams and 25 grams of *Coleus amboinicus lour* flour to breastfeeding mothers increased baby weight. The results of the hypothesis test proved the administration of 15 grams and 25 grams of *Coleus amboinicus lour* flour with a p-value of 0.015 and $p=0.008$ (<0.05). The administration of 25 grams of *Coleus amboinicus lour* flour is significant with a p-value of 0.008. This means that the provision of *Coleus amboinicus lour* influences the increase in breast milk production.

Breast milk is produced in the 2nd trimester of pregnancy or from the 16th week when the hormone prolactin has started to actively work. This hormone starts to produce breast milk to prepare for the availability of breast milk when the baby is born until the breastfeeding period is complete. Using lactagogue is a way to increase the rate of secretion and production of breast milk. Various studies revealed that some food ingredients in Indonesia function as lactagogue which can be a strategy to overcome the failure of exclusive breastfeeding due to low milk secretion and production (Gyamfi et al., 2021).

CONCLUSION

Based on the results of the study and discussion, it can be concluded that there is an effect of giving *Coleus amboinicus lour* ice cream on breast milk production in breastfeeding mothers with an average increase in baby weight. The increase in baby weight after consuming the ice cream in the control group was 31 grams, 180 grams after consuming the ice cream with 15 grams of flour, and 218 grams after consuming the ice cream with 25 grams of flour. The statistical test using the independent sample t-test obtained values of $p=0.015$ and $p=0.008$ ($p <0.05$). It can be said that the administration of *Coleus amboinicus lour* ice cream increases breast milk production.

It is expected that the results of the study will be useful for Puskesmas, especially midwives to further improve their skills through the latest literature, training, and counseling at every examination of pregnant women. Thus, they have sufficient knowledge about the benefits of the *Coleus amboinicus* lour plant in increasing breast milk production.

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