INTEREST: Jurnal Ilmu Kesehatan
Vol. 10, No. 2, November 2021
https://doi.org/10.37341/interest.v9i2.384

Original Research

Formulation Of Instant *Moringa Oleifera* Combination Dates (*Phoenix Dactylifera L.)* As Galactogogues

Aris Prastyoningsih[1*], Joko Santoso[2], Erinda Nur Pratiwi[3], Dheny Rohmatika[4], Ajeng Maharani [5], Dewi Andang Prastika[6]

[1, 3, 4, 5] Midwifery Study Program, Faculty of Health Sciences, Kusuma Husada University, Indonesia
[2] Pharmacy Study Program, Faculty of Health Sciences, Kusuma Husada University, Indonesia
[6] Midwifery Study Program, Poltekkes Kemenkes Semarang, Indonesia

ABSTRACT

Background: *Moringa oleivera is a local plant species that has the potential to be developed for nursing mothers. The content of phytosterol compounds contained in Moringa leaves has a function to increase and facilitate the production of breast milk. Instant Moringa powder preparation is one of the processed Moringa powder leaves in the form of powder for drinks that can be used by nursing mothers. Dates contain sterols needed to produce hormones for breastfeeding mothers, such as estrogen, progesterone, and prolactin. This hormone has a very important role in increasing milk production.*

Methods: *Extraction of Moringa leaf powder (15%) and dates (25%) by infundation method with aquadest solvent. Moringa powder extract and date extract were further crystallized with sucrose (60%).*

Results: *The results of the formulation of 30 grams of moringa plus 50 grams of crystallization with 120 grams of sugar obtained as much as 115 grams of moringa powder. The color of the preparation is brownish yellow, the smell is typical of Moringa with a slightly bitter sweet taste, pH is 5.61%, water content is 5.41% and fat content is 1.75%.*

Conclution: *There is a shrinkage during the formulation processing process of 57% of the net weight of the material.*

ARTICLE HISTORY
Received : December 6th, 2021
Accepted : January 6th, 2022

KEYWORDS
dates, galactogogues, instant, moringa;

CONTACT
Aris Prastyoningsih
✉
aris.prastyoningsih@gmail.com
Midwifery Program Faculty of Health Sciences, Kusuma Husada University, Indonesia, Jl Jaya Wijaya No. 11 Banjarsari Surakarta

Cite this as: Prastyoningsih, A., Santoso, J., Pratiwi, E., Rohmatika, D., Maharani, A., & Prastika, D. (2022). Formulation Of Instant Moringa Oleifera Combination Dates (Phoenix Dactylifera L.) As Galactogogues. *Interest : Jurnal Ilmu Kesehatan*, 225-230. https://doi.org/10.37341/interest.v0i0.384

INTRODUCTION

Malnutrition and the high incidence of infectious diseases in toddlers are quite serious problems and require treatment to be solved immediately. Riskesdas 2018 shows that 13.8% of children under five years old in Indonesia suffer from malnutrition and 3.9% suffer from malnutrition, as well as toddlers with stunting in the very short category 11.5% and the short category 19.3% (Kemenkes, 2018).

Based on a review of the health and nutritional problems of children under five years (toddlers) is a golden period of a child's life as a period of rapid development and

growth and is vulnerable to malnutrition problems. Breast milk is estimated to contain more than 200 elements. The content of breast milk is effective in reducing the risk of sudden infant death (SIDS), increasing intelligence, and strengthening the child's natural immune system (Hanum et al., 2014).

Breastmilk is the best food for babies compared to formula or other milk. However, in some breastfeeding mothers, the production of breast milk is hampered so that it does not run smoothly. This of course affects the nutritional intake, health, and growth of the baby. The cause of the lack of smooth breastfeeding may be due to hormonal factors or the food consumed, to facilitate breast milk one of them can be done by consuming traditional medicine. Traditional medicine can come from something found in the environment around us (Ditya et al., 2014).

The high content of phytosterol compounds provides a lactogogum effect that can increase levels of lactating hormones and iron has a positive impact on the health and breastfeeding process of the mother (Utary et al., 2019). The smooth production of breast milk is influenced by many factors including the nutritional status of the mother, the nutrition of the mother can be met with alternative foods and beverages in the surrounding environment to increase milk production. One of the plants that increase breast milk is Moringa. (Raguindin et al., 2014). Based on the results of research conducted by Zakaria in giving Moringa extract to the quantity and quality of breast milk, the results showed that there was a change in breast milk production when the mother was given Moringa leaf extract (Zakaria et al., 2016).

Moringa leaves have a variety of beneficial nutrients. The most superior part of the Moringa plant is the leaves. (Wulandari & Wardani, 2020). Moringa leaves contain protein, beta carotene, phytosterols, amino acids and iron which are good for consumption and can meet nutritional needs, especially for vulnerable groups such as pregnant women, nursing mothers, children with nutritional disorders (Fuglie, 2001).

Dates (*Phoenix dactylifera L.*) play an important role in their role as medicine and food. Dates are a food that is rich in sugar, vitamins, minerals, and fiber. One of the content of dates is flavonoid compounds (Hariadi & Widodo, 2018) . In his study, several classes of flavonoids were identified. Among them are quercetin, luteolin, apigenin, isoquercetin, and rutin. The total flavonoid content of dates ranged from 1.22 to 2.82 mg/100 g DW Saffawy variety was the highest and Al Qassim variety had the lowest flavonoid content. While the Ajwa Al Madinah variety used in this study is a date variety with the second highest flavonoid content (2.78 mg/100 grams) after the Saffawy variety (Hamad et al., 2015).

The use of Moringa leaf powder is now formulated in various preparations, One of them is instant Moringa powder, a combination of dates, which is used as a galactogogum. Making instant moringa powder with a combination of ginger can be easily consumed by nursing mothers and is very practical and light by just dissolving in warm water. Dosage forms like this can increase the level of product preference and affect consumer psychology.

Other than that, the impression as a medicine / herbal medicine will decrease because the slightly sweet taste can cover the bitter taste so that it can increase the attractiveness of consumers who do not like to consume herbal medicine. This research has obtained an ethical license from the research and community service institute at Kusuma Husada University Surakarta No. 80/UKH.L.02/EC/IX/2020.

MATERIALS AND METHOD

This research was conducted in June-July 2021 at the UESBE Laboratory, Surakarta. The ingredients used *Moringa Oleifera* leaf powder, fresh dates (*Phoenix dactylifera L.*), aquadest, and sucrose (sugar).

Formulation begins with making extracts of Moringa leaf powder and fresh dates. Moringa leaf powder obtained from a trusted herbal company and already has a PIRT permit was extracted using the infundation technique using uquades (1:10) by heating 90 ^{o}C for 15 minutes then filtered with a fanel cloth to obtain a thick extract. Fresh Dates that have been sorted, remove the seeds, then split into 2-3 parts. The fresh date pieces were extracted by boiled using aquadest ratio (1:10) with heating at 90 ^{o}C during 15 minutes, then filtered using a sieve with a mesh size of 100 to get date ekstract.

Instant formulation of moringa powder combination of dates: Moringa leaf's extract and date extract are mixed together on the pan with spatula, add sucrose and then stir over low heat, stirring constantly until homogeneous. Stirring is done continuously until it boils and foams. Continue stirring over low heat until the preparation becomes crystals. Wait until it cools down, filter it with a mesh size 20 to get moringa powder combination of dates ready to use.

Table 1. Instant Formulation of Moringa Powder Combination of Dates

Ingredients	Percentage Ingredients For Instant Kelotr Combination of Dates
Moringa Oleifera	15 %
Dates	25 %
Sukrosa / Sugar	60 %

Analysis of instant formulation of combination of date moringa powder is made from moringa extract and fresh date extract from the infundation process, then crystallization is carried out with the addition of sucrose/sugar. The organoleptic test carried out was an acceptance test where each panelist had to convey his response to the product/preparation presented. Testing of pH in this study using a pH meter. Testing the water content used is using Thermogravimetry. Testing the fat content used using the Soxhletasi method.

RESULTS

Instant formulation of Moringa powder combination of dates, the percentage of ingredients that have been determined, namely moringa 15%, dates 25% and sucrose 60%. The test of instant Moringa powder combination of dates can be seen in table 2.

Table 2. Table of Physical Test Instant of Moringa Powder Combination of Dates

Test Type	Method	Result
Color	Expert	Brownish yellow
Flafour		Moringa smell
Smell		Sweet taste was slightly bitter
pH	pH Meter	5.61
Water Content	Thermogravimeter	5.41%.
Fat Content	Soxhletasi method	1.75%

DISCUSSION

Instant formulation of Moringa powder combination of dates, the percentage of ingredients that have been determined, namely moringa 15%, dates 25% and sucrose 60%. The percentage of dates is greater than that of Moringa due to disguise the bitter taste of Moringa. The addition of dates to this formulation not only adds flavor and aroma, but can also increase the antioxidant content (Hamad et al., 2015).

The results of the organoleptic test on the physical appearance of the instant preparation of moringa powder combination of dates based on organoleptic testing showed that the color of the preparation was brownish yellow, the characteristic odor of moringa with a sweet taste was slightly bitter. This slightly brownish yellow color is due to the combination of the preparation with ajwa type dates.

The distinctive smell of Moringa is more dominant than the smell of dates, because Moringa has a more pungent odor. (Zubaydah et al., 2019). The taste of the preparation is sweet, slightly bitter because of the dominant taste of Moringa extract. The content of antioxidants and free radicals in Moringa extract through infundation does not reduce the content of fresh leaves (Salim & Eliyarti, 2019).

Testing the pH used in the instant preparation of Moringa powder combination of dates using a pH meter. The results of the pH analysis showed the results of 5.61 pH values that are too low or too high can cause changes in the pH of the skin and cause damage to the skin coat. Damage to the layer of the skin's coat can cause the skin to lose its acidity level, be more easily irritated and damaged. The pH value of Moringa leaf extract produced is safe. Based on the requirements of SNI 164954-1998, the pH range of cream that is safe for skin is 3.5-8 (Jusnita & Nasution, 2019).

The results of the analysis of the moisture content of instant Moringa powder combination of dates weighing 3 grams using a Thermogravimeter showed the results of 5.41%. The water content in instant Moringa powder does not appropriate with the requirements of SNI 01-4320-1996 regarding traditional drink powder which states that the water content should not be more than 3%. This is because the dates used are fresh dates. Previous research stated that water content that was too high could be caused by the nature of the active substance of date extract as a base material which was hygroscopic and able to absorb more water content. To overcome this, Moringa powder instant preparations must be stored in a tightly closed container and given silica gel to prevent excessive water absorption (Zubaydah et al., 2019).

The results of the analysis of fat content in the instant preparation of Moringa powder combined with dates with the Soxhletasi method obtained 1.75% results with a sample weight of 0.5 grams. The fat content obtained does not meet the quality requirements for the fat content of ice cream and the fat intake requirements for each individual in a day according to the POM (Food and Drug Monitoring) so it is necessary to consume other food ingredients that contain fat sources. Furthermore, fat has a role as the largest source of energy for the body (Widowati et al., 2019).

CONCLUSION

Instant formulation of Moringa powder combination of dates, the percentage of ingredients that have been determined, namely moringa 15%, dates 25% and sucrose 60% with crystallization methode. Based on the results of organoleptic testing, it shows that the instant preparation of Moringa powder is a combination of dates, the color of the preparation is brownish yellow, the smell is typical of Moringa with a slightly bitter sweet taste.

The result of the test on pH is 5.61. The results of the water content test are 5.41% and the fat content test is 1.75%. It is necessary to carry out a more complete test on the instant preparation of the combination of dates Moringa powder, especially the microbial test to determine the amount of microbial contamination of the combination of Dates combination Moringa instant preparations.

ACKNOWLEDGEMENT

Thanks the author's to Kusuma Husada University research institute which has provided funding during the research. UESBE laboratories that have given permission to conduct research.

REFERENCES

Ditya, S., Yustisia, Vidyarini, T. N., & Indrayani, I. I. (2014). *Persepsi Ibu Menyusui Mengenai Kampanye Asi Eksklusif Di Puskemas Jagir Surabaya*. 28–29. http://repository.petra.ac.id/16715/1/Publikasi1_09003_1616.pdf

Fuglie, L. J. (2001). Combinating Malnutrition with Moringa. *Development Potential for Moringa Products*: Tanzania.

Hamad, I., Abdelgawad, H., Al Jaouni, S., Zinta, G., Asard, H., ..., & Selim, S. (2015). Metabolic analysis of various date palm fruit (Phoenix dactylifera L.) cultivars from Saudi Arabia to assess their nutritional quality. *Molecules*, *20*(8), 13620–13641. https://doi.org/10.3390/molecules200813620

Hanum, F., Khomsan, A., & Masyarakat, D. G. (2014). Hubungan Asupan Gizi Dan Tinggi Badan Ibu Dengan Status Gizi Anak Balita. *Jurnal Gizi Dan Pangan*, *9*(1), 1–6. https://doi.org/https://doi.org/10.25182/jgp.2014.9.1.%25p

Hariadi, B., & Widodo, A. (2018). Pengaruh Pemberian Ekstrak Buah Kurma (Phoenix Dactylifera L.) Varietas Ajwa Terhadap Kadar No Pada Mencit Balb/C Yang Diinfeksi Salmonella Typhimurium. *Diponegoro Medical Journal (Jurnal Kedokteran Diponegoro)*, *7*(2), 751–761. https://doi.org/https://doi.org/10.14710/dmj.v7i2.20737

Jusnita, N., & Nasution, K. (2019). Formulasi Nanoemulsi Ekstrak Daun Kelor (Moringa oleifera Lamk). *Industria: Jurnal Teknologi Dan Manajemen Agroindustri*, *8*(3), 165–170. https://doi.org/10.21776/ub.industria.2019.008.03.1

Kemenkes. (2018). Hasil Utama Riskesdas. In *Kementerian Kesehatan Republik Indonesia*.

Raguindin, P. F. N., Dans, L. F., & King, J. F. (2014). Moringa oleifera as a galactagogue. *Breastfeeding Medicine*, *9*(6), 323–324. https://doi.org/10.1089/bfm.2014.0002

Salim, R., & Eliyarti. (2019). Aktivitas Antioksidan Infusa Daun Kelor (Moringa Oleifera Lam.) Terhadap Warna Daun 1. *Jurnal Katalisator*, *4*(2), 91–102. https://doi.org/DOI: 10.22216/jk.v4i2.4210

Utary, N., Murti, K., & Septadina, I. S. (2019). Effects of Moringa (Moringa oleifera) leaf extract on alveolar diameter of breastfeeding and weight of infant Wistar rats. *Journal of Physics: Conference Series*, *1246*(1). https://doi.org/10.1088/1742-6596/1246/1/012067

Widowati, L., Isnawati, A., Alegantina, S., & Retiaty, F. (2019). Potensi Ramuan Ekstrak Biji Klabet dan Daun Kelor sebagai Laktagogum dengan Nilai Gizi Tinggi. *Media Penelitian Dan Pengembangan Kesehatan*, *29*(2), 143–152. https://doi.org/10.22435/mpk.v29i2.875

Wulandari, E. T., & Wardani, P. K. (2020). Gambaran penggunaan herbal pelancar ASI (Galactagogues) di desa Wonosari Kabupaten Pringsewu. *Wellness And Healthy Magazine*, *2*(2), 251–258. https://doi.org/10.30604/well.022.82000108

Zakaria, Hadju, V., As'ad, S., & Bahar, B. (2016). Pengaruh Pemberian Ekstrak Daun Kelor terhadap Kuantitas dan Kualitas Air Susu Ibu (ASI) Pada Ibu Menyusui Bayi 0-6 Bulan. *Jurnal MKMI*, *12*(3), 161–169. https://doi.org/htpps://10.33024/manuju.v2i3.1677

Zubaydah, W. O. S., Fia, W., Adawia, S., Novitasari, N., Rahmasari, R., & Hasanuddin, D. D. (2019). Formulasi Minuman Effervescent Mix Serbuk Daun Kelor (Moringa oleifera). *Pharmauho: Jurnal Farmasi, Sains, Dan Kesehatan*, *4*(2), 2–4. https://doi.org/10.33772/pharmauho.v4i2.6281