

PROXIMATE AND PHYTOCHEMICAL ANALYSIS OF MORINGA LEAF FLOUR AS AN EFFORT TO INCREASE BREAST MILK

Yopi Suryatim Pratiwi^{1*}, Sri Handayani², Yesvi Zulfiana³, Regina Pricillia Yunika⁴

^{1,2}Prodi Kebidanan Program Sarjana STIKES Yarsi Mataram

^{3,4}Prodi Kebidanan Pendidikan Profesi Bidan STIKES Yarsi Mataram

Correspondence email*: yopisuryatimpratiwi@gmail.com

ABSTRAK : ANALISIS PROKSIMAT DAN FITOKIMIA TEPUNG DAUN KELOR SEBAGAI UPAYA MEMPERBANYAK ASI

Latar belakang: Angka Kematian Bayi (AKB) di Indonesia masih tinggi, dimana sebagian besar disebabkan oleh faktor nutrisi. Beberapa penyakit yang timbul akibat malnutrisi antara lain pneumonia, diare, dan perinatal. Pemberian Air Susu Ibu (ASI) eksklusif mampu menurunkan angka kesakitan dan kematian bayi. Alasan yang paling sering ditemukan pada ibu menyusui yang menghentikan pemberian ASI yaitu karena produksi ASI yang kurang. Pemanfaatan tanaman/sayuran yang berfungsi sebagai galaktogogue dapat digunakan sebagai alternatif untuk meningkatkan produksi ASI. Daun kelor merupakan salah satu tanaman yang sering digunakan masyarakat untuk meningkatkan produksi ASI. Pemanfaatan tepung daun kelor dalam bentuk puding dapat menjadi salah satu alternatif untuk mengatasi permasalahan ketidakseimbangan nutrisi yang dihadapi oleh sebagian besar ibu menyusui untuk meningkatkan produksi ASI.

Tujuan: Tujuan penelitian ini yaitu mengidentifikasi kandungan kadar air, kadar abu, protein, lemak, dan karbohidrat. Melakukan skrining fitokimia pada tepung daun kelor.

Metode: Metode dalam penelitian ini yaitu melakukan uji laboratorium pada tepung daun kelor sebanyak 100 gram. Melakukan analisis proksimat pada tepung daun kelor meliputi kadar air, kadar abu, protein, lemak, dan karbohidrat. Melakukan skrining fitokimia pada tepung daun kelor untuk mengetahui kadar alkaloid dan steroid pada tepung daun kelor

Hasil: Hasil analisis kandungan proksimat diperoleh hasil kadar protein 22,08%, kadar lemak 5,90%, kadar air 1,11%, kadar abu 9,78%, kadar karbohidrat 61,13%. Hasil skrining fitokimia didapatkan tepung daun kelor memiliki kandungan alkaloid, steroid, dan terpenoid.

Simpulan: Pemanfaatan tepung daun kelor merupakan salah satu alternatif yang dapat digunakan sebagai bahan dasar puding untuk mengatasi masalah produksi ASI yang kurang.

Saran: Peneliti selanjutnya disarankan dapat melakukan penelitian terkait inovasi pengembangan pengolahan daun kelor terhadap kelancaran ASI yang langsung diaplikasikan pada ibu-ibu menyusui untuk mencegah kegagalan pemberian ASI eksklusif karena produksi ASI kurang.

Kata Kunci: Analisis proksimat dan fitokimia, Tepung Daun kelor, Produksi ASI

ABSTRACT

Background: The Infant Mortality Rate (IMR) in Indonesia is still high, most of which is caused by nutritional factors. Some diseases that arise due to malnutrition include pneumonia, diarrhea and perinatal. Providing exclusive breast milk (ASI) can reduce infant morbidity and mortality. The most common reason found in breastfeeding mothers who stop breastfeeding is due to insufficient milk production. The use of plants/vegetables that function as galactogogues can be used as an alternative to increase breast milk production. Moringa leaves are one of the plants that people often use to increase breast milk production. Utilizing Moringa leaf flour in the form of pudding can be an alternative to overcome the problem of nutritional imbalance faced by most breastfeeding mothers to increase breast milk production.

Objective: The aim of this research is to identify the water content, ash content, protein, fat and carbohydrates. Carrying out phytochemical screening on Moringa leaf flour.

Method: The method in this research is to carry out laboratory tests on 100 grams of Moringa leaf flour. Carrying out proximate analysis of Moringa leaf flour includes water content, ash content, protein, fat and carbohydrates. Carry out phytochemical screening on Moringa leaf flour to determine the levels of alkaloids and steroids in Moringa leaf flour.

Results: The results of the proximate content analysis showed that the protein content was 22.08%, the fat content was 5.90%, the water content was 1.11%, the ash content was 9.78%, and the carbohydrate content was 61.13%. The results of phytochemical screening showed that Moringa leaf flour contains alkaloids, steroids and terpenoids.

Conclusion: The use of Moringa leaf flour is an alternative that can be used as a base for pudding to overcome the problem of insufficient breast milk production.

Suggestion : Further researchers are advised to carry out research related to innovations in developing Moringa leaf processing for smooth breastfeeding which can be directly applied to breastfeeding mothers to prevent failure in exclusive breastfeeding due to insufficient breast milk production.

Keywords: *Breast Milk Production, Moringa Leaf Flour , Proximate and phytochemical analysis*

INTRODUCTION

The infant mortality rate (IMR) is an indicator of the success of maternal and child health programs. Based on data from the Central Statistics Agency (BPS) in 2022, the Infant Mortality Rate (IMR) in Indonesia is 16.9 per 1,000 live births, while the Infant Mortality Rate in Indonesia is 19.83 per 1,000 live births. IMR in NTB in 2022 will be 8.7% and the infant mortality rate will be 0.3%(Badan Pusat Statistik, 2021).

Factors causing death of infants and toddlers are related to nutritional factors. Some diseases that arise due to malnutrition include pneumonia, diarrhea, malaria, tetanus, neurological disorders, gastrointestinal disorders, etc. Most post-neonatal under-five deaths in Indonesia in 2022 will be due to pneumonia, namely 14.5%. There were also post-neonatal under-five deaths due to diarrhea of 9.8%, other congenital abnormalities 0.5%, neurological diseases 0.9%, and other factors 73.9%(Kemenkes RI, 2022). The most common causes of IMR in NTB in 2022 are pneumonia 37.6%, perinatal conditions 10.3%, diarrhea 7.8%, and other factors 28.5%(Dinkes Prov NTB, 2023).

Breast milk is the best first and main nutrition for babies. The World Health Organization (WHO) recommends that all babies should receive breast milk (ASI) exclusively from an early age. The benefits of exclusive breastfeeding are in line with one of the goals of the Millennium Development Goals (MDGs), namely reducing child mortality rates and improving maternal health(Dewi, 2022).

Exclusive breastfeeding coverage in Indonesia will decrease in 2022. The decline in exclusive breastfeeding coverage is shown in the results of the 2022 Indonesian Nutrition Status Survey (SSGI). Coverage of exclusive breastfeeding for six months in 2021 was recorded at 48.2%. That figure decreases significantly in 2022 with coverage of 16.7%. This should be a concern because the provision of formula milk will increase from 45.2% in 2021 to 61.6% in 2022(Kemenkes RI, 2022).

Exclusive breastfeeding coverage in the NTB region in 2022 will be 84.4% and will decrease in 2023 to 82.7%(Dinkes Prov NTB, 2023).

Insufficient breast milk production is a common complaint expressed by mothers, especially in the first week of postpartum(Asnidawati & Ramdhan, 2021; Margareth ZH, 2016). Zakaria's research (2016) reported that 38% of breastfeeding mothers stopped breastfeeding on the grounds that breast milk production was interrupted or there was a lack of breast milk production(Zakaria et al., 2016b). Other research also shows that the majority (69.23%) of mothers complained that the amount of breast milk was insufficient in the first week after giving birth (Indrayani D, Gustirini R, 2015).

Efforts to increase breast milk coverage can be done using several methods, namely pharmacological methods and non-pharmacological methods. Pharmacological methods tend to be expensive, while non-pharmacological methods to increase breast milk production can be obtained from plants or what are usually called Family Medicinal Plants (TOGA)(Yuliani, 2021).

If breast milk production is lacking, people usually use plants that are believed to increase breast milk production (galactagogue) such as katuk leaves (*Sauropus androgynus*), fenugreek seeds (*Trigonella foenum-graceum*), moringa leaves (*Moringa oleifera*), papaya leaves (*Carica papaya* L) and leaves. cumin or torbangun (*Coleus ambonicus*)(Monika, 2020). Penelitianyang dilakukan Pratiwi (2023) menunjukkan daun kelor memiliki kandungan senyawa alkaloid dan steroid, dimana kandungan tersebut dapat membantu meningkatkan produksi ASI(Pratiwi YS, Handayani S, 2023).

Moringa leaves (*Moringa oleifera*) contain steroids which, together with phytosterols, can increase the hormone prolactin in the serum through stimulation of the secretory cells of the mammary glands thereby stimulating alveolar epithelial cells to increase breast milk production. The content of

alkaloid compounds, namely trigoneline, works synergistically with the hormone oxytocin which can trigger, maintain, facilitate and increase breast milk production in breastfeeding mothers (Zakaria et al., 2016a). Apart from that, Moringa leaves also contain carbohydrates, protein, fat, as well as various minerals and vitamins. The protein contained in Moringa leaves is known to affect breast milk production (Citra, 2019). Moringa leaves also contain the mineral calcium as a micronutrient which is known to influence the production of the hormone prolactin.

Many studies have been conducted analyzing the role of Moringa leaves on breast milk production. These studies are known to have used Moringa leaves as a galactagogue in different processed forms. Handayani's research (2021) shows that 38.2% of breastfeeding mothers use Moringa leaves as a breast milk enhancer which is processed into a clear vegetable (Handayani, 2021). This is in line with research by Pratiwi (2023) which shows that the clear vegetable Moringa leaves contain alkaloids and steroids which play a role in increasing and facilitating breast milk production (Pratiwi, 2023).

Processing Moringa leaves into clear vegetables is widely used in society, both by the general public and breastfeeding mothers. Other research explains that many breastfeeding mothers feel bored with processing Moringa leaves into clear vegetables, and don't like it because the unpleasant aroma of Moringa leaves is still there (Aliyanto & Rosmadewi, 2019). So other processed alternatives are needed to reduce the unpleasant aroma of Moringa leaves, one of which is in the form of processed pudding (Maharani, 2020).

Utilizing Moringa leaf flour in the form of pudding can be an alternative to overcome the problem of nutritional imbalance faced by most breastfeeding mothers to increase breast milk production. Moringa leaf flour is rich in nutrition, especially its carbohydrate content (Vittal dkk., 2018), so it has been widely used and processed as food. Therefore, researchers are interested in researching "Proximate and Phytochemical Analysis of Moringa Leaf Flour as an Effort to Increase Breast Milk".

RESEARCH METHODS

This research is qualitative research by describing the results of the analysis. There are two stages of this research, namely making Moringa leaf flour and analyzing the proximate content of Moringa leaf flour. Proximate analysis and phytochemical screening were carried out at the Analytical Chemistry Laboratory, Faculty of Mathematics and Natural Sciences, Mataram University.

1. Flour Making Process

a. Preparation of tools and materials

The material used in this research was Moringa leaves obtained in Dasan Baru Hamlet, Sukarara Village, Central Lombok Regency, NTB Province. The parts used are young to old Moringa leaves.

The tools used for making flour are a triple beam scale, blender, basin, 80 mesh flour sieve, pan, container box, and stove.

b. How to Make Moringa Leaf Flour

Boiling boiling water, put the Moringa leaves in a pan with a blanching temperature of 82-83°C for 3-5 minutes. The Moringa leaves are removed, drained and then dried in the sun. Once dry, the Moringa leaves are ground with a blender and sifted with an 80 mesh sieve to make fine Moringa flour. Prepare a pan filled with water, and boil it (Widowati H, Faridah S.M, n.d.).

2. Proximate Analysis and Phytochemical Screening of Moringa Leaf Flour

Proximate analysis of 100 grams of Moringa leaf flour includes water content, ash content, protein, fat and carbohydrates (Widarta et al., 2013). Phytochemical screening was carried out to determine the levels of alkaloids and steroids in Moringa leaf flour (Dwika Pratama, 2016).

RESEARCH RESULTS

Proximate analysis and phytochemical screening on Moringa leaf flour was carried out at the Analytical Chemistry Laboratory, Faculty of Mathematics and Natural Sciences, Mataram University on January 9 2024. The following are the results of proximate analysis and phytochemical screening on Moringa leaf flour:

Proximate Test of Moringa Leaf Flour

Tabel 1
Hasil analisis proksimat tepung daun kelor per 100 gram

Characteristics	Moringa Leaf Flour	
	Results (%)	Condition (%)
Kadar protein	22,08	23,62
Kadar lemak	5,90	7,28
Kadar air	1,11	6,96
Kadar abu	9,78	10,59
Kadar karbohidrat	61,13	47,96

Phytochemical Screening of Moringa Leaf Flour

Tabel 2
Results of Phytochemical Screening of Moringa Leaf Flour

Group	Observation	Result
Alcaloid	Formation of a brown precipitate	+++
SteroidS	Brownish green becomes purplish green	+
Terpenoid	Brownish green becomes blackish blue	+

DISCUSSIONS

Protein Level

The high protein content in Moringa leaf flour contributes as a building block and regulatory agent to the human body. Protein is a very important food substance for the body (Apriyanto, 2021). As a building block, protein is a building block for new tissue that always occurs in the body. The higher the protein content in the food, the better the nutritional value of the food for humans (Kustiani et al., 2022). Protein can come from animal and vegetable sources. The results of the analysis of protein content in Moringa leaf flour in this study were 22.08%. Another research by Yunita (2022) showed the same thing, namely a protein content of 27.27%. However, this value is greater than the results of research conducted by Kustiani, namely 1.64% (Kustiani et al., 2022).

Fat Level

Fat is an important parameter to monitor because if the fat content in food is too much, it can cause negative impacts such as obesity, high cholesterol, high blood pressure, coronary heart disease and others. Therefore, WHO calls for reducing total fat intake to less than 30%. The fat content in Moringa leaf flour is 5.90%, this does not comply with the requirements in accordance with Food and Drug Supervisory Agency (BPOM) Regulation Number 34 of 2019 concerning food categories (BPOM RI, 2019). The fat content produced in Moringa leaf flour in this study was greater than the fat content in Yunita's research (2022) of 7.28% (Yunita et al., 2022).

Air Level

The water content in food products functions to form and maintain the texture of food, and plays a role in determining the taste, weight and shelf life of food products. If the water content is excessive, the product texture will become soft, and can even cause clumping and blockages in pipes during the production process. The greater the water content in food products also triggers the speed of bacteria to grow which can cause product damage (Rahmi, 2020). The results of the analysis of water content in Moringa leaf flour in this study were 1.11%. Previous research conducted by Augustyn (2017) showed that the water content of Moringa leaf flour was 9.57% (Augustyn et al., 2017).

Abu Level

Ash content is used to evaluate the nutritional value of food ingredients and shows the total minerals that can be toxic contained in the ingredients, where the higher the ash content, the worse the quality of the food ingredients (Rahmi, 2020). Kadar abu merupakan campuran dari komponen an-organik atau mineral yang terdapat pada suatu bahan makanan olahan. Hasil analisis kadar abu tepung daun kelor dalam penelitian ini relatif tinggi yakni 9,78%. Hal ini dikarenakan penurunan kadar air dapat mempengaruhi terhadap peningkatan nilai nutrisi termasuk kadar abu. Kadar abu bahan tanaman sangat bervariasi, tergantung spesies tanaman dan bagian tanaman. Kadar abu pada analisis proksimat tidak memberikan nilai nutrisi yang penting.

Carbohydrate Levels

Carbohydrates are the main source of nutrients in the menu of most Indonesian people. Carbohydrates also have an important role in determining the characteristics of food ingredients, such as taste, color, texture and so on (Y. Rahmi, 2020). Carbohydrates can fulfill 60-70% of the body's energy needs. The analysis results showed that the carbohydrate content of Moringa leaf flour was relatively high. The results of the analysis of carbohydrate content in Moringa leaf flour were 61.13%. The carbohydrate content in this study was greater than that of previous researchers, namely 38.2% (Gizi et al., 2019).

Phytochemical Screening of Moringa Leaf Flour

The results of phytochemical tests carried out in this study showed that Moringa leaf flour contains alkaloids, steroids and terpenoids. This is in line with research conducted by Tekle (2015) which shows the content of alkaloids, tannins, flavonoids, polyphenols, saponins and essential oils in Moringa leaf extract (Tekle et al., 2015). Similar research also shows that there are alkaloids, flavonoids, saponins, phenols, steroids/triterpenoids, and tannins in Moringa leaf extract (Dwika et al., 2016; Yulianto, 2020; Zulfiah et al, 2020).

The alkaloids and steroids in Moringa leaves are part of the phytosterol compound which functions to increase and facilitate breast milk production (lactagogum effect). Moringa leaves (Moringa oleifera) are a galactagogue food that has a high micronutrient content compared to other galactagogue foods. The nutritional content in Moringa leaves such as protein, carbohydrates, fat, alkaloid compounds and steroids plays a role in the prolactin reflex and increases levels of the hormone prolactin, thus stimulating the alveoli to produce breast milk (Prayekti et al., 2021).

Moringa leaves (Moringa oleifera) is a galactagogue food that has a high micronutrient content compared to other galactagogue foods. The nutritional content such as phytosterols, alkaloids, saponins, polyphenols and steroids (lactagogue effect) plays a role in the prolactin reflex and increases prolactin hormone levels, so that stimulates the alveoli to produce breast milk (Aliyanto & Rosmadewi, 2019; Damayanti A, Widiawati I, 2022; Rochmayanti NS, 2022).

The alkaloid content in Moringa leaves works synergistically with the hormone oxytocin. Alkaloids have a function that directly acts on all smooth muscles. When smooth muscles contract, milk will be ejected and the number and diameter of the alveoli will increase on average in proportion to the increase in milk produced. (Rosalinda Sinaga, 2020).

CONCLUSIONS

The use of Moringa leaves is an alternative that can be used to overcome the problem of insufficient breast milk production, apart from being cheap and easy to obtain. Processing Moringa leaves into flour is an alternative that can be used as a basic ingredient for making pudding in order to increase breast milk production in breastfeeding mothers.

SUGGESTION

Further researchers are advised to carry out research related to innovations in developing Moringa leaf processing for smooth breastfeeding which can be directly applied to breastfeeding mothers to prevent failure in exclusive breastfeeding due to insufficient breast milk production.

REFERENCES

- Aliyanto, W., & Rosmadewi, R. (2019). Efektifitas Sayur Pepaya Muda dan Sayur Daun Kelor terhadap Produksi ASI pada Ibu Post Partum Primipara. *Jurnal Kesehatan*, 10(1), 84. <https://doi.org/10.26630/jk.v10i1.1211>
- Apriyanto, M. (2021). *Buku Ajar: Kimia Pangan Dr. Nuta Media Jl. P. Romo, No. 19 Kotagede Jogjakarta/ Jl. Nyi Wiji Adhisoro, Prenggan Kotagede Yogyakarta* nutamediajogja@gmail.com; 081228153789 @2020,.
- Asnidawati, A., & Ramdhan, S. (2021). Hambatan Pemberian ASI Eksklusif Pada Bayi Usia 0-6 Bulan. *Jurnal Ilmiah Kesehatan Sandi Husada*, 10(1), 156–162. <https://doi.org/10.35816/jiskh.v10i1.548>
- Augustyn, G. H., Cynthia, H., Tuhumury, D., & Dahoklory, M. (2017). Terhadap Karakteristik Organoleptik Dan Kimia Biskuit Mocaf (Modified Cassava Flour) The Effect of the Addition of Moringa (Moringa oleifera) Leaf Flour on the Organoleptic and Chemical Properties of MOCAF (Modified Cassava Flour) Biscuits. 6(2), 52–58. <https://doi.org/10.30598/jagritekno.2017.6.2.52>
- Badan Pengawasan Obat dan Makanan Republik Indonesia (BPOM RI). (2019). *Peraturan Kepala Badan Pengawasan Obat dan Makanan Nomor 34 tahun 2019 Tentang Kategori Kategori Pangan. Pusat Pengujian Obat dan Makanan. Jakarta.*
- Badan Pusat Statistik. (2021). *Badan Pusat Statistik. (2021). Sensus Penduduk 2020. Bps.Go.Id, 27, 1–52.*

- <https://Papua.Bps.Go.Id/Pressrelease/2018/05/07/336/Indeks-Pembangunan-Manusia-Provinsi-Papua-Tahun-2017.Html>.
Bps.Go.Id, 27, 1–52.
- Citra, K. (2019). Kandungan Nutrisi Tanaman Kelor. In *Fakultas Farmasi Universitas Surabaya* (Vol. 44, Issue 8).
- Damayanti A, Widiawati I. (2022). Efektivitas Pemberian Ekstrak Daun Kelor (Moringa Oleifera) Terhadap Produksi Asi Dan Kenaikan the Effectiveness of Moringa Oleifera Leaf Extract on. *Jurnal Kesehatan Siliwangi*, 2(3), 861–869. <https://jurnal.polkesban.ac.id/index.php/jks/article/view/788>
- Dewi, C. K. (2022). *Nutrisi atau makanan terbaik untuk bayi umur 0-6 bulan adalah ASI*.
- Dinkes Prov NTB. (2023). *NTB Satu Data*.
- Dwika, W., Putra, P., Agung, A., Oka Dharmayudha, G., & Sudimartini, L. M. (2016). Identifikasi Senyawa Kimia Ekstrak Etanol Daun Kelor (Moringa oleifera L) di Bali (Identification Of Chemical Compounds Ethanol Extract Leaf Moringa (Moringa Oleifera L) IN BALI). *Indonesia Medicus Veterinus Oktober*, 5(5), 464–473.
- Gizi, P. M., Basah, M., Kelor, D., Oleifera, M., Rafidah, G., & Azizah, T. A. (2019). *Indonesian Journal of Human Nutrition*. 10–21.
- Handayani, T. E. et al. (2021). Pemanfaatan Tanaman Lokal Sebagai Pelancar ASI (Galaktagogue).
- I Wayan Dwika Pratama Putra, Anak Agung Gde Oka Dharmayudha, L. M. S. (2016). Identifikasi Senyawa Kimia Ekstrak Etanol Daun Kelor (Moringa oleifera L) di Bali. *Indonesia Medicus Veterinus Oktober*, 5(5), 464–473.
- Indrayani D, Gustirini R, H. S. (2015). *Survei Pendahuluan tentang Pengalaman Menyusui dan Upaya untuk Meningkatkan Produksi ASI*.
- Kemenkes RI. (2022). *Laporan Akuntabilitas Kinerja Instansi Pemerintah Tahun 2022*.
- Kustiani, A., Gz, S., Si, M., Adyas, A., Samsu, I., Nurdin, U., Sc, M., Indriani, I. Y., Sc, M., Riset, D., Masyarakat, K., Jendral, D., Tinggi, P., Teknologi, R., & Pendidikan, K. (2022). *Formulasi , Analisis Sensori , Dan Evaluasi Zat Gizi Makanan Selingan “ by Product ” Tepung Daun Kelor Sebagai Alternatif Makanan Bergizi Ibu Hamil Dalam Rangka Pencegahan Kejadian Stunting Sejak Dini Ketua*.
- Maharani, S. S. (2020). *Pengaruh Pemberian Puding Daun Kelor pada Ibu Menyusui terhadap Frekuensi dan Lama Menyusui Bayi di Wilayah Puskesmas Medan Johor*.
- Margareth ZH. (2016). *Asuhan Kehamilan, Persalinan, dan Nifas*. Nuha Medika.
- Monika, N. L. G. M. (2020). Potensi Tanaman Lokal Sebagai Galaktagogue Herbal Untuk Meningkatkan Produksi ASI. *Emasains : Jurnal Edukasi Matematika Dan Sains*, IX(Vol. 9 No. 1 (2020): Vol 9 NO 1 (2020) : Maret 2020), 104–112.
- Pratiwi YS, Handayani S, F. N. (2023). Identification Of Alkaloids And Steroids In Moringa Oleifera Leaves As A Breastfeeding. *Jurnal Kebidanan Malahayati*, 2(1), 53–57.
- Pratiwi, Y. S. (2023). Skrining Fitokimia Sayur Bening Daun Kelor (Moringa Oleifera). *Profesional Health Journal*, 5(1), 139–146.
- Prayekti, I. S., Thaha, A. R., Citrakesumasari, Indriyari, R., & Healthy, H. (2021). Efektivitas Daun Kelor (Moringa Oleifera) Sebagai Galaktogog Pada Ibu Menyusui : An Update Systematic Review Effect. *JGMI: The Journal of Indonesian Community Nutrition Vol. 10 No. 2. 2021*, 10(2), 194–207.
- Rahmi, Y. (2020). Profil Mutu Gizi, Fisik, dan Organoleptik Mie Basah dengan Tepung Daun Kelor (Moringa Oleifera). *Indonesian Journal of Human Nutrition*, 7(2), 139–152.
- Rochmayanti NS. (2022). Pengaruh Moringa Oleifera Terhadap Kelancaran Produksi Asi Pada Ibu Menyusui Kurang dari 7 Hari di PMB Afah Fahmi, Amd.Keb. *Jurnal Ilmiah Obsgin*, 14(3), 63–69.
- Rosalinda Sinaga, T. (2020). Manfaat Buah Pepaya Terhadap Kelancaran Proses Menyusui Pada Ibu Nifas. *Jurnal Penelitian Perawat Profesional*, 2, 301–308. <http://jurnal.globalhealthsciencegroup.com/index.php/JPPP>.
- Tekle, A., Belay, A., Kelem, K., W/Yohannes, M., Wodajo, B., & Tesfaye, Y. (2015). Nutritional Profile of Moringa stenopetala Species Samples Collected from Different Places in Ethiopia. *European Journal of Nutrition & Food Safety*, 5(5), 1100–1101. <https://doi.org/10.9734/ejnf/2015/21263>
- Widarta, I. W. R., Suter, I. K., Yusa, N. M., & W, P. A. (2013). *Praktikum Analisis Pangan. Penuntun Praktikum Analisis Pangan*, 1–34.
- Widowati H, Faridah S.M, B. R. . (n.d.). Prosedur pembuatan tepung daun kelor (Moringa Oleifera). *Universitas Muhammadiyah Sidoarjo*.
- Yuliani. (2021). Peningkatan Produksi Asi Ibu

- Menyusui Dengan Tatalaksana Kebidanan Komplementer. *Seminar Nasional Hasil Riset Dan Pengabdian Ke-III*, 17–27.
- Yulianto, S. (2020). Identifikasi Alkaloid Daun Kelor (*Moringa oleifera* L). *Jurnal Kebidanan Dan Kesehatan Tradisional*, 5(1), 55–57. <https://doi.org/10.37341/jkkt.v5i1.136>
- Yunita, L., Rahmiati, B. F., Naktiany, W. C., & Lastyana, W. (2022). *Analisis Kandungan Proksimat Dan Serat Pangan Tepung Daun Kelor dari Kabupaten Kupang Sebagai Pangan Fungsional Analysis of Proximat and Dietary Fiber of Moringa Leaf Flour from Kupang Regency as Functional Food*. 03(02), 44–49.
- Zakaria, Hadju, V., As'ad, S., & Bahar, B. (2016a). Effect of Extract *Moringa Oleifera* on Quantity and Quality of Breastmilk In Lactating Mothers, Infants 0-6 Month. *Jurnal MKMI*, 12(3), 161–169.
- Zakaria, Hadju, V., As'ad, S., & Bahar, B. (2016b). 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.
- Zulfiah, Herman, Megawati, Hasyim MF, Murniati, A. L. S. et. a. (2020). Uji Identifikasi Senyawa Alkaloid Ekstrak Metanol Daun Kelor (*Moringa oleifera* Lamk) Menggunakan Metode Metode Kromatografi Lapis Tipis. *Jurnal Farmasi Sandi Karsa*, 6(2), 83–87. <https://doi.org/10.36060/jfs.v6i2.75>