

# THE EFFECT OF TEMULAWAK (*Curcuma xanthorrhiza* or *Javanese Ginger*) ON THE BREAST MILK PRODUCTION OF POST PARTUM MOTHERS AT NINGSIH INDEPENDENT MIDWIFE TAWANGMANGU

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## ABSTRACT

**Background of Study:** Herbs as Indonesia's cultural heritage have been used hereditary in many generations. One of them is temulawak (*Curcuma xanthorrhiza* Roxb). The immunomodulator (Immunostimulant) is a compound that can boost the immunity mechanism of the body, specifically as well as non-specifically. *Temulawak* is taken from rhizomes which consists of 64% starch, 1.6% – 22% curcumin and 1.48% – 1.63% essential oil that believed to be able to improve the kidney's work and to serve as anti-inflammatory.

**Objective:** To study the effect of giving *temulawak* on the breast milk production of postpartum mothers at independent midwife NINGSIH with the indicator of the babies' weight gain, urination frequency, breastfeeding frequency and the length of babies' sleep after being breastfed.

**Method:** The research is a quasi-experiment and the research design is a Static Group Comparison in which observation method is applied. The population of this research is women in their postpartum time until the 14-day period after childbirth in Ningsih independent midwife during the research. The sample is all the qualified population who meets the requirement. The technique of the sampling is purposive sampling. The independent variable is the use of *temulawak*. The dependent variable is the milk production in breastfeeding in 14-day period after childbirth. The T-test is used for analyzing.

**The Result of the Study:** The result of the study showed that the weight of the babies in the experimental group gained 535 grams in average, and in the control group gained 270 in average. The urination frequency of the babies in the experimental group was 7.5 times in average, and in the control group was 5.05 times. The breastfeeding frequency in the experimental group was 9.35 times in average, and in the control group was 6.85 in average. After being breastfed, the babies in the experimental group spent 1.93 hours of sleeping in average, whereas the babies in the control group spent less than normal. In conclusion, there was only 1 person (5%) in the control group who had a good production of breast milk whereas in the experimental group, there were 14 persons (70%). Therefore, it can be concluded from the study that there was a significant effect on the use of *temulawak* to the production of breast milk of postpartum mothers with *p* value of 0.000 and *alpha* value of 0.05.

**Conclusion:** There is a significant effect on the use of temulawak in increasing milk production in lactation in postpartum period.

**Keywords:** *The use of temulawak, Milk production in lactation in postpartum period*

## PREFACE:

Breast Milk is the most ideal food for infant owing to its numerous intrinsic therapeutic and nutritional attributes. Herbs as Indonesia's cultural heritage have been used hereditarily in many generations (KEMENKES RI, 2011). *Temulawak* (*Curcuma xanthorrhiza* Roxb/Javanese ginger), is an herb medicine originated from Java, Indonesia and spread to the area of Indo-Malaya. Nowadays, *temulawak* is cultivated in Indonesia, Malaysia, and the Philippines. *Temulawak* is trusted to serve as an *Immunomodulator* (*Immunostimulan*), a compound that

can boost the body immune mechanism specifically as well as non-specifically. This kind of compound generally works as a mitogen which increases the proliferation of the cells needed for immunity (KEMENKES RI, 2011). Rachman (2007) stated that *temulawak* is taken from rhizomes which consists of 64% starch, 1.6%–22% curcumin and 1.48% – 1.63 % essential oil that believed to be able to improve the kidney's work and to serve as anti-inflammatory. In addition, it is also believed that it can boost breastmilk production, help with digestion, lower the fever, and lower the cholesterol levels (Sudarsono *et al.*, 2006).

*Temulawak* rhizomes consist of curcumin, *xanthorizol*, curcuminoid, essential oils with the components of *α-curcumen*, *germakren*, *ar-turmeron*, *β-atlantanton*, d-camphor (Kemenkes RI, 2011). Starch fraction is the most ingredients found, with a various amount of 48-54% depending on the height of the growing place. The higher place it grows, the content of starch is lower and the content of essential oils is higher. *Temulawak* starch consists of ash, protein, fat, carbohydrate, crude fiber, curcuminoid, calium, natrium, calcium, magnesium, ferrum, mangan, and cadmium. Curcuminoid fraction has a distinctive aroma, non-toxic, consists of curcumin that has the inflammatory activities and demetoxicurcumin (Santoso, 2008). The most important substance of *temulawakis* the essential oils (minimal 5%) which contain *begamoten*, *germakren B*, *curserenon*, *germakron* and the yellow color of *difeuloilmet-ananamely curcumin* and *demetoxicurcumin* (Santoso, 2008).

*Temulawak* substance that is thought to be responsible for increasing appetite is this essential oil, thus increasing the production of breastmilk.

The effect of the increased eating appetite by the essential oils is probably caused by its correletic nature which speeds up the gall secretion thus speeds up the emptying of the stomach and digestion as well as the fat absorption in the intestines which then secretes various hormones that cause hunger and regulate the increasing of appetite (Wijayakusuma, 2011). The curcuma extract yang being talked about here is the extract of *Curcuma xanthorrhiza*, Roxb.

According to Hale *et al.*, (2010) Ginger appears to be safe in amount usually used in food preparation. However, we should avoid using it in large amounts since there is not enough information available about the safety of ginger while breastfeeding. Nevertheless, with all the benefits of *temulawak*, supported by the phenomena of drinking herbs for postpartum mothers, the effect on the breast milk production is going to be researched.

## RESEARCH METHODS

The research is a quasi-experiment and the research design is a Static Group Comparison by using control

group and experimental group. Postpartum mothers in the experimental group were given 10 mg of *temulawak* extract daily, dissolved in warm water. It was given from the first day of the delivery up to the 14th day and the babies were then observed and compared with the babies in the control group.

The research was conducted in di BPM Ningsih Tangmangu from July 2016 to December 2016. The population in the research was 40 postpartum mothers, day 1-14 in September up to October 2016 with the following criteria: a. Mothers with normal delivery. b. Newborns weigh > 2500 grams. c. Babies' suction reflexes were good. d. The mothers exclusively breastfed the baby. e. The mothers were willing to be the respondents.

The sampling technique of this research was Purposive Sampling in which the choosing of the respondent subjects was based on the population characteristics who met the sampling criteria in September – October 2016. The analysis used is the T test.

## RESEARCH RESULT:

### a. Characteristics of the Respondents

There were 40 respondents who were divided into two groups; the first group is 20 postpartum mothers as the experimental group and the second is 20 postpartum mothers as the control group.

Table 1: respondent characteristics frequency distribution

Category	Frequency	Percentage
<b>Age</b>		
< 20	1	2.5
20-35	38	95.0
>35	1	2.5
<b>Parity</b>		
<i>Primiparae</i>	11	27.5
<i>Multiparae</i>	27	67.5
<i>Grande multiparae</i>	2	5
Total	40	100%

Respondents' ages were mostly in the category 20-35 years old, 38 respondents to be precise (95%), while the lowest were age category < 20 years and > 35 years,

respectively 1 person (2.5%). The table also shows that most of the respondents were *multiparae*, 27 people (67%) while primipara respondents were 11 people (27.5%) and *grandemultiparae* respondents were 2 people (5%).

**b. Univariate Analysis**

**Table 2: breastfeeding indicator frequency distribution**

Indicator	N	Min	Max	Mean	Std Dev
Weight					
Exp	20	100	900	535	205.9
Con	20	100	500	270	134.2
Urin					
Exp	20	4	18	7.50	2.856
Con	20	4	8	5.05	0.999
Breastfeed					
Exp	20	6	12	9.35	2.346
Con	20	5	10	6.85	1.309
Length of Sleep					
Exp	20	2	2	1.93	0.183
Con	20	1	3	1.83	0.494

**Baby Weight Gain**

The result on the experiment group in 14 days after birth, the babies experienced weight gain approximately 100-900 grams, with the mean of 535 grams. While the babies in the control group experienced 100-500 grams weight gain, with the mean of 270 grams. Then, the babies in both groups were categorized into two categories: the first category is having normal weight gain and the second is having less weight gain. There were 16 babies (40%) with normal weight gain and 4 babies (10%) with less weight gain in experimental group. Whereas, there were 17 babies (42.5%) with less weight gain and only 3 babies (7.5%) with normal weight gain in control group. They were categorized into having normal weight gain if the gain is around 500-1000 grams and were categorized into having less weight gain if the gain was less than 500 grams when weighed on the 14th day.

The Urination Frequency of the Babies Based on the observation done by the researchers, the urination frequency of the experimental group babies on the 14th day was 4 to 18 times, with the mean of 7.5 times. In the control group, the urination frequency of the babies on the 14th day after birth was around 4 to 8 times, with the

mean of 5.05 times a day. After being categorized, the urination frequency of the babies in both groups can be described as follows: there were 16 babies (40%) in the experiment group experienced a normal urination frequency, and there were 4 babies (10%) experienced less urination frequency. While in the control group, there were 17 babies (42.5%) had less urination frequency and 3 babies (7.5%) with normal urination frequency.

**Babies' Breastfeeding Frequency**

Based on the result of the observation done by the researchers to the experimental group, it was found that the breastfeeding frequency of the babies in a day on the 14th day after birth was around 6 to 12 times, with the mean of 9.35 times and the standard deviation was 2.346 times. The babies in the control group, however, breastfed 5 to 10 times a day, with the mean of 6.85 times. After being categorized, there were 16 babies (40%) in the experimental group that got enough breast milk and there were 4 babies (10%) that got not enough breast milk. Whereas, there were 17 babies (42.5%) babies in the control group that did not get enough breast milk and there were only 3 babies (7.5%) that got enough breast milk.

**Duration of Babies' Sleep after Breastfed**

In the experimental group, the duration of the babies' sleep after being breastfed on the 14th day after birth was around 1.5 to 2 hours in a day with the mean of 1.93 hours. After being categorized, there were 17 babies (42.5%) in the experimental group with a normal duration of sleep and there were only 3 babies (7.5%) with less duration of sleep. Whereas in the control group, there were 15 babies (37.5%) with less sleeping duration and only 5 babies (12.5%) with normal sleeping duration.

**Breastmilk Production**

**Table 3: Breastmilk Production Distribution Frequency**

Breastmilk Production	Frequency		Percentage	
	Exp	Con	Exp	Con
High Supply	14	1	70	5
Low Supply	6	19	30	95
Total	20	20	100	100

Breast milk production is rated using the indicator of the baby's growth i.e. weight gain, enough breastfeeding frequency, normal urination, and the length or duration of sleep after each breastfeeding. The result of the study showed that in the experimental group, there were 14 respondents (70%) with high breast milk production and there were only 5 respondents (30%) with low breast milk production. Whereas in the control group, there were 19 respondents (95%) with low breast milk production and there were only 1 respondent (5%) with high breast milk production.

### c. Bivariate Analysis

The result analysis of the research on the effect of *temulawak* on the breast milk production of the postpartum mothers was the *pvalue* 0.000 with the score of *alpha* 0.05, thus it can be that  $pvalue < alpha$  ( $0.000 < 0.05$ ). Statistically, there is a significant effect in giving *temulawak* drink to the postpartum mothers at BPM Ningsih, on their high breast milk production. Thus, it can be concluded that there is a significant effect of giving *temulawak* drink to postpartum mothers on their breast milk production. It was proven by the fact that the milk production of mothers in experimental group is higher than those in the control group.

## DISCUSSION

From the result of the research, most respondents were 20-35 years old. There were 38 people (95%) who belong to this age category that is considered being healthy reproductive age. At that age category women are prepared reproductively to conceive, give birth and breastfeed. The mindset of the women at this time is mature because they have entered in early adulthood, so they are more mature in decision making.

Most respondents were multiparae. Multiparae mothers are more experienced in taking care of babies and fulfilling the babies' needs, especially breast milk.

Most of the respondents drank *temulawak* in the morning. And from the observation, it was found that the mothers were not on any diet. Instead, the mothers said that they often felt hungry. It was the effect of the *curcumin* that boosts the appetite as a result of the essential oils which is secreting various hormones that cause hunger and regulate the increasing of appetite (Wijayakusuma, 2011).

The production of breast milk as the best food for baby is affected by many factors; one of them is mothers' intake. *Temulawak* drink as breast milk booster can also increase appetite. According to Sudarsono (2006), from the numerous benefits of *temulawak* rhizome, the most common medical use of it is to lower the fever, treat constipation, boost breast milk production, and prevent the inflammation of the uterus in postpartum mothers.

According to Santoso (2008), there is an effect on giving *temulawak* drink to the increase of the appetite of children with body weight below normal. The same thing happens to breastfeeding mothers. A good and regular eating habit during breastfeeding will increase the nutrition intake which will lead to a better quality of breast milk. It has been a long time since Indonesian people used *temulawak* as a postpartum therapy to keep the mothers' wellbeing and health. The simple mindset of the community, supported by the fact that *temulawak* is easy to get, leads to the production and consumption of a natural herbs assortments. Besides that, herbs' substances are not accumulated in the body, thus they do not disturb the body metabolism system.

The mothers in the experimental group had early initiation of breastfeeding so that the babies got the colostrum on the first day up to the third day of their lives. The bonding between the mothers and the babies were strong so that the potency of exclusive breastfeeding was also strong. According to Roesli (2012), when a baby gets colostrum, the baby tends to urinate 6-12 times a day. This habit triggers a normal urination habit for babies.

According to Roesli (2012), some babies will empty the mothers' breasts in 5 minutes. Mothers' breasts feel empty and soft because the babies have sucked the milk that previously made the mothers' breasts felt full. The babies in the experimental group were not given any additional milk such as formula, so that whenever the babies were crying, the mothers directly breastfed them as often as they could.

The result of this research showed that there were 70% mothers in the experimental group who had high production of breast milk and there were only 5% in the control group who had so. This was concluded and proven from some indicators, i.e. the production of breast milk that belongs to normal category, the significant babies' total weight gain, the normal

urination frequency in a day (8 times or more), and the duration of sleep (minimum 2 hours after each breastfeeding). All of the indicators were observed in 14 days after the birth of the babies. After statistic test using *t*-test was conducted, the *p* value was 0.000 with the *alpha* 0.05 so that it can be concluded that *p* value < *alpha* (0.000 < 0.05). In conclusion, it is proven that there is a positive effect in giving *temulawak* drink to boost the production of breast milk of the postpartum mothers compared to those who were not given the *temulawka* drink.

The result of the research has proven that the theory stated by Santoso (2008) was right. He stated that from the numerous benefits of *temulawak* rhizome, it can be used medically to lower the fever, treat constipation, boost breast milk production, and prevent the inflammation of the uterus in postpartum mothers. It is proven from the increase of breast milk production on most of the mothers in the experimental group. Their breast milk production was categorized into high production.

## CONCLUSION

Temulawak (*Curcuma xanthorrhiza* Roxb/ *Javanese ginger*) can boost the production of breast milk of postpartum mothers.

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