

## **STHANYAJANANA DASHEMANI AND ITS GALACTOGOGUE ACTION - A REVIEW**

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### **ABSTRACT**

The health and nutritional status of an infant and its subsequent growth and development throughout childhood solely depend upon successful feeding right from birth. Breast feeding has both nutritional and non-nutritional benefits. Breastfeeding and its importance has been well established since ancient times.. Insufficient breastmilk production i.e. *sthanyanasa* or *sthanyakshaya* (agalactia and hypogalactia) is a very common issue faced by many mothers. This can be overcome with the possible dietary modifications, changes in daily activities, favourable state of mind and with certain pharmaceutical preparations known as galactagogues. Ayurveda has also explained many galactagogue drugs which can be used safely by a lactating mother. Most important among these is *Sthanyajanana dashemani* explained by *Charaka acharya* which is safe effective and acceptable also. This article aims to have an overall view of pharmacological activities, chemical composition and probable mode of action of these drugs on human lactation. It has been concluded than *sthanyajanana dashemani* drugs in general have action in managing *rasadhathukshaya* which is the main pathology behind *sthanyakshaya*.

**Keywords:** *Ayurveda, Sthanyajanana, galactagogue, breastmilk, sthanya*

### **INTRODUCTION**

Breast milk has been mentioned as the one and only effective food for infants. Ayurveda Acharyas have quoted the importance of breastfeeding in many instances. There have been some controversial opinions regarding time of initiation of breastfeeding as mentioned by various acharyas. *Charaka acharya* has instructed to give breast milk from first day of birth onwards. There are several advantages of breast feeding infants viz, it gives all sufficient nutrients to the baby, enhances immunity, lowers risk of other life style disorders later in life, increases mother and child bonding, enhances myelination in

brain, thus increasing IQ level of the baby. Mother also gains many benefits on breast feeding. Breast-feeding exerts a contraceptive effect on mother by inhibiting ovulation. Also, it helps mother to regain her pre-pregnancy body weight. Lactation failure is a serious issue which can be due to various causes. In case of non initiation by early suckling, counselling and emotional support should be given to mother. Nutritional deficits if any should be corrected with safe and effective methods. Ayurveda helps in offering such safe methods of enhancing breast milk pro-

duction. Pathological conditions if any have to be given specific treatments accordingly.

### **Physiology of lactation**

Mammary gland consists of 15-20 segments converging on the nipple. Each segment consists of clusters of alveoli, collecting sinuses, milk ducts, fat and interstitial tissue. Milk is secreted by the epithelial cells lining the alveoli & is collected in the sinuses. When the infant suckles, nerve impulses reach the posterior pituitary and stimulate it so that the hormone oxytocin is released. Oxytocin acts on the small muscles surrounding the milk producing ducts and helps in the ejection of milk. This is known as 'Let down reflex'. This reflex is sensitive to emotional and psychological factors. Emotionally, confidence can enhance the milk flow, while anxiety can suppress it. Nipple stimulation is not the only way to initiate the let down reflex. The sight or the sound of the baby or even thought of the baby can initiate the reflex and the flow of milk. Sucking is however the best galactogogue.<sup>1</sup> Formation of breast milk has been attributed to *Kapha dosha* and *Rasa dhathu* by Ayurvedic acharyas.<sup>2,3,4</sup> Milk ejection occurs by sight, touch or by mere thought of the infant. Breast milk pacifies *Vata*, *Pitta* and *Raktha* vitiation and can be used in the management of *Rakthapitta* and diseases of eyes involving trauma.<sup>5</sup> *Charaka* has described the features of pure milk to be with normal colour, smell, taste and touch. <sup>6</sup>*Susrutha* describes pure sthanya to be with *Madhura rasa*, *kashaya anurasa*, colour resembling that of conch shell, cold, light, free from impurities and should be miscible in pure water.<sup>7,8</sup> As per *Kashyapa*, child feeding on pure milk will have uninterrupted strength, well developed body parts, longevity, will be free from diseases and also, the child and nursing mother will not be having any pain or difficulties.<sup>9</sup>

### **Major causes for low breast milk production**

Various factors can cause a low milk supply during breast-feeding, such as waiting too long to start breast-feeding, not breast-feeding often enough, supplementing breastfeeding, an ineffective latch

and use of certain medications. Sometimes previous breast surgery affects milk production. Factors such as premature birth, maternal obesity, pregnancy-induced high blood pressure and poorly controlled insulin-dependent diabetes can also affect milk production.<sup>10</sup> *Vaghbhata* has mentioned that emotional factors like anger and grief, lack of affection towards the child can affect lactation. Activities which cause exhaustion, fasting and excessive emaciation of the body also causes of *sthanyanasha* or reduced production of milk.<sup>11</sup> Excessive use of Purificatory therapies, conceiving next child while lactating and some unknown natural causes can also be the causative factors. Intake of dry foods and drinks by the mother can also hamper lactation. Child not receiving proper breastfeeding may show poor weight gain, signs of dehydration (as assessed from the frequency of micturition) and will be deprived of proper sleep and activities.

### **Galactagogues**

Lactation failure due to improper feeding practices can be managed in most cases by proper counselling of mother and also by providing proper emotional, mental and physical support to the mother. However, low milk production has to be frequently addressed by physicians by prescribing pharmaceuticals and other products to enhance milk production, namely galactagogues. Galactagogues may be considered when non-pharmacologic interventions are found to be insufficient. Also, the use of galactagogues should be restricted to patients with a no treatable cause of reduced breast milk production. Galactagogues may be synthetic or plant-derived.

Drugs such as domperidone, metoclopramide, Antipsychotics such as risperidone, chlorpromazine and sulpiride and Certain hormones such as oxytocin, growth hormone (GH), thyrotropin-releasing hormone (TRH), and thyroid-stimulating hormone (TSH) acts a synthetic galactagogues. But it has been proven that all these drugs produce unwanted effects in both mother and baby. The notable side effects in mothers are xerostomia (dry mouth syndrome or hyposalivation),

gastrointestinal disorders, cardiac arrhythmia, lethargy, sedation, extrapyramidal symptoms such as hypertension, tremor, tics, facial seborrhea, and hyperhidrosis, and even sudden death. In infants that ingest milk from treated mothers symptoms include intestinal discomfort, lethargy, and sedation.<sup>12</sup> Hence it has been necessary to look for safer methods, i.e. herbal galactagogues.

As per Ayurveda, breast milk of another lactating mother (*Dhathri* or wet nurse) is the first choice in case if mother is having *sthanyakshaya*. When there is no possibility of providing human milk to baby, cow's milk or goat's milk can be taken as an alternative.<sup>13</sup> Simultaneously, *sthanyakshaya* in mother has to be managed with effective treatment protocols. *Sthanya* is the *upadhathu* of *Rasadhathu* and all those diets and practices which increases *rasadhathu* and *Kaphadosha* has to be followed in case of *sthanyakshaya*. Many galactogogue formulations have been mentioned by various *acharyas*. Dietary modifications should be the first line of management of treating reduced milk production. *Madhura* and *lavana* rasa foods and drinks are indicated for this

purpose. Alcoholic beverages except that made from sugarcane juice, soups made from meat of animals living in marshy areas, milk, plants having latex are to be taken.<sup>14</sup> Pleasant state of mind is also an essential factor.<sup>15</sup>

Different galactogogue preparations have been formulated by our *acharyas*. In Kashyapa samhitha, there is indication of different *kwathas* to enhance milk production. Apart from that it is mentioned that, intake of milk, meat juice and wine are good for increasing milk or milk processed with aphrodisiac drugs also increases breast milk. Use of *ghritha*, oil and enemas is galactogogue.<sup>16</sup> Most significant among the various galactogogue formulations is the *sthanyajanana dashemani* mentioned by *Charakacharya* in *Suthrasthana*.<sup>17</sup>

There are 10 drugs in the formulation which are easily available and has good effect in augmenting lactation. They are: *veerana*, *Sali*, *shashika Sali*, *ikshuvalika*, *darbha*, *kusa*, *kasa*, *gundra*, *itkata* and *kathruna*. It can be safely used by the lactating mother. It can produce better result if taken in the form of *ksheerapaka* and in the dosage of *kwatha*.

**Table 1:** Ayurvedic pharmacological properties and actions of the drugs<sup>18</sup>

<b>Drug</b>	<b>Rasa</b>	<b>Guna</b>	<b>Veerya</b>	<b>Vipaka</b>	<b>Karma</b>
<i>Veerana</i>	<i>Tiktha, Madhura</i>	<i>Laghu, Snigdha</i>	<i>Seetha</i>	<i>Madhura</i>	<i>Vatashamaka, Pithashamaka, pachana, sthambhana, Sthanyajanana, dahaklanthihara</i>
<i>Sali and Shashikasali (a variety of Sali)</i>	<i>Madhura, Kashaya</i>	<i>Snigdha, guru</i>	<i>seetha</i>	<i>madhura</i>	<i>Tridosahara, sukrala, badhalpavarchasa, brimhana, muthrala, balya, varnakrit, swarya, ruchya, chakshushya, hridya, sthanyajanana</i>
<i>Ikshuvalika</i>	<i>Madhura, amla, tiktha</i>	<i>Pichila, snidgha</i>	<i>seetha</i>	<i>madhura</i>	<i>Vatapittahara, balya, sukrasodhana, sthanyajanana</i>
<i>Darbha</i>	<i>Madhura, Kashaya</i>	<i>Laghu, Snigdha</i>	<i>seetha</i>	<i>madhura</i>	<i>Tridosahara, rasayana, muthravirechaniya, sthanyajanana, pipasahara, kushtaghma, dahaprasamana, vamaka</i>
<i>kusha</i>	<i>Madhura, kashaya</i>	<i>Laghu, snigdha</i>	<i>seetha</i>	<i>madhura</i>	<i>Kaphapittahara, muthrala, sthanyajanana</i>
<i>kasha</i>	<i>Madhura, tiktha</i>	<i>sara</i>	<i>seetha</i>	<i>madhura</i>	<i>Vatapittahara, balya, vrishya, sramahara, ruchya</i>
<i>Gundra</i>	<i>Kashaya, madhura</i>	<i>guru</i>	<i>seetha</i>	<i>madhura</i>	<i>Vatapitta samaka, sthanyasodhaka, sthanyajanana, sukrasodhaka, rajasodhaka,</i>

					<i>muthravirechaniya, muthra sodhaka</i>
<i>Ithkata</i>	<i>madhura</i>	<i>Snigdha, guru</i>	<i>seetha</i>	<i>madhura</i>	<i>Vatapittahara, muthravirechaniya, sthanyajanana</i>
<i>Kathruna</i>	<i>Katu, tiktha</i>	<i>Theekshna, laghu, rooksha</i>	<i>ushna</i>	<i>katu</i>	<i>Vatakaphahara, seethaprasamana, deepana, pachana rechana, vishghna, mukhasodhana, chakshushya, ruchya, vamihara, sthanyajanana</i>

**Table 2:** Chemical constituents and pharmacological actions

Drug	Botanical name and family	Part used	Chemical constituents	Pharmacological actions/benefits
<i>Veerana</i>	<i>Vetiveria zizanioides, Poaceae</i>	Root	Essential oil containing chemical constituents like Benzoic acid, Furfural, valencene etc. <sup>19</sup>	antibacterial, antifungal, anticataleptic, analgesic and anti-inflammatory, Rheumatism, anti oxidant and anti arthritic
<i>Sali and Shashthika (a variety of Sali)</i>	<i>Oryza sativa, Poacea</i>	Grains, polishings, roots, rizomes	Vitamin B, fibre, proteins, carbohydrates, fatty acids, antioxidants, flavanoids. <sup>20</sup>	Anti-inflammatory, immunostimulatory, regulates hypercholesterolemia, chemoprotective, antioxidant
<i>Ikshuvalika</i>	<i>Hygrophilla longifolia, Acanthaceae</i>	Roots, leaves, seeds	phytosterols, fatty acids, minerals, polyphenols, proanthocyanins, mucilage, alkaloids, enzymes, amino acids, carbohydrates, hydrocarbons, flavonoids, terpenoids, vitamins, and glycosides. <sup>21</sup>	antitumor, hypoglycemic, aphrodisiac, antibacterial, free radical scavenging and lipid peroxidation, hepatoprotective and haematoopoietic
<i>Darbha</i>	<i>Imperata cylindrica, Poaceae</i>	Whole plant	Phenylpropanoids, organic acids, phenolic compounds, triterpines, coumarins. <sup>22</sup>	Anti-inflammatory, antitumour, diuretic, anti diarrhoeal, antiviral, antihepatotoxic, anti-hypertensive, antihistamine and larvicidal activity
<i>Kusha</i>	<i>Desmostachya bipinnata, Poaceae</i>	Whole plant	Coumarins, carbohydrates, sugars, proteins, alkaloids, tannins, phenolics, flavonoids, triterpenoids, amino acids and glycosides. <sup>23</sup>	antimicrobial, antiinflammatory, analgesic, antipyretic, gastrointestinal, anticancer, diuretic, anti - urolithiatic, antioxidant, hepatoprotective, antidiabetic, bronchodilation and antihistaminic effects.
<i>Kasha</i>	<i>Saccharum spontaneum, Poaceae</i>	Roots, stem	Lignin, reducing sugar, proteins, aminoacids, oxidising enzymes, polyphenolic compounds, alkaloids, tannins. <sup>24</sup>	CNS depressant, antidiarrhoeal, cardioprotective, antioxidant, anti-obesity, anti microbial
<i>Gundra</i>	<i>Typha australis,</i>	Rhizomes, leaves	Steroids, fatty acids, polysaccharides, flavanoids,	Antioxidant, diuretic

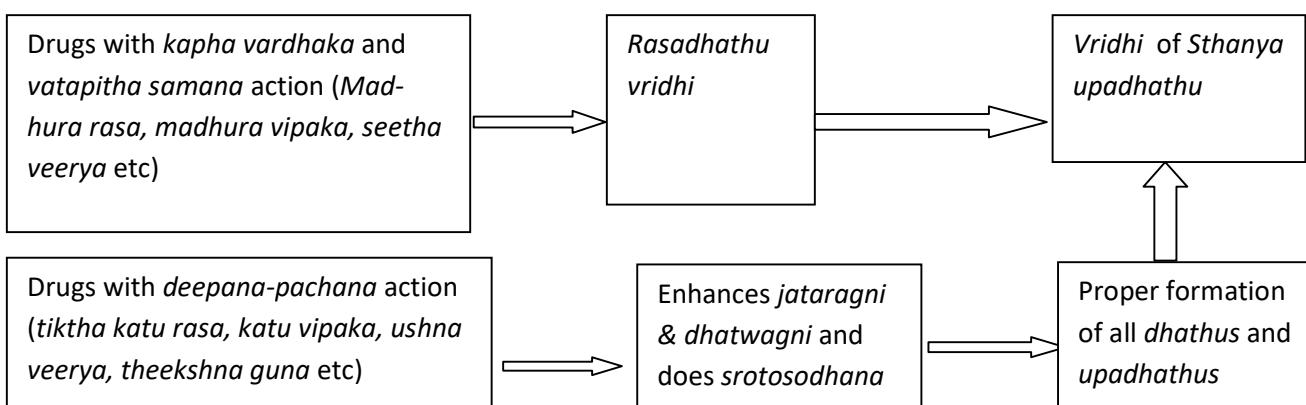
	Typhaceae		amino acids <sup>25</sup>	
<i>Ithkata</i>	Sesbania bispinosa, Fabaceae	Leaves, flowers and seeds	Proteins, Nitrogen, fibre, minerals like iron and calcium, beta carotene, essential amino acids. <sup>26</sup>	Antihelminthic, antiinflammatory, antibacterial, anti tumour, antidiabetic
<i>Kathruna</i>	Cymbopogon citratus, Poaceae	leaves	Proteins, carbohydrate, fibre, alkaloids, saponins, tannins, anthraquinones, steroids, phenols flavanoids. <sup>27</sup>	Anti-microbial, anti-oxidant, anti-diarrheal, anti-mutagenic, hepatoprotective, anti-inflammatory, anti-nociceptive

## DISCUSSION

Study of literature concerned about the Ayurvedic pharmacological principles of these drugs showed that most of the drugs possess attributes like *madhura rasa*, *madhura vipaka* and *seetha veerya*. These properties makes the drugs *Kapha vadhaka*, which is essential in the management of *Rasadhathukshaya*, the prime factor behind *sthanyakshaya*. Ayurveda principles indicate that the drugs possessing physical qualities and pharmacological attributes similar to body elements or tissues are responsible for growth, development or augmentation of respective components of the body (*sarvada sarva bhavanam samanyamvridhi karanam*, *Samanyam ekatvakaram*, *tulyarthata samanyam*) these drugs have attributes which are analogous to that of breastmilk. Most of the plants belong to *Thrinavarga* and also some latex secreting plants which enhances sthanya production. The last drug in the *dashemani* is having *rooksha, theekshna* and *laghu guna*, *katu tiktha rasa*, *katu vipaka* and *ushna*

*veerya*. These properties help it to act as a good *deepana pachana dravya*. Proper functioning of *agni* – both *jataragni* and *dhatwagni* is essential for proper formation of *dhatus* and *upadhathus*. It also removes obstruction if any in the *sthanyavaha srothas*. In this way the drug contributes in enhancing breast milk production.

While considering pharmacological actions (*karma*), most drugs pacify *vata* and *pitta dushti* and thus promote proper nourishment of all *dhatus*. Most of them have *deepana* and *pachana* action which helps in proper metabolism and assimilation of metabolites so that the quality as well as quantity of breast milk can be ensured. Besides that *brimhana*, *balya* and *sthanyajanana* properties in specific, makes the drugs to have more nourishing action on the body. Certain metabolites of the drugs make them good galactagogues. Alkaloids, polyphenols, proteins, reducing sugars, isoflavones etc helps in enhancing milk production as well as in improving quality of milk.



## CONCLUSION

Keeping in view of the importance of breast feeding, many steps are being taken worldwide and nationwide to promote breast feeding. Also, steps are taken to enhance quality as well as quantity of breast milk. Various such methods are mentioned in Ayurvedic texts. Drugs included in *Sthanyajanana dashemani* has been reviewed thoroughly and it has been evidenced that the drugs have pharmacological properties and actions which makes them effective galactagogues and acts by managing *rasadhathukshaya*. The drugs can be used safely in lactating mothers. Also, it helps the mother to attain stability of *dhatu*s which is usually affected during pregnancy and labor. Systematic studies are to be conducted on preclinical and clinical basis so that the efficacy of these drugs can be proved. In this era of modern life style, where breast milk production has been affected qualitatively and quantitatively, such practices can be of great blessing, ones the formulation and dosage have been effectively fixed.

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