Journal of Pharmacognosy and Phytochemistry

Available online at www.phytojournal.com

E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2015; 4(2): 112-115
Received: 18-05-2015
Accepted: 21-06-2015

Mariyam Roqaiya
PG, sholar, Dept. of Ilmul Qabalat wa Amraze Niswan, National Institute of Unani Medicine Bengaluru-91, Karnataka, India.

Wajeeha Begum
Reader and HOD, Dept. of Ilmul Qabalat wa Amraze Niswan, National Institute of Unani Medicine Bengaluru-91, Karnataka, India.

Abiha Ahmad Khan
PG, sholar, Dept. of Ilmul Qabalat wa Amraze Niswan, National Institute of Unani Medicine Bengaluru-91, Karnataka, India.

Correspondence:
Abiha Ahmad Khan
PG, sholar, Dept. of Ilmul Qabalat wa Amraze Niswan, National Institute of Unani Medicine Bengaluru-91, Karnataka, India.

A Review on Galactogogue Herbs of *Unani* Medicine

Mariyam Roqaiya, Wajeeha Begum, Abiha Ahmad Khan

Abstract
World Health Organization recommended exclusive breastfeeding as an economic and valuable method for protecting infant's health during the life. It provides unique biologic and emotional effects for both mother and infant. Malnutrition in the first year of life is the reason of two-third of deaths in fewer than five years old children in the world. Breast milk insufficiency is one of mothers' main reasons to stop breastfeeding in the first six to eight weeks after birth. Causes lie behind insufficient milk production are preterm birth, illness of the mother or the child, mother-baby separation, re-lactation after a prolonged suspension, indirect lactation (breast pump or manual milk expression), anxiety, fatigue and emotional stress. Milk production can be increased by psychological support, relaxation techniques and use of Galactogogues. In *Unani* medicine this problem has been described under the heading '*qillate laban*' and for improvement of milk production several herbs have been mentioned having *muwallide laban* (Galactogogue) property. Only few of them have been experimentally studied. This review is an attempt to give the informations on several galactogogue herbs mentioned in *Unani* literature. Studies are needed to provide evidence for the mechanism of action of these herbs as galactogogue.

Keywords: Galactogogue, Unani medicine, milk production, herbs.

1. Introduction
Maternal milk is currently considered as the optimal feeding for all babies. A reduced breast milk production can occur in many circumstances, such as preterm birth, illness of the mother or the child, mother-baby separation, re-lactation after a prolonged suspension and indirect lactation (breast pump or manual milk expression) [1]. Anxiety, fatigue, and emotional stress are also powerful inhibitors of lactation [1, 2]. Mother's perception of not having enough milk is the commonest cause of discontinuation of breastfeeding. This perception often leads to infrequent suckling, leading to a true reduction in production of breast milk. Inadequate breast feeding contributes significantly to the high prevalence of malnutrition [2]. Human milk production is a complex physiologic process involving physical and emotional factors and the interaction of multiple hormones, the most important of which is believed to be prolactin. Despite the fact that prolactin is required for lactation, there has been no evidence for direct correlation of serum prolactin levels (baseline or percentage increase after suckling) with the volume of milk production in lactating women [3]. Milk production can be increased in several ways, such as psychological support and relaxation techniques (for example using books or audio/video supports) [1]. At times the use of a medication may be required in addition to other measures to further assist in increasing the production of milk [4]. Galactogogues (or lactogogues) are medications or other substances believed to assist initiation, maintenance or augmentation of the rate of maternal milk synthesis at a level which meets the needs of the baby [3]. These medications are dopamine antagonists which, through interaction with the hypothalamus and anterior pituitary, increase prolactin secretion thereby increasing milk production [4].

Insufficient lactation or poor lactation has been described in *Unani* literature under the heading '*Qillate laban*'. Causes related to this condition are *khoon ki kami* (anaemia), *ghiza ki kami* (poor diet or malnutrion), *ghalbae khilt* (excess of humour) in blood which makes the quality of blood poor and body is not able to produce milk from this blood. Quality of milk itself helps in diagnosing the type of *ghalbae khilt*. If poor lactation is due to *ghalbae safra* (bile) then colour of milk will be pale and consistency will be thinner than the normal. In case of *ghalbae balgham* (phlegm) consistency of milk will be thick. In the management first remove the cause. Women should be advised to take good and healthy food. To improve lactation drugs are used [5]. *Razi* has mentioned in his book *Al-Hawi* that drugs which has *mudire haiz* (emmenogogue) property will also have *mudire laban* (milk secreting property) property [6]. Oxytocin is necessary for the milk ejection reflex, or let down to occur [7]. *Mudire haiz* drugs

because of their oxytocic property causes contraction of the myoepithelial cells and improves secretion [8]. *Rabban Tabri* has mentioned that *muwallide mani* (ovulation inducing drugs) drugs also possess the *muwallide laban* (milk producing) property [9]. Poor nutrition is one of the cause for decrease milk production. *Musammine badan* drugs improve milk production because of their nutritive property [5].

There are various herbs which is mentioned in Unani texts as milk increasing drugs like *satawar, kalonji, hulba, panba dana, aspand, sambhalu, anisoon, saunf, asgandh, musli siyah, musli safaid, shiqaqul misri, singhada, todrain, zeera safaid, maghaze narjeel, maghaze pista, maghaze akhrot, maghaze badam,ajwain desi, alsi, otangan* etc. (**Table1**). Few of these herbs have been experimentally studied for their galactagouge property. This review is an attempt to give the informations on several galactogogue herbs mentioned in *Unani* literature.

2. Materials and methods: Literature was searched in the Unani texts like *Khazainul Advia, Bustanul Mufredat, Makhzinul Mufredat, Kanzul Advia, Kitabu al Advia wa Aghazia, Ilmul Advia Nafeesi* to collect the information on herbs having *muwallide laban* (galactogogue) property. Computerized databases like pubmed, pubmed central, science direct, google scholar, medline were also searched to get the experimental studies and clinical studies on Galactogogue property of various herbs.

Table1: List of plants found in *Unani* texts having Galactogogue property.

***Unani* Name**	**Botanical Name**	**Part Used**
Kalonji [10]	*Nigella sativa*	seeds
Satawar [11]	*Asparagus recemosus*	root
Hulba [10]	*Trigonella foenum*	seeds
Panba dana [12]	*Gossypium arborenum*	seeds
Aspand [10]	*Peganum hermala*	seeds
Sambhaloo [11]	*Vitex nigundu*	seeds
Anisoon [10]	*Pimpinella anisum*	seeds
Saunf [11, 13]	*Foeniculum vulgare*	seeds
Tudri surkh [13, 14]	*Lepidium iberis*	seeds
Tudri zard [11, 13]	*Lepidium iberis*	seeds
Asgandh [13, 14]	*Withania somnifera*	root
Musli siyah [10]	*Curculigo orchioides*	root
Musli safaid [10]	*Chlorophytum arundinacecum*	root
Shiqaqul misri [11, 12]	*Pustinaca secacul*	root
Zeera safaid [12]	*Cuminum cyminum*	seeds
Zeera siyah [12]	*Carum cavri*	seeds
Maghaze narjeel [10]	*Lodoicea maldivica*	fruit
Maghaze pista [10]	*Pistachia vera*	fruit
Maghaze akhrot [10]	*Jugulans regia*	fruit
Maghaze badam [10]	*Prunus amygdalus*	fruit
Ajwain desi [10]	*Carum copticum*	seeds
Alsi [15]	*Linum usitatissimum*	seeds
Otangan [15]	*Blepharis edulis*	seeds
Nagar motha [11]	*Cyperus rotundus*	root
Singhada [10, 14]	*Trapa spinosa*	fruit
maghaze tukhm-e-kadu [13]	*Laginaria siceraria*	seed kernels
maghze tukhm-e-tarbuz [13]	*Citrullus vulgsis*	seed kernels
maghze tukhm-e kharpaza [13]	*Cucumis melo*	seed kernels
Bozidan [10]	*Pyrethrum indicum*	root
Badari kund [10]	*Pueraria tuberosa*	root
Sualab misri [10]	*Orchis latifolia*	root
Jirjeer [10]	*Erusa sativa*	seeds

3. Studies on various drugs

3.1. *Kalonji (Nigella sativa):* One study showed that serum prolactin level, of lactating female mice kept on *Nigella sativa* containing diet, was significantly higher (P<0.01) than that of mothers switched on to control diet. The weight of the litter of the females kept on *Nigella sativa* containing diet was significantly (P<0.01) higher than those of female given control diet. In comparison with control group, the sections of the breast tissue of mothers kept on *Nigella sativa* containing diet showed large acini with an increase in the proliferation and thickness of the epithelium. The majority of the acini in the breast tissue showed more secretary activity [16].

3.2. *Satawar* (*Asparagus recemosus*): Randomized double-blind clinical trial evaluates its galactogogue effect in 60 lactating mothers by measurement of changes in their prolactin hormone level. Several secondary parameters namely mothers' weight, babies' weight, subjective satisfaction of mothers and well-being and happiness of babies were studied to corroborate the primary findings. The oral administration of the research drug led to more than three-fold increase in the prolactin hormone level of the subjects in the research group as compared to the control group [17].

3.3. *Panba dana* (*Gossypium arborenum*): One study was conducted at Livestock Research and Development Station Surezai, Peshawar during June to August 2011. The objectives of this study were to determine the effect of Cotton Seed Cake (CSC) on milk yield, milk composition, feed intake, Body Condition Score (BCS) and live weight of Holstein Friesian (HF) crossbred cows. A total of nine mid-lactation crossbred cows were randomly distributed to three groups and allocated to diets containing zero (control), 20 and 35 percent CSC. All the three rations were Isocaloric and Isonitrogeniuos. Each cow was given a daily feed ration according to NRC standards. Mean daily milk yield differed (P<0.05) among all treatment groups. However, highest milk yield 5.68±0.096 kg/day was recorded for cows feed 35% CSC while the control group (0% CSC) produced the least yield 4.473±0.184 kg/day. Cows on 35% CSC produced higher milk fat 4.46±0.22 percent and have significant (P<0.05) effect on milk fat content while the control group produced the least 3.35±0.22 percent fat. CSC had no significant (P>0.05) effect on protein content in milk as cows on 35% CSC diet produced the least 2.7±0.09 percent protein, while the control group produce the highest 3.00±0.09 percent. The concentration of Lactose and total milk solid not fat (SNF) content was higher (P>0.05) for control group than the cows fed on other diet. There was significant (P<0.05) difference in daily feed intake as the cows on 35% CSC diet had the highest daily feed intake of 32.478±0.31kg/day while the control group had the least intake 29.138±0.31kg/day. Experimental rations had no significant (P>0.05) effect on mean changes in BCS. The Live weight was not effected significantly (P>0.05) by rations, However highest mean change in weight gain of 7.66±4.95kg/45day was recorded for cows fed ration having 35% CSC while least 5.00 ±7.90 kg/45day was recorded for cows fed zero% CSC in the ration. Economically ration having 35% CSC had the lowest cost of milk production (Rs: 17.14/kg) as compared to ration having 20% (Rs.19.68/kg) and Zero% CSC (Rs.21.6/kg) [18].

3.4. *Nagar motha* (*Cyperus rotundus*): With the aim to increase the milk production in mammalian species, one experiment with alcoholic extract of polyherbal formulation

(Asparagus racemosus, Musa paradisiaca, Cyperus rotundus, Psidium guava) was performed in lactating wistar rats. Researchers measured gain in pup weight, increase in milk yield, and pup's serum cholesterol for 15 days treatment. Control group results were compared with individual drug groups and poly herbal group and it was found that above mentioned parameters were more in polyherbal treated group. The treatment with polyherbal formulation increased the mean body pup weight up to 12.899±2.590 gm/pup and increase was significant ($p<0.001$), the mean milk yield was also significant ($p<0.001$) with 2.3124±0.3432gm/pup and serum cholesterol levels up to 56.588±2.590mg/dl after 15 days treatment [19].

3.5. *Hulba* (*Trigonella foenum*): One study was conducted to evaluate the effect of fenugreek feeding on milk production in lactating goats. Twelve lactating local Saudi goats from the Zumri breed in early lactation week and parity. Six goats were fed with 60gm/day of fenugreek seeds powder for seven weeks while the other six goats served as control. Milk yield was recorded daily and blood samples were collected twice a week. Also, blood samples were taken every 15 min for 6 hours during fenugreek treatment. Milk yield was found to be significantly higher ($p<0.05$) in the treated group (1236±38 vs.1093±43ml/day). Fenugreek fed goats exhibited significantly lower plasma levels of glucose ($p=<0.05$) and urea ($p<0.01$) compared to control. Mean plasma levels of growth hormone during six hours bleeding were significantly higher ($p<0.05$) in the fenugreek treated goats compared to control (0.27±0.09 and 0.21±0.02ng/ml, respectively) [20].

3.6. *Saunf* (*Foeniculum vulgare*): This study was a randomized clinical trial performed on 78 girl infants aged 0-4 months who were exclusively breastfed. After getting informed consent infants were randomly assigned into the intervention group (received herbal tea containing 7.5 g Fennel seed powder in addition to 3 grams black tea three times a day) and the control group (received herbal tea containing 3 grams black tea powder three times a day). Before and during four weeks of study, signs of breast milk sufficiency were evaluated through measuring the growth parameters and the number of wet diapers in a day, frequency of defecation and infant breastfeeding times. Before intervention, there was no significant difference between weight, height, head circumference, the number of wet diapers and frequency of defecation times between the two groups ($P > 0.05$), but the number of breastfeeding times of control group was more than the Fennel group. After fourth weeks, Fennel significantly increased weight from (5261.0256 ± 1167.65801) to (6393.3333 ± 1083.42132), head circumference from (38.6103 ± 2.20033) to (40.1538 ± 2.00510), the number of wet diapers from (5.5000 ± 1.05131) to (8.5421 ± 1.21182), the frequency of defecation times from (1.7692 ± 1.03139) to (2.6410 ± 1.14655) and the number of breastfeeding times from (9.9359 ± 1.85380) to (16.7399 ± 1.63766) ($P < 0.001$), but it had no effect on height ($P = 0.066$) [21].

3.7. *Banana flower (Musa x paradisiacal)*: Galactogogue activity was evaluated in terms of quantity of milk produced from the rats treated with petroleum ether, ethanol or water extracts of the flower. Lactating rats (n=5) of Spraque Dawley with six pups each were daily administered via oral feeding starting from Day 5 until Day 14 and the performance of milk production was measured along the experimental period by weight-suckle-weight method. Results were statistically analyzed using SPSS by means of ANOVA at 0.05 and was expressed as their mean ± standard deviation. The rates of pups growth were measured as the weight gain along the experimental period. The rats treated with aqueous extract produced higher milk than control and ethanol groups. Aqueous extract was identified to increase milk production by 25%, while petroleum ether extract by 18% [22].

4. Conclusion

The review of Unani texts provides a list of herbs having galactogogue property. Scientific validation of few of them has proved the efficacy of these botanicals in improving lactation and ultimately justify upto some extent the Unani traditional claim of milk improving activity of these herbs. Studies required providing evidence for the mechanism of action of herbs as galactogogue.

5. References

1. Zuppa AA, Sindico P, Orchi C, Carducci C, Cardiello V, Romagnoli C *et al*. Safety and Efficacy of Galactogogues: Substances that Induce, Maintain and Increase Breast Milk Production. J Pharm Pharmaceut Sci (www.cspsCanada.org) 13(2) 162 - 174, 2010 J Pharm Pharmaceut Sci 2010; 13(2):162-174.
2. Dhingra NB D. Perceived Breast Milk Insufficiency in Mothers of Neonates Hospitalized in Neonatal Intensive Care Unit. Indian Journal of Pediatrics 2009; 76:1003-1006.
3. The 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):41-49.
4. Lactation Promotion Using Galactogogues to Improve Supply and Sustain Breastfeeding –CHW Practice Guideline (Cited on 8th June 2015) Available at www.schn.health.nsw.gov.au/ policies/pdf/ 2009-8012.
5. Khan A, Al Akseer (Urdu trans. By Kabeeruddin). Idara Kitabul Shifa, New Delhi, 2011, 827.
6. Razi AMZ, Kitab al Hawi. New Delhi, Central Council for Research in Unani Medicine, 2001, 156.
7. Evans JJ. Oxytocin in the human – regulation of derivations and destinations. European Journal of Endocrinology 1997; (137):559-571.
8. Sultana A, Begum A, Sultana S, Asma K. Usefulness of Polyherbal Unani Formulation for Cervical Ripening and Induction of Labour: A Uncontrolled Study. Altern Integ Med 4: 184. doi: 10.4172/2327-5162,1000184.
9. Tabri AR, Firdaus al Hikmat, Idara Kitabul Shifa. New Delhi, 2002, 260.
10. Ghani N, Khazainul Advia, Idarae Kitabul Shifa. New Delhi, 2005, 202, 208, 227, 293, 321, 336, 402, 509, 542, 553, 853, 1061, 1271, 1272.
11. Kabeeruddin M, Makhzanul Mufradat. Ejaz Publication House, New Delhi, 2007, 97, 163, 250, 266, 281, 400.
12. Mohd Kanzul Advia Mufredah R. University Publication Unit, Aligarh, 1985; 210:393-395.
13. Ahmad F, Aslam M, Nizami Q. Classification of Unani Drugs. Fine Offset Works, Delhi, 2005, 171.
14. Kabeeruddin M, Ilmul Advia Nafeesi. Ejaz Publishing House, New Delhi, 2007, 238-266.
15. Hakeem MAH, Bustan ul Mufradat, Idarae Kitabul Shifa. New Delhi, 2002, 81-102.
16. Al-Snafi AE, Majid WJ. Galactogogue action of *Nigella*

sativa seeds. IOSR Journal of Pharmacy 2014; 4(6):58-61.
17. Guptaa M, Shawb B. A Double-Blind Randomized Clinical Trial for Evaluation of Galactogogue Activity of Asparagus racemosus Willd. Iranian Journal of Pharmaceutical Research 2011; 10(1):167-172.
18. Hayaz Uddin, Rahman A, Khan R, khan BD, Muhammad D, Farid K *et al*. Effect of Cotton Seed Cake on Cattle Milk Yield and Composition at Livestock Research and Development Station Surezai, Peshawar, Pakistan. Pakistan Journal of Nutrition 2013; 12(5):468-475.
19. Antony SA, Chalichem NS, Suryadevara VS, Rao YB, Kosaraju J. Formulation and Evaluation of a polyherbal formulation (lacto-4) for its Galactogogue activity in wistar rats. Int.J. Pharm Tech Res.2012; 4(2):554-560.
20. Alamer MA, Basiouni. Feeding effects of Fenugreek seeds (Trigonella foenum-graecum L.) on Lactation Performance, Some Plasma Contituents and Growth Hormone Levels in Goats. Pakistan Journal of Biological Science 2005; 8(11):1553-1556.