Concept of Galactagogue (*Mudirr-i-Laban*) in view of Unani Medicine

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Abstract- The WHO recommends exclusive breastfeeding for infants up to six months as the normal infant feeding method and considered “gold standard” of infant nutrition. In the first few days of neonatal life in exclusively breastfed infants, excessive weight loss and late birth weight catch-up are emerging problems. Lactation failure due to poor breastfeeding technique and insufficient breast milk production can cause several medical conditions in infants such as dehydration, hypernatremia, and hyperbilirubinemia. Synthetic drugs have significant adverse effects in both mother and infant. *Mudirr-i-Laban* (galactagogue) is the medications in Unani medicine that could help in increasing milk production to overcome the insufficient lactation without any adverse effect in mother and infant. Many herbs are used to increase breast milk production can easily and safely be added to the everyday diet. This review expands the concept of *Mudirr-i-Laban* (galatagogue) mentioned in *Unani* system of medicine and some common natural herbal galactagogue used in the management of *Qilla al-Laban* (oligogalactacea). Only few of them have been experimentally studied. Studies are needed to gives verification for the mechanism of action of these herbs as galactagogue.

Keywords: *Qilla al-Laban*, *Mudir-e-laban*, Unani medicine, Galactagogue

I. INTRODUCTION

Mother's breast milk is the best possible source of nutrition for babies. As stated by WHO, exclusive breastfeeding should be started within one hour after birth until a baby is six months old [1]. After parturition, the establishment of a mature milk supply is dependent upon the presence of mammary tissue, regular removal of milk from the mammary gland, and maternal hormones such as prolactin and oxytocin. Prolactin stimulates the mammary glands to initiate lactation. It is associated with numerous physiological processes in addition to lactation. Oxytocin is necessary for 'milk ejection reflex' or 'let-down' to occur. These two hormones must be present for lactation to become established. Neither hormone determines the amount of milk produced in a lactating breast; rather, this is a feedback mechanism depend upon the quantity of milk removed from the breast, and the frequency of milk removal [2].

In addition to the maternal hormonal balance, successful establishment of the milk supply relies on a proper breastfeeding technique such as good latch. Proper breastfeeding technique on the part of mother and baby ensures adequate milk removal, and is usually sufficient to maintain an ample supply of milk. Reportedly, due to perception of insufficient milk supply breastfeeding efforts are most often unsuccessful [3]. It is caused by an imbalance in maternal hormones, some deficiency in the mammary tissue, or most often, inadequate milk removal due to poor latch. If the problem of deficient milk supply remains after inadequate breastfeeding technique (such as poor latch) have been ruled out, galactagogue (*Mudirr-i-Laban*) substances can be helpful [4].

This paper is organized as follows, section I contains the Introduction to the oligogalactacea, section II contains reason for development of safe and effective herbal galactagogue for augmentation of breast milk, section III contains unani perspective on *qilla al-laban* (oligogalactacea), section IV explains in detail the different views of ancient physician regarding *qilla al-laban* (oligogalactacea), section V contains list of some unani medicinal plants having galactagogue activity, section VI describes principles of treatment in unani medicine and the section VII presents the conclusion of the paper.

Reason for development of safe and effective approaches for augmentation of breast milk

Most common reasons given for discontinuing breastfeeding are low milk supply and for initiation, maintenance, and augmentation of maternal milk production; medications such as *Mudirr-i-Laban* (galactagogue) are needed [5]. Synthetic drugs such as metoclopramide, domperidone, chlorpromazine and sulpiride are most commonly used galactagogues; they show significant adverse effects in mothers like gastrointestinal disorders, dry mouth syndrome or hyposalivation, cardiac

arrhythmia, lethargy, sedation, extra pyramidal symptoms such as hypertension, tremor, facial seborrhoea and hyperhidrosis and even sudden death. Symptoms in infants due to ingestion of milk from treated mothers are intestinal discomfort, lethargy and sedation. Dopamine antagonists, such as antiemetic metoclopramide and domperidone and antipsychotics sulpiride and chlorpromazine are mainly used among synthetic drugs to increase lactation. Synthetic hormonal analogs such as oxytocin, rBST, TRH and medroxyprogesterone are also used as synthetic galactagogues [6]. Due to the adverse side effects from the pharmaceutical galactagogues, people turned towards an alternative approach in overcoming the situation through the utilization of herbal products which are reported to be the safest galactagogues presently available. The use of natural products supposed to be capable of increasing milk production has a long history.

Unani literature on *Qilla al-Laban*

In classical Unani literature, insufficient lactation (oligogalactacea) is described as '*Qilla al-Laban*'. The Unani physicians like *Ibn Sīnā*, *Zakariyya Rāzī*, *Rabban Tabarī*, *Akbar Arzānī* have mentioned several herbs used as a *Mudirr-i-Laban* (galatagogue). *Qilla al-Laban* is due to *Ghalaba-i-Akhlat* (excess of humour) which altered the quality of the *Madda khoon* (blood humour) and body is not able to produce milk. Quality of milk can help in diagnosing the type of *Ghalaba-i-Akhlat* involved in *Qilla al-laban*. If colour of milk will be yellowish and consistency of milk will be thinner than the normal then *Qilla al-laban* is due to *ghalaba-i-Ṣafrā* (bile). If consistency of milk will be thick then it is due to *ghalaba-i-balgham* (phlegm) [7,8]. If milk becomes more viscid, turbid and less in quantity then it is due to *ghalaba-i-Sawdā*. Other causes are *Zof-i-quwwat-i-jaziba* (weakness in attractive power) of breast, *Qillat-e-khoon* (anaemia), *Nafās* (puerperal blood loss), *Kathrat-i-Hayḍ* (menorrhagia), [9] *Ghiza ki kami* (poor diet) and *Awarizat-e-Nafsāniyya* (psychological complications), which makes the quality of blood poor and body cannot produce milk [10].

Different Views of Ancient Physician

- ✓ *Ibn Sīnā* described *Qilla al-Laban* is caused by altered quality of blood where the blood element (*madda khoon*) is decreased, or abnormal temperament (*Su'-i-Mizāj*) or abnormal humours (*Ghayr Ṭabī'ī khilt*) [7].
- ✓ *Zakariyya Rāzī* mentioned the causes of *Qilla al-Laban* are alteration in *kaifyat-e-dam* (quality of blood), which can be due *Qilla al dam* (anaemia) or dominance of *Khilt-i-Balgham* (phlegm). He has mentioned in his book *Al-Hawī* that drugs which has *Mudirr-i-Hayḍ* (emmenagogue) property will also have *Mudirr-i-Laban* (milk secreting) property [11].
- ✓ According to *Rabban Tabarī* and *Akbar Arzānī*, *muwallid-i-mani* (ovulation inducing drugs) also possess the *muwallid-i-laban* (milk producing) property [9,12].
- ✓ *Akbar Arzānī* described *Qilla al-Laban* is caused by *zof e quwwat-i-jaziba* (weakness in attractive power) of breast, *qillat e khoon* (anemia), *Nafās* (puerperal blood loss), *Kathrat-i-Hayḍ* (menorrhagia) [9].
- ✓ In Unani classical texts the herbs mentioned under the heading as a *Mudirr-i-Laban* or *Muwallid-i-Laban* possess the properties like *muqaww-e-bah* (aphrodisiac), [13] *musammin-e-badan* (body strengthen) [14] which also helps in adequate milk production because of their nutritive properties.
- ✓ *Ismail Jurjānī* mentioned that *Qilla al-Laban* caused by *Su'-i-Mizāj-i-badan* (abnormal temperament of body) or *pistān* (breast) [15]. In Unani classical texts various herbs mentioned as *Mudirr-i-Laban* or *muwallid-i-laban* might be a useful tool in the treatment of insufficient milk production in mothers.
- ✓ *Ajmal Khān* mentioned that mother is affected psychologically and emotionally by *Qilla al-Laban* as the baby is unsatisfied by the feeds, cries frequently, malnourished, and fall sick frequently [16].
- ✓ Oxytocin is necessary for the milk ejection reflex, or let down to occur [17]. *Mudirr-i-Hayḍ* drugs possess oxytocic property which cause contraction of the myoepithelial cells and improves secretion [18].

UNANI MEDICINAL PLANTS HAVING GALACTOGOGUE ACTIVITY

S.No.	Unani Name	Botanical Name	Part Used	References
1.	Zīra Safed	<i>Cuminum cyminum</i> Linn.	Seeds	[19]
2.	Zīra Siyāh	<i>Carum cavri</i>	Seeds	[19]
3.	Satāvar	<i>Asparagus recemosus</i> Wild.	Root	[20]
4.	Bādiyān	<i>Foeniculum vulgare</i> Linn.	Seeds	[20, 21]
5.	Asgand	<i>Withania somnifera</i> Dunal	Root	[14, 21]
6.	Ajwā'in	<i>Trachyspermum ammi</i>	Seeds	[22]
7.	Mūshī safaid	<i>Chlorophytum arundinaceum</i> Linn.	Root	[22]
8.	Mūshī Siyāh	<i>Curculigo orchoides</i> Gaertn.	Root	[22]
9.	Alsī	<i>Linum usitatissimum</i> Linn.	Seeds	[21]

10	Hulba	<i>Trigonella-foenum-graecum</i> Linn.	Seeds	[22]
11	Aspand	<i>Peganum hermala</i> Linn.	Seeds	[22]
12	Panbadana	<i>Gossypium herbaceum</i> Linn	Seeds	[19]
13	Maghz-i chilghoza	<i>Pinus gerardiana</i>	Fruit	[21]
14	Tukhm-i Tarbūz	<i>Citrullus vulgaris</i> Linn.	Seed	[21]
15	Khurmā (Tamar)	<i>Phoenix dactylifera</i> Linn.	Fruit	[14]
16	Habba-al-Sawdā'	<i>Nigella sativa</i> Linn.	Seeds	[22]
17	Maghz-i tukhm-i kadū	<i>Lagenaria siceraria</i> Standly	Seed	[21]
18	Ash-i-Jaw	<i>Hordeum vulgare</i> Linn.	Leaves	[22]
19	Akhrot	<i>Juglans regia</i> Linn.	Fruit	[22]
20	Bādām	<i>Prunus amygdalus</i> Bail.	Fruit	[21]
21	Gul-i Mahuwa	<i>Madhuca longifolia</i> Linn.	Fruit	[21]
22	Sa'lab misri	<i>Orchis latifolia</i> Linn.	Root	[22]
23	Hulhul	<i>Ipomoea digitata</i> Linn.	Root	[22]
24	Halyūn	<i>Lepidium sativum</i> Linn.	Seeds	[23]
25	Shiqāqul misri	<i>Pastinaca sativa</i> Linn.	Root	[19, 20]
26	Kunjad	<i>Sesamum indicum</i> Linn.	Seeds	[22]
27	Maghz-i pista	<i>Pistacia vera</i> Linn.	Fruit	[22]
28	Tūdri Surkh	<i>Cheiranthus cheiri</i>	Seeds	[20, 21]
29	Tūdri zard	<i>Lepidium iberis</i>	Seeds	[20, 21]
30	Anīsūn	<i>Pimpinella anisum</i> Linn.	Seeds	[22]
31	Anjīr (Tin)	<i>Ficus carica</i> Linn.	Fruit	[22]
32	Sambhaloo	<i>Vitex negundo</i> Linn.	Seeds	[20]
33	Tukhm-i Gazar	<i>Daucus carota</i> Linn.	Seeds	[21]
34	Maghz-i tukhm-i karpaza	<i>Cucumis melo</i> Linn.	Seed	[21]
35	Nagar motha	<i>Cyperus rotundus</i> Linn.	Root	[20]
36	Otangan	<i>Blepharis edulis</i> Pers.	Seeds	[23]
37	Boazidan	<i>Pyrethrum indicum</i>	Root	[22]
38	Tukhm-i gandanā	<i>Allium ascalonicum</i>	Seeds	[21]
39	Singhada	<i>Trapa bispinosa</i>	Fruit	[22]
40	Maghz-i Narjīl	<i>Cocos nucifera</i>	Fruit	[22]
41	Unnāb	<i>Ziziphus sativa</i> Gaertn	Fruit	[20]

UṢŪL-I 'ILĀJ (PRINCIPLES OF TREATMENT)

❖ 'Ilāj bi'l-Tadbīr (Physiotherapy):

- ✓ In *kasrate dam* (polycythemia), *faṣd* (venesection) and *Hijāma* (cupping) are done and *fasad khoon* (impurity of blood) is to be rectified [6].
- ✓ Gentle dry cupping (*Hijāma*) also given beneath the breasts [24].

❖ 'Ilāj bi'l-Ghidhā' (Dietotherapy):

- ✓ Azam Khan mentioned that balance and nutritive diet is enough for improvement in *Qilla al-laban* and drugs are not needed [8].
- ✓ If there is any indication of cold temperament, obstruction or inadequate absorption, diet should be light (*lateef*) and slight hot in temperament [24].
- ✓ *Akbar Arzānī* stated diet such as milk, egg yolk, and chicken meat is used to increase blood production in anaemia that eventually leads to increased milk production [10].
- ✓ *Ibn Sīnā* stated diet such as barley soup, mixed with seeds of fennel (*tukhm-i bādiyān*) root of fennel (*bekh-i bādiyān*), seed of *tukhm-i shibit*, black cumin (*kalonjī*) is beneficial in malnutrition. [7, 24] The diet which is hot and moist such as milk, rice, chicken or honey with milk, *faluda*, *halwa* of egg yolk are also useful [7,11]. Due to malnutrition and dryness, if the milk production is not sufficient, animal milk is useful [15].

❖ 'Ilāj bi'l-Dawā' (Pharmacotherapy):

- ✓ *Ibn Sīnā* described that drug with first degree *mizāj* (temperament) is useful in *Qilla al-Laban* [7].
- ✓ *Mudirr-i-Laban* drugs are useful such as *hulba* (fenugreek), seeds of turnip (*tukhm-i shalgam*), *ghee*, *green gram*, etc. [11].
- ✓ In dominance of *ghalba-i-sauda* (black bile), *musakkhin* (analgesic) and *muratib* (moist) drugs such as *harīra anjīr* (soup of fig), *jaw*, *gandum* (wheat) with *roghan-i badam* (almond oil) are beneficial [8].

- ✓ In dominance of *ghalba-i-balgham* (phlegm), drugs with hot temperament such as *bādiyān*, *shibit*, and *karafs* are used. Soup of *ārd-i Gandum* (wheat flour) with *hulba*, *bādiyān* and *asl* is advised and after that *habb-i mushil* is given [8].
- ✓ *muwallid-i-mani* drugs such as *tūdrī safed*, *tukhm-i kashkhash safed* and the nutritious diet which is *hār* and *tar* increases the production of milk [11,15,17].
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CONCLUSION

In the emerging circumstances the health policies in India and across the globe have been emphasizing on reproductive and child healthcare and also exploring the possibility of introducing traditional systems of medicine such as unani, integrating with conventional medicine to achieve better healthcare. Further integration of unani and other Traditional system of medicine possibly offer safe and effective management of child health. Owing to the importance of breast milk and breast feeding as recognized by unani thousands of years ago and also endorsed by modern science, need is felt to promote these practices which are pivotal for physical, psychological and emotional development of child besides considerable immunological support. The potential leads from unani texts may be taken forward for further development of safe and effective and user friendly dosage forms through systematic pre-clinical and clinical studies.

Many single herbs such as *Hulba* (*Trigonella foenum*), *Zīra* (*Cuminum cyminum*), *Panbadana* (*Gossypium arboreum*), *Kalonji* (*Nigella sativa*) etc. from Unani classical texts are proven Pharmacologically and clinically for their galactagogue activity. In order to prove their efficacy and safety, further randomized clinical trials in larger sample should be conducted.

AUTHOR CONTRIBUTION

Sofia had made efforts for drafting article, data collection, data analysis, writing manuscript and critical revision of the article for the preparation of the manuscript.

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