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***Stanya Kshaya*; Ayurvedic Perspective and Role of Herbal Galactogogues**

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# Abstract

### “Lactation is elixir –a gift from the Almighty for little angels”

The importance of breast milk for the new born is very well quoted in *ayurvedic* classics. *AcharyaCharak*a has quoted that the new born should be put to breast from the very first day of birth.In modern science also the importance of colostrum and breast milk for the new born is well established. Today *Stanyakshaya*(hypogalactia)or *stanyanaasha*(agalactia) is a very common problem, especially with primiparous mothers. The two conditions are together described in *ayurveda samhitas* with their causal factors and *chikitsa.* A number of *stanyajanana*, *stanyavardhaka* drugs as well as *stanyavardhakaaahaar* and *bhava*(factors) have been described by *acharyas* and have proved of great significance over the ages. The present study aims to go through the literary description of *Stanyakshaya/stanyanaasha* and to work upon the probable mode of action of herbal galactogogues described therein, based upon their pharmacological properties and chemical composition. Overall study concludes that *stanyakshaya*, occurring as a result of *dhatukshaya* or *agnimandhyata* can be managed **effectively and safely** by herbal galactogogues. In addition to this, these herbs can be used in healthy lactating mothers also to enhance breast milk production in a safer way and regain body strength especially in puerperium.

# Keywords

*StanyaKshaya/ StanyaNaasha, Herbal Galactogogues*

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# INTRODUCTION

Lactation describes the secretion of milk from the mammary glands and the time period that a mother lactates to feed her baby. Milk production is essential for optimal feeding of infants, as nutrition at this stage has direct impact on growth, development and health of not only the neonate but also for throughout healthy life. It instils lifetime immunity. According to the *Ayurveda* classics,*stanya* is the *upadhatu* of *rasa dhatu****.*** After proper digestion of food by *jaatharagni* and *dhatvaagni,rasa* is formed. In *sdhyoprasuta,* the sweet essence part of this *rasa* circulating in the whole body gets collected in the breasts and is termed as *stanya1*.The preparation for lactation starts during pregnancy. The *aahar*(diet) consumed by *Garbhini*(pregnant woman) is utilized for three main functions: *swasharirposhana*(nourishment of woman’s own body), *stanya*(milk) formation and *garbhaposhana*(foetal nourishment).2 Pristine and continuous affection for the baby stimulates and maintains lactation3.Variation or deprivation of above factors can result in *stanyakshaya/stanyanaasha.*

# AIMS AND OBJECTIVES

1. To view *ayurvedic* literature for*stanyakshaya/stanyanaasha.*
2. Probable mode of action of herbs described in *chikitsa*of *stanyakshaya.*

# MATERIALS AND METHODS

Texts of *ayurveda*, Data Base on Indian medicinal plants.

**LITERARY REVIEW OF *STANYA KSHAYA/STANYANAASHA:***

***Hetu(*Causes*):*** Along with the common overall debilitating factors of parturition like loss of blood and energy,other predisposing factors delineated by our *acharyas* are - **Dietary factors** -Excessive intake of *rukshaannapaana*(dry edibles and drinks), *langhan*(fasting), *karshan*(emaciation)4,*atyapatarpan5(*excessi ve fasting).

**Psychological and behavioral factors**– *Krodha*(anger), *shoka*(grief),*bhaya* (fear),*kaama*(excessive coitus),*avaatsalya*(lack of affection for the infant)6,excessive *shodhana karma (*excessive use of purifying measures),*swabhaav,7punagarbhadhaaran*(r e-pregnancy).8

***StanyakshayaSamprapti* (pathogenesis) :** In *sutika* there is overall *dhatukshayaawastha* due to

*pravahanvedna*(labour pains and bear down efforts) and loss of*rakta* and *kleda*during prasava9. So she gets deprived in *maamnsa, bala*(strength), *agni*(digestive power). Again this state is complicated by *apathyasewana*(*atyaapatarpana, rukshaanna, shoka,bhaya, krodha)*. As a result there is *vatapradhantridoshaprakopa*leading to*rasa dhatukshaya* and

consequently*upadhatukshaya* (*stanyakshaya*).

***Stanyakshayalakshana:*** Apart from absence or decrease in quantity of *stanya,acharyas*have also enumerated *Stanamlaanata*(laxity of breasts) as a symptom of

*Stanyakshaya*10.***Stanyanaashaavumstanyak shayachikitsa:***

* 1. *Sleshmavardhakadravyas*(articles increasing *sleshma/kapha*) should be used in *stanya kshaya11.*
  2. *Sura*(wine), *shaalianna, maansa*(meat), cow’s milk, *sharkara*(sugar), *aasava*, curd and use of desired articles cure *stanyakshaya12.*
  3. *Vamana*(emesis) karma is contraindicated in *stanya kshaya13*.

### Stanyajananaaahaar:

Diet rich in *madhura*(sweet), *amla*(sour), *lavana*(salt) *rasa,* meat soup*14.*

*Ksheerapaana*(milk intake)15,intake of *ghrita*and oil,all leafy vegetables except *siddharthaka*. *Naadishaka*cooked with *gur*(jaggery), *hingu*and

*jatiphala16*,*narikela,*17*lashuna,palandu*,*Yava* (barley), wheat, *shaali, shashtika*, *kanji*(fermented sour

drink),*pinyaka*,*matasya*,*kasheruka, shringataka18*,all wines except *sidhu madya19.*

***Stanyajananabhava(*factors stimulating lactation*):***

*Saumnasya*(state of happiness)20, avoid exertion and hard work, good sleep21,avoidance of

*shoka*(grief),*bhaya*(fear)22, staying calm, composed and concerned to the baby.

***Stanyajanana*and *stanyavardhaka*drugs**: A number of drugs and preparations are described in the treatment of *stanyakshaya* as per texts:

1. Decoction of roots of *veeran, shaali, shashtika, ikshuvaalika, darbha, kusha, kasha, gundra, itkata*and*ktrina.*Drugswhich posses*ksheera*(apparent latex) e.g*dugdhika23.*
2. Milk medicated with the decoction of roots of *stanyajanana* drugs24.
3. Milk medicated with *maricha*,*pippalimoola*, *maagadhi(pippali)*, *shunthi*, *pathya(haritaki)* and mixed with*gur* and *ghrita*25.
4. Milk medicated with *vaajikaran*drugs also improves lactation.
5. Milk medicated with the decoction of stem barks of latex yielding trees like *vata, udumbar etc.* To this milk *sauwarchala, wid* salt, jaggery and *ghrita* are added and then consumed with cooked *shaali* rice. With this preparation lactation is said to be started even in totally dried breasts.26
6. Juice or powder of *vidaarikanda*,*shringataka, vari*(*shatavari*) mixed in milk27.
7. ***Vajrakanjika***: *Pippali, pippalimoola, chavya*, *shunthi, yawanika, shwetaandkrishanjirakas*,*haridra, daruharidra*and *sauwarchala* salts cooked with *kaanji* is given as per the digestive power. This preparation apart from galactogogue action is *kaphavatashamaka*,*vrishaya,* increasesappetiteandalso cures *aamavata*, and *makkallashoola*28.

**Table 1**Pharmacological Overview of *Stanyajanana*(Galactogogue)Herbs 29

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sr.**  **no.** | **Dravya** | **Rasa** | **Guna** | **Veerya** | **Vipaka** | **Karma/actions** |
| **1.** | ***Ikshu*** | *Madhura* | *Guru Snigdha* | *Sheeta* | *Madhura* | *Vatapittashamaka, kaphavardhaka, vrishya,*  *balyastanyajanana* |
| **2.** | ***Vidarikand a*** | *Madhura* | *Guru Snigdha* | *Sheeta* | *Madhura* | *Balya, vrishya, brihana, stanyavardhak, rasayan* |
| **3.** | ***Narikela*** | *Madhura* | *Guru Snigdha* | *Sheeta* | *Madhura* | *Pittashamaka, tender fruit pulp is brinhana, balya* |
| **4.** | ***Shatavari*** | *Madhuratikta* | *Guru Snigdha* | *Sheeta* | *Madhura* | *Rasayana, balya, vrishya, medhya* |
| **5.** | ***Shringatak a*** | *MadhuraKashaya* | *Guru Ruksha* | *Sheeta* | *Madhura* | *Vrishya, balya, sara,*  *paushtika,deepana, prajasthapana* |
| **6.** | ***Yashtimad hu*** | *Madhura* | *Guru Snigdha* | *Sheeta* | *Madhura* | *Shothahara, nadibalya,*  *medhya, vatanulomana, rasayana, balya,* |
| **7.** | ***Kasha*** | *MadhuraTiktaKash aya* | *LaghuSnigdha* | *Sheeta* | *Madhura* | *Stanyajanana, vrishya, vajeekarana, pittahara, balya* |
| **8.** | ***Shali*** | *MadhuraKashaya* | *LaghuSnigdha* | *Sheeta* | *Madhura* | *Balya, brinhana, vrishya, ruchya* |
| **9.** | ***Shunthi*** | *Katu* | *LaghuSnigdha* | *Ushna* | *Madhura* | *Shothahara,nadiuttejaka, vatashamaka,, deepana, paachana,vatanulomana, ,*  *prasavottaradaurbalyhar, vrisya* |
| **10.** | ***Pippali*** | *Katu* | *LaghuSnigdha* | *Ushna* | *Madhura* | *Medhya, vatahara,* |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *deepana, raktashodhaka, vrishya, balya,rasayana* | | | | | | |
| **11.** | ***Haritaki*** | *Kashyatikta* | *LaghuRuksha* | *Ushna* | *Madhura* | *Vranashodhana, vranaropana, nadibalya,deepana, pachana,*  *srotah –shodhana,*  *Garbhashayashothahara, rasayana* |
| **12.** | ***Palandu*** | *MadhuraKatu* | *Guru Snigdha Teekshana* | *Ushna* | *Madhura* | *Vatahara, balya, vrishya, agnivardhaka, medhya* |
| **13** | ***Dugdhika*** | *KatuTikta* | *GuruRuksha* | *Ushna* | *Katu* | *Anulomana, krimighna, raktashodhaka, vrishya* |
| **14** | ***Maricha*** | *Katu* | *Laghu,Teeksh na* | *Ushna* | *Katu* | *Deepana, pachana, lekhana, nadibalya,*  *vaatanulomana, srotahshodhana* |
| **15** | ***Hingu*** | *Katu* | *Laghusnigdha, sarateekshna* | *Ushna* | *Katu* | ***V****atahara,deepana,*  *pachana, rochana, vaajeekarana, balya* |
| **16.** | ***Lashuna*** | *Katu,*  *madhuralavana, tiktakashaya* | *Snigdha,teeks*  *hana,picchila, guru, sara* | *Ushna* | *Katu* | *Rasayana, vrishya, balya,*  *medhya, brinhana, pachana* |
| **17** | ***Shwetajeer aka*** | *Katu* | *Laghu,ruksha* | *Ushna* | *Katu* | *Deepana, pachana,*  *vrishya, balya, stanyajanana* |
| **18** | ***Krishna jeeraka*** | *Katu* | *Laghu,ruksha* | *Ushna* | *Katu* | *Deepana, paachana, vatanulomana,*  *stanyajanana, garbhashyashodhaka* |
| **19** | ***Kusha*** | *TiktaMadhura* | *Laghu ,ruksha* | *Sheeta* | *Katu* | *Nadibalya, deepana, pachana, stanyajanana* |
| **20** | ***Veerana***  ***/khus*** | *TiktaMadhura* | *Ruksha,laghu* | *Sheeta* | *Katu* | *Kapha pitta shamaka, deepana, pachana* |
| **21** | ***Yava*** | *KashayaMadhura* | *Ruksha,gurupi chcchila* | *Sheeta* | *Katu* | *Vatakrit, medhya,*  *agnivardhaka, lekhana, balya, vrishya* |
| **22** | ***Vata*** | *Kashaya* | *Guru, ruksha* | *Sheeta* | *Katu* | *Kaphapittashamaka,vedna sthapana, vranaropana, garbhashayashothahara, raktarodhaka* |
| **23** | ***Sura*** | *Amla* | *Guru,teekshna*  *,vyavayi,suksh ma,vikasi,aash*  *ukaari* | *Sheeta* | *\_* | *Stanyapushtikar, medakaphakar, brihman, deepana, grahi* |

From above table it can be interpreted that some drugs are of *sheetaveerya-*

*madhuravipaka*, some *are ushnaveerya- madhura vipaka,* some drugs are *ushan*

*veerya* and *katu vipaka* while few are

*sheetaveerya-katuvipaka*.Most of the drugs

are *dhatupushtikar, balya,deepana- paachana*.

**Table 2** Chemical constituents and actions of herbal galactogogues30

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Herb** | **Part used** | **Botanical name** | **Chemical constituents** | **Actions/uses** |
| ***Shwetajeerak a*** | Fruit | *Cuminumcymi num* | Cuminyl alcohol, 1-8 cineol, D- glucopyranoside | Fruit is aromatic, sweet, astringent, carminative, anti- inflammatory, galactogogue,  tonic, uterine and nervine stimulant |
| ***Krishna jeeraka*** | Fruit | *Carumcarvi* | Volatile oils(45-65% carvone, limonene) fixed oil, resin | Stimulant, carminative |
| ***Vidarikanda*** | Tuber | *Pueraria tuberose* | Carbohydrates 64.6%, proteins 10% | Nutritive, aphrodisiac Galactogogue |
| ***Narikela*** | Fruit | *Cocosnucifera* | Albumin,globulin(kernel protein), prolamine fractions and aminoacids | Antiviral, antibacterial, immunological, antifungal |
| ***Shatavari*** | Root | *Asparagus racemosus* | Protein, saponins, carbohydrates, crude fibre mucilage(glucose galacturonic acid) | Nutritive, tonic, demulcent, galactogogue, aphrodisiac |
| ***Shringataka*** | Fruit( nut) | *Trapanatans* | Arabinogalactan, 1-4 linked galactopyranose, galacturonic acid residues, gallic acid, citric acid, tannin | Fruits are nutritive, sweet, tonic, Galactogogue,  haemostatic, aphrodisiac, tonic |
| ***Yashtimadhu*** | Root | *Glycyrrhizagla bra* | Glycyrrhizine, licoagrone, isoflavones,  liqcomarin, quercetin, isoliquiritin, glycyrrhizic acid | Roots are sweet, refrigerant,  tonic, demulcent, aphrodisiac, haemostatic |
| ***Kasha*** | Root | *Saccharumspo ntaneum* | Protein, calcium, phosphorous, hydrocyanic acid glycosides | Aphrodisiac, Galactogogue, astringent, emollient,  haemostatic and tonic |
| ***Shali*** | Fruit, root | *Oryzasativa* | Seeds contain starch, glucose, dextrin, fructose, galactose, maltose, albumin, alpha beta globulins | Grains are sweet, oleaginous, demulcent, aphrodisiac, carminative,  Galactogogue, tonic |
| ***Shunthi*** | Rhizo me | *Zingiberofficin ale* | Myrecene,limonene,cineole,curcumene, serine,glycine,cysteinevaline | Dried ginger is emollient,  appetizer, aphrodisiac, carminative |
| ***Pippali*** | Fruit, root | *Piper longum* | Alkaloids- piperlongumine and piperlonguminine and two sesquiterpenes(essential oil from dried  fruit), piperine, piplartine, an unidentified steroid, glycosides, sesamin | Root is bitter, thermogenic, tonic, digestive. Dried spikes are aphrodisiac,  carminative, tonic, digestive, emollient and antiseptic |
| ***Veerana***  ***/khus*** | Root | *Vetiveriazizani oides* | Vetivone, vetiverol | Stimulant, aromatic, stomachic |
| ***Haritaki*** | Fruit | *Terminaliache bula* | Anthraquinone glycoside, chebulinic acid,  tannic acid, vitamin C, linoleic, oleic, palmitic and stearic acids | Antimicrobial, antifungal, antibacterial |
| ***Hingu*** | Oleo  -gum- | *Ferula foetida* | Alpha-pinene, monoterpene, myristic  acid, limonene, eugenol, cardinal | Oleo-gum-resin is  antispasmodic, aphrodisiac, |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | resin |  |  | laxative, nervine tonic |
| ***Dugdhika*** | Whol e plant | *Euphorbia thymifolia* | Epitaraxerol, n-hexacosanol, euphorbol | Astringent, bitter, demulcent, aphrodisiac,antihelmintic stimulant |
| ***Maricha*** | Fruit | *Piper nigrum* | Pipercide, piperine, citronellol, cryptone, beta alanine, arginine, serine | Acrid, bitter, carminative, digestive, aphrodisiac |
| ***Kusha*** | Root | *Desmostachya bipinnata* | Volatile oils resins, amino acids calcium salts, iron | Galactogogue |
| ***Yava*** | Seed | *Hordeumvulga re* | Cyanogenic glycoside, butyronitrile, pangamic acid, protein, carbohydrates, calcium, phosphorus, iron | Seeds are astringent, demulcent, emollient,intellect promoting, aphrodisiac, tonic, digestive |
| ***Palandu*** | Bulb | *Allium cepa* | Carbohydrates,Biofavonoids, quercetinmyricetin | Stimulant, aphrodisiac |
| ***Rasona*** | Bulb | *Allium sativum* | Amino acids(Cysteine, histidine, lysine, alanine, arginine) aspartic acid, sulphur, compounds, enzymes | Carminative, stimulant, diuretic |
| ***Vata*** | Stem bark latex aerial  root fruit | *Ficusbengalen sis* | Leucanthocyanin, flavonoids, quercetin- 3-galactoside, rutin, beta- sitosterol | Astringent, styptic ,tonic, anti inflammatory |

Above table clearly shows that most of the herbs are broadly rich in protein, carbohydrates and other essential minerals and are nutritive, tonic, aphrodisiac, carminative, digestive and stimulant.

# DISCUSSION

Galactogogues are medications or substances of herbal or synthetic origin, used to induce, maintain or augment milk production. But synthetic ones have remarkable side effects on mother and infant.Based upon the etiology and *chikitsa* mentioned in *ayurvedic* classics it can be derived that ***Stanyakshaya* and**

***Stanyanaasha* is a condition occurring due to four main factors:**

1. *Rasa dhatukshaya*
2. *Agni mandhyata(jatharagni*and *rasdhatvagnimandhyata)*
3. *Stanavahasrotoavrodha*
4. *Maansikabhava(shokabhaya-avaatsalya)*

## Probable mode of action of different herbal galactogogues according to causative factors can be explained as:

1. **Drugs working on *Rasa dhatukshaya***:
2. *Stanya* is the *upadhatu* of *rasa dhatu*. So *rasa vardhak*a diet and drugs will increase the quantity of *stanya*. Drugs of *madhura*

*rasa*, *sheetaveerya* and *madhuravipaka* are *rasa dhatu* and *stanyavardhaka*.For example milk, *ghrita* , oil, coconut, *shali, shashtika, ikshu*etc.and drugs listed from number 1-8 in table 1

1. Based on a broad ayurvedic principle ‘like begets like,’ intake of milk and milk exuding herbs (*ksheerayukta* plants) are helpful in treating*stanyakshaya.*
2. **Drugs acting on *Agni mandhyata***
3. Further for the proper formation of *dhatu*and *upadhatu*, *agni(jatharagni, rasa dhatvaagni)* should be in equilibrium state. Especially in *sutika* where, there is *dhatukshaya* and *heena*(decreased) *agni* state due to pregnancy and *pravahanavedna*(labour pains /bearing down efforts).
4. Drugs listed in table 1 from 9-12 act on *rasavahi srotas* and *rasagni* by their*ushnaveerya* and *madhuravipaka*. Being *ushna* in *veerya*these are *uttejaka*(stimulant),*agnivardhaka*,*deepana- paachana, srotosodhaka, shothahara,vatanulomaka,* and being *Madhura* in *vipaka* are *vrishya, rasayna, dhatuvardhaka*.
5. **Drugs acting on*Stanavahasrotoavrodha***
6. Drugs listed 13-18 numbers in table 1 are *ushnaveerya* and *katuvipaka*. These are

*srotoshodhaka, agnivardhaka, aampachaka,vaatanulomaka, deepana, paachna,,vrishya, balya,stanyajanana.* These specifically work on*jatharagni*and *rasadhatvaagni*. There by stimulating proper formation of *rasa dhatu* and *upadhatu (stanya).*Also these herbs being *sroto- shodhaka,* clear the obstruction if any, in *stanavahasrotas*and thus ease the process of galactokinesis.All *ushanavirya* and *KatuVipaka* drugs may also have hormone stimulating action.

1. *Sheetaveerya*of drugs19-22 listed in table 1make them *dhatuvardhaka,vrishya, balya,*whereas they are *deepana, paachan* and *agnivardhaka by virtue of katu vipaka.*
2. **Drugs acting on*Maansikabhava***
3. Some of the herbs quoted in *stanyakshayachikitsa* are also *medhya*e.g*shatavari, yashtimadhu, pippali, palandu*, *lashuna, yava*and thus may relieve the deep rooted stress, one of the main cause of *stanyakshaya.*
4. Counselling and meditation along with drugs do play an important role to cure the problem.

## Based upon the chemical constituents of herbs mentioned for the treatment of *stanyanaasha* or *stanyakshaya*, mode of action can be interpreted as:

* 1. Most of the herbs have high nutritive value being rich in carbohydrates, amino acids, albumin,globulin( e.g.*shatavari, shringataka*, *vidarikanda, narikela*), calcium, iron, phosphorous(*yava, kusha*) thereby promote general health.
  2. Some herbs are carminative, stomachic, digestive.
  3. Some herbs are uterine stimulant and may have oxytocic action(*Krishna* and *shwetajeeraka*,*hingu)*
  4. Most of the herbs contain flavonoids and other antioxidants. Their role has been proved as a potent stress reliever and health promoter.*Shatavari* has steroidal saponins. One hypothesis states that phytoestrogenic property results from the hormone like action of these saponins and it has been observed to increase milk secretion in women suffering from hypogalactia. Clinical trials have demonstrated that root powder of *shatavari* increases the prolactin levels and promotes the growth of mammary tissue31.

# CONCLUSION

Galactogogue effect of various plants has been studied and there is evidence that milk synthesis can be increased and that most of them are safe in humans32. Based upon the

above description it can be concluded that herbal galactogogues play a significant role to cure *stanyanaasha* and increase the quantity of breast milk in safer way, after the other modifiable factors related to proper breast feeding technique (including frequency, proper attachment and thoroughness of breast emptying) have been corrected. Further,in addition to enhance the quality and quantity of *stanya*, these herbs can also be used in healthy lactating women to regain the body strength lost during pregnancy and labor.

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