http:// health-proviiders.ir
Review Article (Pages: 51-59)

The Effect of Herbal Medicine on Breast Milk Production: An Overview of Systematic Reviews

Saba Vakili[1], *Moein Mobini[2]

[1]MD, Evelina London Children's Hospital, Guy's and St. Thomas' National Health Service Foundation Trust, London, UK.

2General Pediatrics, Evelina London Children's Hospital, Guy's and St. Thomas' National Health Service Foundation Trust, London, UK.

Abstract

Background: Insufficient milk production can cause stress and discomfort in mothers. Some mothers resort to herbal medicine to increase milk production. This study aims to review the effect of herbal medicine on breast milk production according to existing scientific literature.

Materials and Methods: In this overview, online databases Medline, EMBASE, Web of Science, Scopus, Cochrane Library, CINAHL, CIVILICA, and Google search engine were searched for studies on the effect of herbal medicine on increasing milk production published up to November 2022. Two independent authors undertook the screening, selection, and quality assessment of selected research (using the CONSORT Statement).

Results: Five systematic reviews (a total of studies) were included. One review (on nine experimental studies) showed that torbangun leaves, young papayas, moringa leaves, katuk leaves, and banana buds contain chemical compounds that can increase the production and secretion of breast milk. Two reviews (on eight experimental studies) showed that the consumption of fenugreek and milk thistle significantly increased the production of breast milk compared to the control, although the studies were highly heterogeneous. Another systematic review (on 41 experimental studies) reported increased milk volume in 13 studies (with Bu Xue Sheng Ru, Chanbao, Cui Ru, banana flower, fenugreek, ginger, moringa, fenugreek, ginger and turmeric mix, ixbut, mixed botanical tea, Sheng Ru He Ji, silymarin, Xian Tong Ru, palm dates), although a meta-analysis was not possible due to high heterogeneity.

Conclusion: There is evidence that some herbal medicines may increase milk production in mothers. However, the magnitude of these effects is uncertain due to the substantial heterogeneity of the studies, imprecision of measurements, and incomplete reporting. High-quality RCTs on the efficacy and safety of galactagogues are needed.

Key Words: Breast milk production, Effect, Herbal medicine, Medical plants.

*Please cite this article as: Vakili S, Mobini M. The Effect of Herbal Medicine on Breast Milk Production: An Overview of Systematic Reviews. Health Provid 2023; 2(1): 51-9. doi: **10.22034/HP.2023.394275.1035**

Corresponding Author:

Moein Mobini, MD, Evelina London Children's Hospital, Guy's and St. Thomas' National Health Service Foundation Trust, London, UK.

Email: moein.mobini@doctors.org.uk

Received date: Nov. 25, 2022; Accepted date: Mar.22, 2023

1- INTRODUCTION

Feeding an infant with breast milk is one of the priorities of public health and the best start in the life of every child (1, 2). The World Health Organization (WHO), and the United Nations International Children's Emergency Fund (UNICEF) also consider breast milk the gold standard of infant nutrition and, in most cases, the only food that should be given to infants up to two years of age (3). In the national program for the promotion of breastfeeding (2013), breastfeeding is considered an inseparable part of the reproductive process, and the importance of proper nutrition of the child in maintaining and ensuring the growth, development, and health of the child and the mother is emphasized (4).

The absence of breastfeeding increases the risk of respiratory tract infections, allergies, digestive problems, malnutrition, diabetes, obesity, and cancer in childhood and adulthood, among others (5). Statistics show that in developing countries, 70% of child deaths could have been prevented by using breast milk (6). Olang et al. state that the primary reasons for stopping breastfeeding before six months are the doctor's recommendation (54%), and insufficient breast milk (28%), and after six months, insufficient breast milk (45%), mother's illness and drug use (10%), child's illness (6%), and working mothers (3%) (7). Despite breastfeeding plans followed at the national level, experience indicates the unfavorable breastfeeding performance of mothers in recent years (8). In the meantime, the WHO estimates the worldwide rate of EBF as 37-38% (9), and the World Health Assembly (WHA) has set a global goal to increase Exclusive breastfeeding (EBF) to 50% by 2025 (10).

The recommended diet for human infants within the first six months of life is breast milk. No other natural or artificial formulation has been able to match up to this gold standard. However, mothers who attempt to pursue exclusive breastfeeding attest to numerous nutritional and non-nutritional challenges, mainly resulting in insufficient milk production (hypogalactia) or its absence (agalactia). Therefore, it is imperative to search for effective galactagogues (11-13). Various approaches exist to achieve a better breastfeeding process for mothers. Many studies have been conducted on chemical and herbal medicine to investigate their effect in increasing the quality and quantity of breast milk, but chemical medicines are not frequently used due to side effects (14-16). Substances that promote the secretion and flow of breast milk are known as galactagogues and include foods, herbal medicine, and pharmaceutical drugs. Many cultures have specific food recommendations that are thought to enhance milk production. Most of these substances have not been scientifically evaluated, but traditional use suggests that most are safe, and some are effective as well (17, 18).

Herbal medicines are produced from plants and are mostly based on traditional knowledge. They belong to complementary and alternative medicines (CAMs), which also include therapeutic methods such as acupuncture, dietary supplements, massage, aromatherapy, homeopathy, and relaxation therapy (19, 20). Today, the use of medicinal plants is increasing rapidly in many developed and developing countries (21, 22).

In many parts of the world, herbal medicines have been used as a means to increase breast milk after childbirth, but the favorite plant varies across regions according to cultural beliefs (23). The use of plant compounds to stimulate milk production goes back thousands of years. It is narrated by Hippocrates that if the milk dries up, the mother should drink boiled fennel root and fruit (24). In traditional Iranian medicine, several medicinal plants have been mentioned for

fertility, including dill, celery, cumin, carrot, parsley, and fennel (25). There is acceptable information regarding the safety and effectiveness of some complementary and alternative medicines while breastfeeding, and on some, there is limited information due to a lack of research (26). As mentioned, although global measures are aimed at increasing the choice of breast milk and prolonging the duration of exclusive breastfeeding, various challenges force mothers to leave exclusive breastfeeding. Meanwhile, low breast milk volume is among the most common causes of stopping breastfeeding and one of the major concerns of mothers. This concern can be addressed by finding effective and natural compounds without harmful side effects to increase breast milk production, especially at the beginning of the breastfeeding period. This way, with increased self-confidence and higher security, the mother can establish a closer and healthier relationship with the baby and start a longer period of breastfeeding.

Despite the popularity of medicinal plants, limited studies have been conducted on the mechanism and effectiveness of these compounds on the breastfeeding of mothers. This overview aims to review the effect of herbal medicine on breast milk production according to the existing scientific literature.

2- MATERIALS AND METHODS

In this overview, all systematic reviews and meta-analyses, as well as quasi-experimental studies available in full, in Persian, or English, were considered for inclusion. The search included articles from the inception of each database up to November 20, 2022. The searched databases included Scopus, EMBASE, Cochrane Library, Web of Science, CIVILICA, CINAHL, and Medline (via PubMed), and Google search engine. This overview focused on the use of herbal medicine for increasing breast milk among breastfeeding mothers. Two independent researchers conducted the search process, and a supervisor resolved possible discrepancies. The following steps were taken to develop this review: (1) identifying the research question; (2) identifying the relevant studies; (3) selecting studies; and (4) summarizing and reporting the data.

The CONSORT-2010 checklist was used to evaluate each trial for potential sources of bias in design and reporting (27). This checklist contains 25 items to evaluate six main parts of clinical trial studies, including title and abstract, introduction, materials and methods, results and discussion, and other information, each consisting of different items. In this study, a total of 25 items were examined in six sections. Each article was assigned the number one if it included the items considered in the checklist and zero otherwise. Therefore, the maximum score of each article was 37, and the lowest score was zero (28-30). The reviewers carried out the quality assessment independently and in duplication, and the third reviewer resolved possible discrepancies.

3- RESULTS

A total of five systematic reviews (involving 64 studies published between 2012 and 2022) were selected. The combined results of the included studies indicated evidence that natural galactagogues might benefit infant weight and milk volume in mothers with healthy, full-term infants. However, the substantial heterogeneity of the studies, imprecision of measurements, and incomplete reporting did not allow for estimating the accurate magnitude of the effect.

Based on the CONSORT-2010 checklist, the minimum and maximum acquisition scores of the reviewed articles were 14-26 (i.e., medium to low quality). The main

characteristics of the selected studies are summarized in the following:

1. A systematic review (on 41 trials and 27 studies comparing natural oral galactagogues) aimed to assess the effect of oral galactagogues for increasing milk production in non-hospitalized breastfeeding mother/full-term infant pairs. One study (Mother's Milk Tea) investigated breastfeeding rates at six months with a concluding statement of "no significant difference" (very low-certainty evidence). Thirteen studies (involving Bu Xue Sheng Ru, Chanbao, Cui Ru, banana flower, fenugreek, ginger, moringa, fenugreek, ginger and turmeric mix, ixbut, mixed botanical tea, Sheng Ru He Ji, silymarin, Xian Tong Ru, and palm dates, with 962 participants) reported on milk volume, but meta-analysis was not possible due to substantial heterogeneity (I^2 = 99%). There is some evidence that natural galactagogues may benefit infant weight and milk volume in mothers with healthy, full-term infants, but due to the substantial heterogeneity of the studies, imprecision of measurements, and incomplete reporting, the magnitude of this effect is uncertain (31).

2. A systematic review (with six RCTs) aimed to explore the clinical literature on herbal medicine and lactation. The most common herbs studied were St. John's wort (*Hypericum perforatum L.*), garlic (*Allium sativum L.*), and senna (*Cassia senna L.*). The studies were highly heterogeneous in their design, herbal intervention, and outcome measures. Overall, poor methodological quality predominated the studies (32).

3. A systematic review (with four studies) aimed to evaluate the results of clinical trials on the effect of milk thistle on increasing breast milk volume. The results showed that in all of the studies, milk thistle had an effect on the main biochemical characteristics of milk (proteins, sugars, lipids, and water). The amount of the plant used varied from 252 mg to 5 gr. Due to the high importance of breastfeeding in the growth and development of premature infants, most of the studies were conducted on mothers with premature babies. All studies, except one, reported a significant difference in breast milk volume between the intervention and control groups after consumption of the plant ($p<0.05$). None of the studies reported serious side effects of milk thistle (33).

4. A systematic review (with nine experimental studies) aimed to analyze the effect of herbal lactagogum on breast milk production. The results showed that torbangun leaves, young papayas, moringa leaves, katuk leaves, and banana buds contained chemical compounds that could stimulate the synthesis of prolactin and oxytocin and increase the production and secretion of breast milk (34).

5. A systematic review and meta-analysis (on four studies) aimed to evaluate the galactagogue effect of fenugreek versus other comparators (placebo, control, and other galactagogues) in lactating women. The results showed that consumption of fenugreek significantly increased the production of breast milk compared to placebo and control. However, fenugreek demonstrated no significant benefits compared to other herbal galactagogues (C. amboinicus and palm dates) (35).

4- DISCUSSION

This overview aimed to explore the effect of herbal medicine on breast milk production according to the existing scientific literature. The results of systematic reviews showed tentative evidence that herbal galactagogues increase milk production and volume. It is also uncertain if one galactagogue performs better than another.

Breastfeeding is the most effective way to protect maternal and child health. In addition to improving child survival and protecting against life-threatening and chronic illnesses, breastfeeding promotes healthy growth and boosts early child development. Breastfeeding affects healthy brain development and is associated with better performance in intelligence tests among children and adolescents across all income levels (3, 36, 37).

The American Academy of Pediatrics advises that breast milk should be the only source of food in the first six months of an infant's life and recommends its continuous consumption until age one and as long as there is a desire for it (38). According to the principles announced by the WHO, approximately 31% of mothers should be able to feed their babies exclusively with breast milk until six months (39). Studies have shown that reducing the duration of breastfeeding is one of the main causes of infant mortality, with most deaths being the result of respiratory infections and diarrhea (40).

Despite the many benefits of direct breastfeeding for the baby, mother, and society and the inherent interest of mothers, less than 50% succeed in doing this, and in most cases, mothers face premature termination of breastfeeding (14, 41). In some studies, one of the most important reasons for stopping breastfeeding is insufficient breast milk (7, 8, 41-44). Therefore, one of the goals of global nutrition policies is to increase the amount of exclusive breastfeeding by at least 50% by 2025 (10).

Several studies have been conducted on chemical milk-increasing drugs, including chlorpromazine (45), sulpiride (46), and domperidone, but these drugs are not used due to many side effects, including dry mouth syndrome, digestive disorders, cardiac arrhythmia, and anesthesia (14-16, 47-49). Using herbal supplements is another way of increasing breast milk. Herbal medicines are substances extracted from plants and are used with minimal or no industrial processing to treat diseases in local medical and therapeutic activities (50). Today, the use of herbal products as a practical and widely accepted method in the field of complementary and alternative medicine is increasing across the world (51-53). In many places, herbal medicines have been used to increase breast milk after childbirth (23, 54). Women usually use herbal medicines during pregnancy, breastfeeding (increasing breast milk), and after giving birth (55-59). Galactagogues are synthetic or herbal molecules that are used to produce, maintain, and increase milk production. In the United States, it is estimated that 15% of lactating women use herbal galactagogues, while in a Norwegian study, this estimate is 43% (60-63).

The studies on the effectiveness of herbal medicines in increasing breast milk have involved only mothers of full-term infants at different stages of breastfeeding, and all concluded that there is no current recommendation for the use of herbs as galactagogues, and no clinical trials exist to produce evidence for this (64-67). Based on the results of current systematic reviews, there is low-certainty evidence that natural galactagogues may increase milk volume. The present review concluded that further research is necessary to assess the efficacy and safety of commonly used herbs during breastfeeding (31-35).

While the reports indicate the increasing use of medicinal plants, it should be known that although many of the herbal medicines used traditionally are useful, there are potentially harmful and unknown risks of these products that should never be ignored (68). These substances may contain toxic or carcinogenic compounds (69), and taking them together with chemical drugs may cause drug interactions. In addition, the arbitrary use

of such products may cause a delay in visiting a doctor, insufficient attention to the symptoms of the disease, and prolong the healing process (70, 71). There is also not enough scientific evidence about the safety of all herbal medicines in some groups, such as pregnant women, children, and the elderly (72).

5- CONCLUSION

There is some evidence that natural galactagogues (e.g., fenugreek, milk thistle, torbangun leaves, moringa, banana buds, and ginger) may benefit infant weight and milk volume in mothers with healthy, full-term infants. However, due to the substantial heterogeneity of the studies, imprecision of measurements, and incomplete reporting, the magnitude of this effect is uncertain. Due to extremely limited, low-certainty evidence, it is not clear which galactagogues are more effective than others. High-quality RCTs on the efficacy and safety of galactagogues are needed.

6- CONFLICT OF INTEREST: None.

7- REFERENCES

1. Hajnasiri H. Assessment of Breastfeeding Self-Efficacy and Patterns and its Predictors in Mothers Living in Qazvin Province. Nursing and Midwifery Journal 2018; 15(10):777-87.

2. John JR, Mistry SK, Kebede G, et al. Determinants Of Early Initiation Of Breastfeeding In Ethiopia: A Population - Based Study Using The 2016 Demographic And Health Survey Data. BMC Pregnancy Childbirth 2019; 19: 69.

3. Victora CG, Bahl R, Barros AJ, França GV, Horton S, Krasevec J, Murch S, Sankar MJ, Walker N, Rollins NC; Lancet Breastfeeding Series Group. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. Lancet. 2016 Jan 30;387(10017):475-90. doi: 10.1016/S0140-6736(15)01024-7. PMID: 26869575.

4. Ministry of Health and Medical Education. Appearance of the national program for promoting breastfeeding in the Islamic Republic of Iran: past, present and future, 2013. ISBN: 9786006815022.

5. Tol A, Majlesi F, Shojaeizadeh D, Esmaelee Shahmirzadi S, Mahmoudi Majdabadi M, Moradian M. Effect of the educational intervention based on the health belief model on the continuation of breastfeeding behavior. J Nurs Educ 2013; 2(2):39-47.

6. Sharifirad G, Shahnazi H, Sedighi E, Mahaki B. The effect of support - er presence in education sessions of breastfeeding on knowledge, at - titude and behavior of nulliparous women. J Health. 2018; 9(1):45-61.

7. Olang B, Heidarzadeh A, Strandvik B, Yngve A. Reasons given by mothers for discontinuing breastfeeding in Iran. International Breast Feeding Journal.2012; (7): 1-9.

8. Gurung R, Silwal M, Gurung A, Sah I, Koirala D, Paudel S, et al. Knowledge, Attitude and Practice towards Exclusive Breastfeeding among Mothers in Pokhara - Lekhnath. Journal of Gandaki Medical College -Nepal. 2018;11(1):40-5.

9. WHO. The data repository [Internet]. WHO. World Health Organization; 2016. Available from: https://www.who.int/gho/database/en/ (Accessed 27 March 2019).

10. WHO. WHA Global Nutrition Targets 2025: Breastfeeding Policy Brief [Internet]. 2014. Available from: https://www.who.int/nutrition/publications/globaltarget_s2025_policybrief_breastfeeding/en/.pdf (Accessed 27 March 2019).

11. Breastfeeding: A Guide for the Medical Profession, 8th edition, by Ruth A. Lawrence and Robert M. Lawrence. Elsevier, Saunders, Mosby, Churchill, 2016. ISBN 9780323357760.
https://doi.org/10.1111/apa.13474.

12. Management of Breastfeeding for Healthy Full-Term Infants, Booklet, 2002. Available from:
https://www.moh.gov.sg/docs/librariesprovider4/guidelines/management_of_breastfeeding_for_fullterm_infants.pdf.

13. Erica Rosalle. Milking the Information: Resources on Herbal Lactation Aids. https://doi.org/10.1080/15398285.2015.1035592.

14. Salehzadeh K, Mirzajani Y, Saberi Y. Effects of a Submaximal Aerobic Exercise Intervention Program on Breast Milk Factors of Homemaker Mothers. The Scientific Journal of Rehabilitation Medicine 2017; 6(4):13-22.

15. Siahi M, Shiravi A, Nasrabadi M. The effect of aqueous extract of fennel on prolactin secretion and lactation female. J. Res. Anim. Biol. Damghan 2009; 1(33):55-63.

16. Bingel AS, Farnsworth NR. Higher plants as potential sources of galactagogues. Economic and medicinal plant research 1994; 6:1.

17. Bunik M, Chantry CJ, Howard C R, et al. ABM clinical protocol: use of galactogogues in initiating or augmenting the rate of maternal milk secretion (First revision January 2011). Breastfeeding Medicine 2011; 6 (1):41–9.

18. Edward Mills, Jean-Jacques Dugoua, Dan Perri, Gideon Koren. Herbal Medicines in Pregnancy and Lactation: An Evidence-Based Approach, 2006. ISBN 9780415373920.

19. Ernst E. Herbal medicinal products during pregnancy: are they safe? BJOG 2002; 109: 227–35.

20. The regulation of complementary medicines in Australia – an overview. 2012. (Accessed 29/06/12, 2012, at http://www.tga.gov.au/industry/cm-basics-regulation-overview.htm).

21. Ernst E: Herbal medicines put into context, Brit Med J 2003; 327: 881 -2.

22. Goel RK, Prabha T, Kumar MM, Dorababu M, Prakash , Singh G: Teratogenicity of Asparagus racehorses Willd , Root, a herbal medicine , Indian JExp Biol 2006, 44(7):570 -3.

23. Paritakul P, Ruangrongmorakot K, Laosooksathit W, Suksamarnwong M, Puapornpong P. The effect of ginger on breast milk volume in the early postpartum period: A randomized, double-blind controlled trial. Breastfeeding Medicine 2016; 11(7):361-5.

24. Morcos S.R., Elhawary Z., Gabrial G.N. Proteinrich food mixtures for feeding the young in Egypt. Formulation. Z. Ernahrungswiss, 1981; 20: 275-82.

25. Siahi M, Shiravi A, Nasrabadi M. The effect of aqueous extract of fennel on prolactin secretion and lactation female. J Res Anim Biol Damghan 2009 Mar; 1(33):55-63.

26. McGuire T, Walters J, Dean A, et al. Review of the Quality of Complementary Medicines Information Resources: Summary Report. In: Service NP, ed. Sydney; 2009.

27. Moher D, Schulz KF, Altman DG. The CONSORT statement: revised recommendations for improving the quality of reports of parallel-group randomised trials. Clin Oral Investig 2003; 7(1):2-7.

28. Redmond CK, Colton T. Biostatistics in clinical trials. New Jersey: John Wiley & Sons; 2001.

29. Moher D, Jones A, Lepage L. Use of the CONSORT statement and quality of reports of randomized trials: a comparative before-and-after evaluation. JAMA 2001; 285(15):1992-95.

30. Plint AC, Moher D, Morrison A, Schulz K, Altman DG, Hill C, et al. Does the CONSORT checklist improve the quality of reports of randomised controlled trials? A systematic review. Med J Aust 2006; 185(5):263-7.

31. Foong SC, Tan ML, Foong WC, Marasco LA, Ho JJ, Ong JH. Oral galactagogues (natural therapies or drugs) for increasing breast milk production in mothers of non-hospitalised term infants. Cochrane Database Syst Rev. 2020 May 18; 5(5):CD011505. doi: 10.1002/14651858.CD011505.pub2. PMID: 32421208; PMCID: PMC7388198.

32. Budzynska K, Gardner ZE, Dugoua JJ, Low Dog T, Gardiner P. Systematic review of breastfeeding and herbs. Breastfeed Med. 2012 Dec; 7(6):489-503. doi: 10.1089/bfm.2011.0122. Epub 2012 Jun 11. PMID: 22686865; PMCID: PMC3523241.

33. Azimi S, Baraie B, keykhaei R, Vakilian R, Hakimi S. Effect of Milk Thistle Plant on Breast Milk Volume: A Systematic Review. cmja 2022; 12 (1):2-13.

34. Hanifa D, Rahayu S, Kurnia Nugrahaeni I, Rahardjo Putri N. Herbal Laktagogum Dan Produksi Asi Ibu Menyusui: A Sistematic Review. Journal of Midwifery Science: Basic and Applied Research, 2021; 3(2): 55-68.

35. Khan, T. and Wu, D. and Dolzhenko, A. Effectiveness of fenugreek as a galactagogue: A network meta-analysis. Phytotherapy Research, 2018; 32 (3): 402-12.

36. Global Breastfeeding Advocacy Initiative, ADVOCACY BRIEF: Breastfeeding and Early Childhood Development. UNICEF, https://www.unicef.org/nutrition/files/BAI_bf_ecd_brief_final.pdf, accessed 29 April 2018.

37. Soltani R, Parsay S. [Maternal and child health].3rd ed. Tehran: Sanjesh; 2008: 226.

38. Marcdante KJ, Nelson WE. Nelson essential of pediatrics. 6th ed. Philadelphia: Saunders; 2011.

39. Saleh Tabari M. Healthy child with mothers' milk.Aug2008. Available from: http://amuzeshbushehr.blogfa.com/post-49.aspx.

40. Murray Sh., Mc Kinney E., Gorrie, T., 2006. Foundation of Maternal-Newborn Nursing. 4th ed. USA: WB. Saunders.

41. Tara F, Bagheri S. The effect of postpartum mother–infant skin-to-skin contact on exclusive breastfeeding in neonatal period: a randomized controlled trial. International Journal of Pediatrics 2017; 5(7):5409-17.

42. Poorahmad-Garbandi F, Salaezade M, Etehad R. Reasons for termination of breastfeeding among women referred to Bandar- Abbas health centers. J Prevent Med 2014; 1 (1):16-22.

43. Ziaie, T., Ghanbari, A., Hassanzadeh Rad, A., Yazdani, M. A. Investigating Risk Factors of Failure in Exclusive Breastfeeding in Less than One-Year-Old Children Referred to Health Centers in Rasht City. The Iranian Journal of Obstetrics, Gynecology and Infertility, 2012; 15(18): 32-9. doi: 10.22038/ijogi.2012.5667.

44. Taheri Z, Bakouei F. The Relationship between Mothers' Empowerment in Breastfeeding with Exclusive Breast Feeding in Infants. J Babol Univ Med Sci. 2019; 21: 85-92.

45. Ehrenkranz RA, Ackerman BA. Metoclopramide effect on faltering milk production by mothers of premature infants. Pediatrics. 1986; 78(4):614-20. DOI:10.1542/peds.78.4.614.

46. Aono T, Aki T, Koike K, Kurachi K. Effect of sulpiride on poor puerperal lactation. American Journal of Obstetrics and Gynecology. 1982; 143(8):927-32. DOI:10.1016/0002-9378(82)90476-8.

47. da Silva OP, Knoppert DC, Angelini MM, Forret PA. Effect of domperidone on milk production in mothers of premature newborns: a randomized, double-blind, placebo-controlled trial. Canadian Medical Association Journal. 2001; 164(1):17-21. https://www.cmaj.ca/content/164/1/17.short.

48. Penagos Tabares F, Bedoya Jaramillo JV, Ruiz-Cortés ZT. Pharmacological overview of galactogogues. Veterinary Medicine International. 2014; 2014. DOI:10.1155/2014/602894.

49. American Academy of Pediatrics Committee on Drugs. Transfer of drugs and other chemicals into human milk. Pediatrics 2001;108: 776 -89.

50. Garg V, Dhar VJ, Sharma A, Dutt R, Facts about standardization of herbal medicine: a review, Zhong Xi Yi Jie He Xue Bao, 2012 Oct; 10 (10):1077 -83.

51. Fazel N, Esmaeili H, Shamaeian Razavi N. Effect of cumin oil on post-partum hemorrhage after cesarean. Iranian Journal of Medicinal and Aromatic Plants Research 2013; 29(1):97-104.

52. Tilburt JC, Kaptchuk TJ, Herbal medicine research and global health: an ethical analysis. Bulletin of the World Health Organization 2008; 86 (8): 577 -656.

53. Hamilton JL, Roemheld -Hamm B, Young DM, Jalba M, Dicicco -Bloom B , Complementary and alternative medicine in US family medicine practices: a pilot qualitative study , Alternative Therapy Health Medical 2008; 14: 22 -7.

54. Mills SY, Bone K. The essential guide to herbal safety. Amsterdam: Elsevier Health Sciences; 2004.

55. Jackson P. Complementary and alternative methods of increasing breast milk supply for lactating mothers of infants in the NICU. Neonatal Network. 2010; 29(4):225-30. DOI:10.1891/0730-0832.29.4.225.

56. Forinash AB, Yancey AM, Barnes KN, Myles TD. The use of galactogogues in the breastfeeding mother. Annals of Pharmacotherapy. 2012; 46(10):1392-404. DOI:10.1345/aph.1R167.

57. Alwhaibi M, Goyat R, Kelly KM. The use of herbal remedies among mothers of young children living in the central Appalachian region. Evidence-Based Complementary and Alternative Medicine. 2017; 2017. DOI:10.1155/2017/1739740.

58. Anderson PO, Valdes V. A critical review of pharmaceutical galactagogues. Breastfeeding Medicine. 2007; 2(4):229-42. DOI:10.1089/bfm.2007.0013.

59. Asztalos EV, Campbell-Yeo M, Dasilva OP, Kiss A, Knoppert DC, Ito S. Enhancing breast milk production with Domperidone in mothers of preterm neonates (EMPOWER trial). BMC Pregnancy and Childbirth. 2012; 12(1):1-6.

60. Zecca E, Zuppa AA, D'Antuono A, Tiberi E, Giordano L, Pianini T, et al. Efficacy of a galactogogue containing silymarin-phosphatidylserine and galega in mothers of preterm infants: a randomized controlled trial. European Journal of Clinical Nutrition. 2016; 70(10):1151-54. DOI:10.1038/ejcn.2016.86.

61. Penagos Tabares F, Bedoya Jaramillo JV, Ruiz-Cortés ZT. Pharmacological overview of galactogogues. Veterinary Medicine International. 2014; 2014. DOI:10.1155/2014/602894.

62. Academy of Breastfeeding Medicine Protocol Committee. ABM Clinical Protocol# 9: Use of galactogogues in initiating or augmenting the rate of maternal milk secretion (First Revision January 2011). Breastfeeding medicine. 2011; 6(1):41-9. DOI:10.1089/bfm.2011.9998.

63. Amer MR, Cipriano GC, Venci JV, Gandhi MA. Safety of popular herbal supplements in lactating women. J Hum Lact 2015; 31: 348–53.

64. Forinash AB, Yancey AM, Barnes KN, Myles TD. The use of galactogogues in the breastfeeding mother. Annals of Pharmacotherapy. 2012; 46(10):1392-404. DOI:10.1345/aph.1R167.

65. Mortel M, Mehta SD. Systematic review of the efficacy of herbal galactogogues. Journal of Human Lactation. 2013; 29(2):154-62. DOI:10.1177/0890334413477243.

66. Zapantis A, Steinberg JG, Schilit L. Use of herbals as galactagogues. Journal of Pharmacy Practice. 2012; 25(2):222-31. DOI: 10.1177/0897190011431636.

67. Budzynska K, Gardner ZE, Dugoua JJ, Low Dog T, Gardiner P. Systematic review of breastfeeding and herbs. Breastfeeding Medicine. 2012; 7(6):489-503. DOI:10.1089/bfm.2011.0122.

68. Montbriand M.J , Herbs or natural products that may cause cancer and harm part four of a four -part series , Oncol Nurs Forum , 2005; 32(1):E20 -9.

69. Xu LW, Jia M, Salchow R, Kentsch M, Cui XJ, Deng HY, Sun ZJ, Kluwe L. Efficacy and side effects of chinese herbal medicine for menopausal symptoms: a critical review, Evid Based Complement Alternat Med. 2012; 2012: 568106.

70. Stout CW. Weinstock J, Homoud MK, Wang PJ, Herbal medicine: Beneficial effects, side effects and promising new research in the treatment of arrhythmias, Current Cardiology Reports 2003; 5(5): 395 -401.

71. Faghihi G, Radan M , Side Effects of Herbal Drugs Used in Dermatologic Disorders, Journal of Cosmetics, Dermatological Sciences and Applications 2011; 1: 1 – 3.

72. Niggemann B, Grüber C, Side -effects of complementary and alternative medicine, Allergy 2003 Aug; 58(8):707 -16.