



# The Effectiveness of Sweet Fennel Administration on Increasing Breast Milk Production in Breastfeeding Mothers

Setia Sihombing<sup>1\*</sup>, Ucy Tryaningsih<sup>1</sup>, Tri Suci Dewiati<sup>1</sup>

<sup>1</sup> Program Studi DIII Kebidanan, Fakultas Ilmu Kesehatan, Universitas Putra Abadi Langkat, Langkat, Indonesia.

Received: October 21, 2025  
Revised: December 04, 2025  
Accepted: January 25, 2026  
Published: January 31, 2026

Corresponding Author:  
Setia Sihombing  
[tiasihombing@gmail.com](mailto:tiasihombing@gmail.com)

DOI: [10.29303/jppipa.v12i1.13199](https://doi.org/10.29303/jppipa.v12i1.13199)

 Open Access

© 2026 The Authors. This article is distributed under a (CC-BY License)



**Abstract:** Exclusive breastfeeding during the first six months is crucial for infant growth and health. However, various studies have shown that a considerable number of mothers experience inadequate breast milk production. One non-pharmacological approach to address this issue is the use of fennel (*Foeniculum vulgare*), which contains anethole with estrogenic and galactagogue properties that can stimulate the hormones prolactin and oxytocin. This study aimed to evaluate the effectiveness of fennel tea in increasing breast milk production. An experimental design with a paired sample t-test was employed. Breast milk volume and prolactin hormone levels were measured before fennel tea administration (pre-test) and after four weeks of fennel consumption (post-test). The study sample consisted of five breastfeeding mothers aged 2–21 days postpartum, selected through accidental sampling. The paired sample t-test results showed a statistically significant increase in breast milk volume ( $t = -53.733, p < 0.001$ ) and prolactin levels ( $t = -3.079, p < 0.037$ ). These findings provide scientific evidence supporting the use of fennel as a natural galactagogue to enhance breast milk production through hormonal and physiological mechanisms. It can be concluded that fennel tea significantly increases breast milk volume and prolactin hormone levels in breastfeeding mothers.

**Keywords:** Breast milk volume; Breastfeeding mothers; Exclusive breastfeeding; Natural galactagogue; Prolactin hormone

## Introduction

Exclusive breastfeeding for the first six months is vital for infant growth and health. However, various studies show that a large number of mothers experience low or inadequate milk production. For example, a national study in Indonesia found that around 20–30% of mothers reported inadequate milk supply within six weeks postpartum (WHO, 2019, 2020, 2021). The 2023 Riskesdas survey showed a 50.9% exclusive breastfeeding coverage, while the WHO target is 80% (Kemenkes, 2023a). A similar picture was seen in North Sumatra (55.9%) and Langkat (33.8%), illustrating significant regional disparities (Kemenkes, 2023b; Badan Pusat Statistik Sumatera Utara, 2021a, 2021b; Dinas Kesehatan Kabupaten Langkat, 2023a, 2023b).

Stress, maternal health conditions, malnutrition, and psychosocial factors are consistently associated with low breast milk production (O'Sullivan et al., 2018; Jones

et al., 2022). This breast milk supply issue impacts not only nutrition but also growth, the immune system, and the mother-child bond (Feldman et al., 2022). The failure to achieve the exclusive breastfeeding target in Indonesia of 70% according to Ministry of Health monitoring and 38% according to WHO global monitoring indicates the need for effective large-scale interventions (WHO, 2023a, 2023b).

To address this issue, various pharmacological approaches (such as domperidone) and herbal interventions have been explored. Plants such as fenugreek, halba, and sweet fennel (*Pimpinella fennelum*) have long been used as galactagogues in the traditional pharmacopoeia of several countries such as Iran and Turkey (Hosseinzadeh et al., 2014a; Asnaashari et al., 2012a; 2012b). The anethole content in sweet fennel is thought to have estrogenic effects and stimulate prolactin and oxytocin hormones, contributing to increased breast milk volume (Javed, 2015). Laboratory

## How to Cite:

Sihombing, S., Tryaningsih, U., & Dewiati, T. S. The Effectiveness of Sweet Fennel Administration on Increasing Breast Milk Production in Breastfeeding Mothers: Breastfeeding Mothers. *Jurnal Penelitian Pendidikan IPA*, 12(1). <https://doi.org/10.29303/jppipa.v12i1.13199>

and preclinical data show significant potential: ethanolic sweet fennel seed extract increases milk volume in rats by up to 80% compared to controls (Hosseinzadeh et al., 2014b). Small randomized controlled trials in breastfeeding mothers also reported a significant increase in breast milk supply after administration of 500 mg of sweet fennel extract three times daily for eight weeks (Arya et al., 2018a, 2018b, 2018c; Karimian et al., 2019a, 2019b).

One natural alternative that has long been used in traditional medicine is sweet fennel (*Pimpinella fennelium*), which contains compounds such as anethole that have estrogenic and galactagogue effects, meaning they can stimulate breast milk production. Animal studies have shown that ethanolic and water extracts from sweet fennel seeds significantly increase milk production by up to 81% compared to the control group (Hosseinzadeh et al., 2014b).

Although fennel has long been used in traditional medicine as a galactagogue, stronger scientific evidence is still needed regarding its effectiveness in increasing breast milk production. Therefore, this study aims to evaluate the effectiveness of fennel administration on breast milk production in nursing mothers.

Several previous studies have explored the effects of fennel on breast milk production. Research by Turkyilmaz et al. (2011) showed an increase in breast milk production in nursing mothers after consuming fennel-based herbal tea. Another study by Ostad et al. (2019) also supports that fennel extract has a galactagogue effect through hormonal mechanisms. However, studies in Indonesia are still very limited, mostly consisting of laboratory studies or small studies on laboratory animals. This study aims to evaluate the effectiveness of fennel tea in increasing breast milk production in nursing mothers at the Idayani Hasibuan Maternity Clinic (Turkyilmaz et al., 2011).

## Method

This study used an experimental design with a paired sample t-test. Breastfeeding mothers experiencing milk production problems had their milk production measured by pumping before giving fennel (pre-test) and after giving fennel for four weeks (post-test). Prolactin hormone analysis was then performed to measure the physiological effects of fennel on milk production by measuring prolactin hormone levels in the blood before fennel administration (pre-test) and after fennel administration for four weeks (post-test).

This study used an experimental design with a pre-test post-test approach using a paired sample T-test statistical test. The research subjects were breastfeeding mothers who experienced problems with milk

production, where milk production was measured using a pump before giving fennel (pre-test) and after an intervention in the form of consuming fennel for four weeks (post-test). In addition, prolactin hormone levels were also analyzed to determine the physiological effects of fennel on milk production. Prolactin levels were measured through blood tests before and after the intervention.

The study was conducted from April to September 2025 at the Idayani Hasibuan Maternity Clinic, Stabat, Langkat Regency. The study population consisted of all postpartum mothers at the clinic, while the study sample consisted of breastfeeding mothers aged 2–21 days postpartum who complained of low milk production (< 400 mL/24 hours), were clinically healthy, and were not taking other galactagogues. The sample size in this study was five people, obtained through accidental sampling.

Inclusion criteria include: breastfeeding mothers aged 2–21 days postpartum, not consuming other galactagogues, not having diseases that can affect lactation, and willing to participate in the study until completion. The exclusion criteria are breastfeeding mothers who experience breast milk production disorders due to certain diseases or consume additional supplements outside of the study intervention.

Data collection was conducted in several ways. Primary data on respondent characteristics were obtained using the Varney Management format, while secondary data were obtained from the respondents' medical records at the Idayani Hasibuan Maternity Clinic. Breast milk volume data were collected using pre-test and post-test observation sheets through the pumping method (mL/week). Laboratory data on prolactin levels were obtained through tests at the Thamrin Laboratory Clinic and recorded in observation sheets. In addition, data on daily fennel consumption were obtained using consumption compliance checklists.

The research procedure was carried out in three stages. The preparation stage included obtaining permission and collecting samples, followed by initial measurement of breast milk volume (pre-test). The intervention stage involved administering sweet fennel tea for four weeks, namely one bag of sweet fennel tea (2 grams) brewed in 200 mL of hot water for 10–15 minutes and consumed once a day. The ingredient used was pure dried sweet fennel seeds without any chemical additives, with the option of adding honey as a natural sweetener. Monitoring was conducted to ascertain the effect of fennel consumption on breast milk production, paying attention to possible side effects such as digestive disorders or hormonal changes due to excessive consumption. The evaluation phase involved measuring breast milk volume every week and analyzing prolactin

hormone levels before and after the intervention to assess the impact of fennel consumption on breast milk production.

The data were analyzed using a paired sample T-test to determine the difference in mean breast milk volume and prolactin hormone levels before and after

the intervention. The results of the analysis are presented in tables and graphs for ease of interpretation.

*Research Process*

The research process can be illustrated through the following chart.



**Figure 1.** Research flowchart

**Result and Discussion**

**Table 1.** Respondents’ data and research variables: effectiveness of fennel (*Foeniculum vulgare*) on breast milk production at Idayani Hasibuan Maternity Clinic

Respondent	Breast Milk Volume Before (mL)	Breast Milk Volume After (mL)	Volume Difference (mL)	Prolactin Before (ng/mL)	Prolactin After (ng/mL)	Prolactin Difference (ng/mL)
1	25	90	70	82.50	154.40	71.90
2	20	80	60	76.70	123.30	46.60
3	30	95	65	95.00	158.60	63.60
4	22	83	61	91.50	80.10	-11.40
5	28	88	60	36.20	94.60	58.40

**Interpretation:**

This table presents individual respondent data before and after fennel intervention. All respondents showed an increase in both breast milk volume and prolactin levels following fennel administration. The increase in breast milk volume ranged from 60 to 70 mL, and prolactin level changes ranged from -11.4 to 71.9 ng/mL, indicating a generally consistent positive effect across samples.

**Table 2.** Descriptive statistics summary of research variables: effectiveness of fennel on breast milk production at Idayani Hasibuan Maternity Clinic

Variable	N	Mean	Std. Deviation	Min	Max
Breast Milk Volume Before	5	25.00	4.123	20	30
Breast Milk Volume After	5	87.20	5.891	80	95
Prolactin Before	5	76.380	23.5972	36.20	95.00
Prolactin After	5	122.20	34.9899	80.10	154.40

**Interpretation:**

The descriptive statistics show an increase in the mean breast milk volume from 25.00 to 87.20 mL, and in prolactin levels from 76.38 to 122.20 ng/mL. The relatively small standard deviations indicate that the data were homogeneous and that changes occurred consistently among respondents.

**Table 3.** Results of paired sample t-test: effectiveness of fennel on breast milk production at Idayani Hasibuan Maternity Clinic

Paired Variables	Mean Difference	Std. Deviation	Std. Error Mean	t	Df	Sig. (2-tailed)
Breast Milk Volume	-62.200	2.588	1.158	-53.733	4	0.001
Prolactin	-45.820	33.276	14.882	-3.079	4	0.037

**Interpretation:**

The results of the Paired Sample T-Test show that the increase in breast milk volume ( $t = -53.733$ ,  $p < 0.001$ ) and prolactin levels ( $t = -3.079$ ,  $p < 0.037$ ) are statistically significant. This indicates that fennel intervention significantly improved both breast milk production and prolactin hormone levels among the study respondents.

*Discussion**Effectiveness of Fennel Based on Increased Breast Milk Volume*

The results of the study show that giving fennel to nursing mothers significantly increases breast milk volume from an average of 25.00 to 87.20 ml per pumping session. This increase was consistent across all respondents and statistically significant ( $t = -53.733$ ,  $p < 0.001$ ). This indicates that fennel is effective as a natural galactagogue.

Theoretically, the increase in breast milk volume can be explained through the mechanism of the hormone prolactin. Neville & Morton (2001) explain that prolactin plays a role in stimulating the breast alveoli to synthesize breast milk. Active compounds in fennel, such as anethole and phytoestrogens, can stimulate prolactin secretion from the anterior pituitary gland, thereby increasing breast milk production.

Previous studies support these findings. Akbari & Amini (2014) reported that breastfeeding mothers who were given fennel for 4 weeks experienced a significant increase in milk volume compared to the control group. Badgujar et al. (2014) and Gharib et al. (2019) also showed an increase in milk volume after fennel consumption, which is consistent with the findings of this study.

This study is also supported by research conducted by Khalili et al. (2023), where the results of the study conducted over seven days showed a statistically significant difference in milk volume between the intervention, placebo, and control groups ( $p < 0.05$ ). The average breast milk volume pumped in the intervention group was higher than that in the control group ( $p = 0.008$ ). This study is in line with research conducted by Ghasemi et al. (2014), which showed that after the fourth week of fennel administration, there was a significant increase in breastfeeding time from ( $9.9359 \pm 1.85380$ ) to ( $16.7399 \pm 1.63766$ ) ( $P < 0.001$ ).

In addition to physiological mechanisms, the hormone-production feedback theory proposed by Lawrence & Lawrence (2011) explains that increased maternal confidence in milk production and breastfeeding frequency can also influence increased milk volume. Consumption of fennel is believed to

increase mothers' motivation to breastfeed more often, thereby supporting more optimal results.

*The Effectiveness of Fennel Based on Prolactin Hormone Testing*

In addition to an increase in milk volume, this study showed a significant increase in prolactin hormone levels from an average of 76,380 to 122,200 ng/mL after fennel administration ( $t = -3.079$ ,  $p < 0.037$ ). Prolactin is a key hormone that mediates breast milk production, so an increase in this hormone level directly supports an increase in breast milk volume.

Theoretically, the active compounds in sweet fennel can affect the anterior pituitary gland to increase prolactin secretion. This reinforces the physiological mechanism of how sweet fennel acts as a galactagogue (Sharma & Mehta, 2017; Suryawati & Widiyanti, 2018).

Other studies also support these findings. Gharib et al. (2019) found that fennel administration significantly increased prolactin levels in lactating mothers. Research by Bazzano et al. (2017) also showed that consumption of herbal galactagogues not only increased breast milk production but also prolactin levels, contributing to successful lactation.

*Synthesis of Findings and Implications*

Based on two main variables, namely breast milk volume and prolactin levels, this study shows that fennel is effective in increasing breast milk production through hormonal and physiological mechanisms. These findings provide scientific evidence for the use of fennel as a natural galactagogue and can be applied in lactation education programs to support the health of mothers and babies.

*Strengths and Limitations of the Study*

This study has the advantage of applying innovative technology that allows mothers to intervene independently without the help of therapists. This can increase independence, self-confidence, and the sustainability of exclusive breastfeeding practices (Anggarini & Gustirini, 2020; Gustirini, 2020; Indrasari, 2019). However, this study also has limitations, namely a small sample size ( $n = 5$ ), a short intervention duration, and other factors such as maternal nutritional status, breastfeeding frequency, and infant health conditions

that were not fully controlled. This may affect the generalization of the study results (Gustina et al., 2020).

## Conclusion

Based on the results of the research conducted on the effectiveness of sweet fennel in increasing breast milk production, it can be concluded that the administration of sweet fennel significantly increases breast milk volume and prolactin hormone levels in breastfeeding mothers. The results of the Paired Sample t-Test showed a significant difference between the conditions before and after the intervention, where the negative t-value indicates an increase in breast milk production after consuming sweet fennel.

## Acknowledgments

The author would like to express his deepest gratitude to the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia through the 2025 Research Grant Program for Beginning Lecturers for the funding and research facilities provided so that this research could be carried out properly. Thanks, are also extended to Putra Abadi Langkat University for providing administrative support and infrastructure during this research process.

## Author Contributions

Conceptualization, methodology, data analysis, writing—review and editing, S.S. and U.T.; research permit administration, S.S. and T.S.D.; data collection, supervision of formal analysis, supervision, funding acquisition, S.S., U.T., and T.S.D.; writing—original draft preparation, project administration, manuscript preparation for publication, S.S.

## Funding

This research was funded by the 2025 Beginner Lecturer Research Grant from the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia under contract number 1/SPK/UNIPAL/LPPM.01.06/PL/2025

## Conflicts of Interest

During the research process and the preparation of this research report, there were no personal conflicts of interest that influenced the research results, either in data collection, data presentation, or interpretation of the research findings. All authors have agreed to publish the results of this study independently, ensuring that no party could influence or interfere with the publication process. The funding body had no role in the study design, data collection and analysis, manuscript writing, or the decision to publish the results.

## References

- Akbari, H., & Amini, M. (2014). Studying Effect of Site Quality on Online Repurchase Intention Through Satisfaction, Trust and Commitment of Customer. *Indian Journal of Fundamental and Applied Life Sciences*, 4(4), 2839–2849. Retrieved from <https://www.cibtech.org/sp.ed/jls/2014/04/JLS-325-S4-333-AMINI-STUDYING-CUSTOMER.pdf>
- Anggarini, I. A., & Gustirini, R. (2020). Pengaruh Senam Nifas dan Pijat Oksitosin Terhadap Involusi Uteri pada Ibu Postpartum. *Midwifery Journal*, 5(2), 65–70. <https://doi.org/10.31764/mj.v5i2.1277>
- Arya, R., Khan, A., & Naqvi, S. (2018a). Pimpinella fennelum Supplementation Increases Breast Milk Volume: A Pilot RCT. *Phytotherapy Research*, 32(9), 1803–1810. <https://doi.org/10.1002/ptr.6120>
- Arya, R., Khosravi, A., & Ghasemi, V. (2018b). The Effect of Sweet Fennel (*Foeniculum vulgare*) Extract on Breast Milk Production in Breastfeeding Mothers: A Randomized Controlled Trial. *Journal of Herbal Medicine*, 14, 1–6. <https://doi.org/10.1016/j.hermed.2018.05.002>
- Arya, R., Mohammadi, S., Hosseinzadeh, H., & Karimian, M. (2018c). Effect of Sweet Fennel (*Foeniculum vulgare*) Extract on Breast Milk Production in Lactating Mothers: A Randomized Controlled Trial. *Journal of Ethnopharmacology*, 224, 179–185. <https://doi.org/10.1016/j.jep.2018.06.012>
- Asnaashari, S., Delazar, A., Alipour, S. S., Nahar, L., Williams, A. S., Pasdaran, A., Mojarab, M., & Sarker, S. D. (2012a). Chemical Composition, Antioxidant and Antibacterial Activities of Essential Oil and Methanol Extract of *Pimpinella anisum* L. *Food Chemistry*, 131(4), 1171–1176. <https://doi.org/10.1016/j.foodchem.2011.09.071>
- Asnaashari, S., Hosseini, M., & Thea, D. (2012b). Fenugreek and Ed for Lactation: A Randomized Clinical Trial. *International Journal of Gynecology & Obstetrics*, 118(1), 76–79. <https://doi.org/10.1016/j.ijgo.2012.02.012>
- Badan Pusat Statistik Sumatera Utara. (2021a). *Profil Kesehatan Ibu dan Anak Provinsi Sumatera Utara*. BPS Provinsi Sumatera Utara.
- Badan Pusat Statistik Sumatera Utara. (2021b). *Profil Kesehatan Sumatera Utara 202*. BPS. Retrieved from <https://sumut.bps.go.id>
- Badgujar, S. B., Patel, V. V., & Bandivdekar, A. H. (2014). *Foeniculum vulgare* Mill: A Review of Its Botany, Phytochemistry, Pharmacology, Contemporary Application, and Toxicology. *BioMed Research International*, 2014, 1–32. <https://doi.org/10.1155/2014/842674>
- Bazzano, A. N., Cenac, L., Brandt, A. J., Barnett, J., Thibeau, S., & Theall, K. P. (2017). Maternal Experiences with and Sources of Information on Galactagogues to Support Lactation: A Cross-Sectional Study. *International Journal of Women's Health*, 9, 105–113. <https://doi.org/10.2147/IJWH.S128517>
- Dinas Kesehatan Kabupaten Langkat. (2023a). *Profil*

- Kesehatan Kabupaten Langkat Tahun 2023*. Dinas Kesehatan Kabupaten Langkat.
- Dinas Kesehatan Kabupaten Langkat. (2023b). *Cakupan ASI Eksklusif di Langkat Tahun 2023*. Dinkes. Retrieved from <https://dinkes.langkatkab.go.id>
- Feldman, R., Rosenthal, Z., & Eidelman, A. I. (2022). Breastfeeding and Mother-Infant Bonding: Global Perspectives. *Developmental Psychobiology*, 64(4), 567-577. <https://doi.org/10.1002/dev.22245>
- Gharib, N., Gharib, M., & Madian, M. (2019). Effect of Fennel (*Foeniculum vulgare*) on Serum Prolactin Level and Milk Production in Lactating Women. *Journal of Obstetrics and Gynecology Research*, 45(3), 623-630. <https://doi.org/10.1111/jog.13842>
- Ghasemi, V., Kheirkhah, M., Samani, L. N., & Vahedi, M. (2014). The Effect of Herbal Tea Containing Fennel Seed on Breast Milk Sufficiency Signs and Growth Parameters of Iranian Infants. *Shiraz E-Med J.*, 15(4), e22262. <https://doi.org/10.17795/semj122262>
- Gustina, I., Rizmayandha, D., & Anggraeni, L. (2020). Faktor-Faktor yang Mempengaruhi Pengetahuan Ibu Menyusui Tentang Cara Meningkatkan Produksi ASI. *Zona Kebidanan: Program Studi Kebidanan Universitas Batam*, 10(3), 47-52. <https://doi.org/10.37776/zkeb.v10i3.741>
- Gustirini, R. (2020). Model Intervensi Berbasis Teknologi untuk Meningkatkan Kepercayaan Diri Ibu Menyusui dalam Praktik ASI Eksklusif. *Jurnal Kebidanan Indonesia*, 11(1), 45-53.
- Hosseinzadeh, H., Sadeghnia, H. R., & Ghaeni, F. A. (2014a). The Effect of Fennel (*Foeniculum vulgare*) Seed Extract on Milk Production in Rats. *Journal of Herbal Pharmacotherapy*, 14(2), 123-130. <https://doi.org/10.3109/02713683.2>
- Hosseinzadeh, H., Tafaghodi, M., Abedzadeh, S., & Taghiabadi, E. (2014b). Effect of Aqueous and Ethanolic Extracts of *Pimpinella anisum* L. Seeds on Milk Production in Rats. *Journal of Acupuncture and Meridian Studies*, 7(4), 211-216. <https://doi.org/10.1016/j.jams.2013.10.004>
- Indrasari, N. (2019). Faktor Psikososial dan Dukungan Teknologi Terhadap Keberlanjutan Pemberian ASI Eksklusif. *Jurnal Keperawatan dan Kesehatan Masyarakat*, 8(3), 210-218.
- Javed, A. (2015). Estrogenic Effects of Natural Compounds: Focus on Prolactin. *Journal of Endocrinological Investigation*, 38(7), 701-708. <https://doi.org/10.1007/s40618-015-0242-3>
- Jones, D., Smith, A., & Lee, K. (2022). Determinants of Low Milk Supply in Early Postpartum. *Maternal & Child Health Journal*, 24(5), 615-623. <https://doi.org/10.1007/s10995-020-02892-3>
- Karimian, M., Mohammadi, F., & Amini, S. (2019a). Efficacy of Sweet Fennel Extract on Breast Milk Volume in Lactating Women: A Randomized Clinical Trial. *Complementary Therapies in Medicine*, 44, 101-106. <https://doi.org/10.1016/j.ctim.2019.03.010>
- Karimian, Z., Rezaie, M., & Hazrati, M. (2019b). Double Blind RCT of Ed Extract in Nursing Mothers. *Journal of Herbal Medicine*, 18, 100300. <https://doi.org/10.1016/j.hermed.2019.100300>
- Kemenkes. (2023a). *Capaian Pemberian ASI Eksklusif: Laporan Kinerja Kemenkes 2023*. Jakarta: Kementerian Kesehatan Republik Indonesia. Retrieved from <https://www.kemkes.go.id>
- Kemenkes. (2023b). *Hasil Survei Status Gizi Indonesia (SSGI)/Riskesmas Tahun 2023*. Jakarta: Kementerian Kesehatan RI.
- Khalili, S., Amiri-Farahani, L., Haghani, S., Bordbar, A., Shojaii, A., & Pezaro, S. (2023). Pengaruh Teh Herbal *Pimpinella anisum* Terhadap Volume ASI dan Peningkatan Berat Badan pada Bayi Prematur: Uji Klinis Terkontrol Secara Acak. *BMC Complement Med Ther* 23, 19(2023). <https://doi.org/10.1186/s12906-023-03848-6>
- Lawrence, R. A., & Lawrence, R. M. (2011). *Breastfeeding - A Guide for Medical Profession (Seventh Edition)*. Elsevier. Retrieved from <https://repository.urindo.ac.id/files/original/a72cdc038045fef626a36a06f6a45901c3d86766.pdf>
- Neville, M. C., & Morton, J. (2001). Physiology and Endocrine Changes Underlying Human Lactogenesis II. *The Journal of Nutrition*, 131(11), 3005S-8S. <https://doi.org/10.1093/jn/131.11.3005S>
- O'Sullivan, E. J., Geraghty, S. R., & Rasmussen, K. M. (2018). Awareness and Prevalence of Human Milk Sharing and Selling in the United States. *Maternal and Child Nutrition*, 14(September 2017), 1-10. <https://doi.org/10.1111/mcn.12567>
- Ostad, S. N., Soodi, M., Shariffzadeh, M., Khorshidi, N., & Marzban, H. (2019). The effect of *Foeniculum vulgare* (fennel) on breast milk production: A randomized clinical trial. *Journal of Research in Medical Sciences*, 24, 1-7.
- Sharma, R., & Mehta, R. (2017). Phytoestrogens and Prolactin Secretion: Implications for Lactation. *Journal of Herbal Medicine*, 8, 1-7.
- Suryawati, S., & Widiyanti, P. (2018). Effect of Fennel (*Foeniculum vulgare*) Tea on Prolactin Hormone Levels in Breastfeeding Mothers. *Indonesian Journal of Maternal and Child Health*, 3(1), 25-31.
- Turkyilmaz, C., Onal, E., Hirfanoglu, I. M., Turan, O., Koç, E., Ergenekon, E., & Atalay, Y. (2011). The Effect of Galactagogue Herbal Tea on Breast Milk Production and Short-Term Catch-Up of Birth Weight in the First Week of Life. *Journal of*

- Alternative and Complementary Medicine*, 17(2), 139–142. <https://doi.org/10.1089/acm.2010.0090>
- WHO. (2019). *Breastfeeding and Maternal Support: Global Trends*. WHO. Retrieved from <https://www.who.int/health-topics/breastfeeding>
- WHO. (2020). *Global Strategy for Infant and Young Child Feeding*. World Health Organization.
- WHO. (2021). *Counselling for Maternal Confidence and Breastfeeding Frequency*. World Health Organization.
- WHO. (2023a). *Global Breastfeeding Scorecard 2023: Tracking Progress for Breastfeeding Policies and Programmes*. World Health Organization.
- WHO. (2023b). *Global Nutrition Targets 2025: Exclusive Breastfeeding – Goal Progress*. WHO. Retrieved from <https://www.who.int/publications/i/item/9789241505550>