New Perspectives of *Ksheerabala Taila* (oil): A Critical Review.

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**ABSTRACT**

*Ksheerabala Taila* is an important *Sneha Kalpana* (oil formulation) mentioned in Ayurveda texts prepared from Go-Ksheera (cow milk), Bala (*Sida cordifolia*) and Tila Taila (sesame oil). Cow's milk contains all the elements necessary for the growth and nutrition of bones, nerves, muscles and other tissues of the human body. *Bala* is a highly valuable drug in Ayurveda and is one amongst the three most utilized raw drugs. It is abundantly mentioned in Ayurveda and has been largely used in neurological as well as heart diseases and reported to possess analgesic, anti-inflammatory as well as hepato-protective activity. *Tila Taila* nourishes and strengthens all *Dhatu*, checks *Dhatukshaya* and thus alleviates *Vata*. The presence of Go-Ksheera, Bala and *Tila Taila* makes *Ksheerabala Taila* to pacify all the eighty chronic conditions of *Vata* origin (*Vata Nanatamja Vikara*) such as *Ardita* (~facial paralysis), *Katishula* (~low back ache), *Katigraha* (~gridhrasi, sciatica), *Sandhigata Vata* (~osteoarthritis), *Greeva Hundana* (~cervical spondylosis), cerebral palsy, *Ardhangavata* (~hemiplegia), *Kampavata* (~parkinson’s disease), convulsions and other neurological disorders. It is widely used oil in various Panchakarma therapies like *Snehana, Kavala, Talam, Matra Basti, Nasya, Shirobasti* and other methods of *Moordhini Taila*. Different methods of preparation are described in many texts and various studies have been done to compare the efficacy of *Ksheerabala Taila*. Pharmaceutico-Analytical study of *Trividha Sneha Paka* of *Ksheerabala Taila* shows *Madhayama Paka Ksheerabala Taila* having maximum therapeutic value. The present article reviews different studies on *Ksheerabala Taila* with description of various methods of preparations mentioned in Ayurveda texts, its uses in different forms in diseases and probable scientific mode of action.

**Keywords:** *Ksheerabala Taila; Neurological disorders; Sesame oil; Sida cordifolia*

**INTRODUCTION**

One of the most popular and important oil formulations in Ayurveda is “*Ksheerabala Taila*” (oil) known for its effectiveness in various diseases such as *Ardita* (~facial paralysis), *Katishula* (~low back ache), *Katigraha* (~gridhrasi, sciatica), *Sandhigata Vata* (~osteoarthritis), *Greeva Hundana* (~cervical spondylosis), cerebral palsy, *Ardhangavata* (~hemiplegia), *Kampavata* (~parkinson’s disease), convulsions and other neurological disorders (including degenerative disorders). The name *Ksheerabala Taila* was first mentioned in *Sahasrayogam* and similar formulations has been mentioned in other classical Ayurveda texts with some different names. In
CHARAKA SAMHITA, it is mentioned as Shata Paka and Sahasra Paka Bala Taila. SUSHRUTA mentioned it as Bala Taila and Shata Paka Bala Taila [Sushruta Samhita, Chikitsasthana, chapter 15, verse 40-43].

In Ashtanga Hridaya and Bhavaprakasha it is mentioned as Shata Paka- Sahasra Paka Bala Taila. CHAKRADUTTA, VANGASENA (mentioned Dashapaka Bala Taila, Shata Paka-Shasra Paka Bala Taila) and GADANIGRAH quoted it as Dashapaka Bala Taila. National Ayurvedic formulary of India and pharmacopoeia standards of Ayurvedic formulations have adopted the formula of Charaka and named as Ksheerabala Taila. The rationale behind the study is to compile the different methods of preparation of Ksheerabala Taila mentioned in Ayurveda classics and to review the uses of Ksheerabala Taila as new perspectives in human health.

METHODS

METHOD OF PREPARATION OF KSHEERABALA TAILA
It is one of the Sneha Kalpana (oil preparation) prepared using Ksheera (cow milk), Bala (Sida cordifolia Linn.) and Taila (sesame oil).

METHOD OF PREPARATION OF KSHEERABALA TAILA AS MENTIONED IN SAHASRAYOGAM
The method of preparation of Ksheerabala Taila is mentioned in Sahasrayogam, Taila Adhikara. Grind 5 Pala (240 grams) fresh roots of Bala plant and mix it in Go-Ksheera (Q.S.) to make Kalka (paste). Take this prepared Bala Moola Kalka and mix it in Go-Ksheera (4 parts or 960 g) and sesame oil (1 Prashta or 768 ml). Boil the mixture and then simmer (heat on low flame 70-80°C) the mixture until oil remains. The mixture is then allowed to cool. The prepared mixture is then filtered to obtain the Ksheerabala Taila.

METHOD OF PREPARATION OF SHATAPAKA AND SAHASRPAKBA BALA TAILA IN CHARAKA SAMHITA AND ASTANGA HIRIDAYA
Paste is prepared from 960 g of Bala Moola powder. Then, a decoction of Bala Moola is prepared by taking 61.44 kg water and reduce to 1/4th i.e. 15.36 kg. 960 g sesame oil and 960 g of cow milk is added to the mixture. The mixture is heated on simmer until oil remains and water gets evaporated. The mixture is allowed to cool and filtered to obtain Ksheerabala Taila. This process is repeated for 100 times and 1000 times to get Shata Paka Bala Taila and Sahasra Paka Bala Taila respectively.

METHOD OF PREPARATION OF BALA TAILA AND SHATPAKA BALA TAILA IN SUSHRUTA SAMHITA

i. **BALA TAILA**
The mixture of Kwatha [Table 1], Tila Taila and Kalika of Madhura Gana Dravya, Kakolayadi Gana Dravya, Saindhaba Lavana, Agaru, Raala, Dhoop Vriksha, Devdaru, Manjistha, Charila, Chandana, Kootha, Ilaichi, Tagara, Jatamansi, Tejpatra, Sariva, Vacha, Shatavari, Punarnava (taken in equal parts) is heated together to form Bala Taila according to Taila Paka procedure.

ii. **SHATPAKA BALA TAILA**
Tila is processed (7 times) with Bala Kwatha (prepared with equal quantity of Balamoolo as that of Tila mixed with 8 parts of water and 1/8th part remains) and oil is extracted from this processed Tila. The obtained Tila Taila is then processed in Bala Kwatha (4 parts) for 100 times. Thus the formed oil is Shatapaka Bala Taila.

METHOD OF PREPARATION OF BALA TAILA AS PER SHARANGADHARA SAMHITA
Ingredients of Bala Taila as per Sharangadhara Samhita are shown in [Table 2]. The process adopted for the preparation of Bala Taila by Sharangadhara is same as that of Sushruta.

METHOD OF PREPARATION OF DASHAPAKA BALA TAILA AS PER CHAKRADATTA
(Vataraka Chikitsa, Chapter 23/33-34)
In this method, Tila Taila is processed 10 times with Go-Ksheera (4 parts) mixed with Bala Moola Kalka (1 part) and Bala Moola Kwatha (1 part) to form Dasha Paka Bala Taila.
From the above studies about *Ksheerabala Taila* it has been found that there are four types of *Ksheerabala Taila* mentioned by different authors by giving different names. All these are mentioned in *Vatarakta Adhikara* except *Sushruta* who mentioned in context of *Moodgarbha Chikitsa*. Regarding their formula and method of preparation there is little difference in above types. The differences [Table 3] are found in:

1. Addition of decoction.
2. Amount of milk added.
3. Number of repetitions of Paka (Avartana)

The therapeutic utility of *Ksheerabala Taila* can be described on the basis of *Trividha Paka [Sharangadhara Samhita, Madhyama Khanda, Chapter 9] (three types of Sneha Paka, types of stages in the preparation of Ghrita or oil)*. These three Paka namely *Mridu Paka, Madhyama Paka* and *Khara Paka* highlights the importance of pharmaceutical aspect of this formulation. Different studies have been conducted on standardization of *Ksheerabala Taila* [10, 11]. Pharmaceutical-Analytical study of *Trividha Sneha Paka of Ksheerabala Taila* [12] shows that *Madhyama Paka Ksheerabala Taila* has maximum therapeutic value.

### PROPERTIES OF MAIN INGREDIENTS OF *KSHEERABALA TAILA.*

**GO-KSHEERA**


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**Table 1. Ingredients of Bala Taila**

<table>
<thead>
<tr>
<th>Dravya (Ingredients)</th>
<th>Matra (Quantity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bala Moola Kwatha, Dashmoolaswa, Kwatha, Kwatha of Ber (Zizyphus mauritiana), Jau (Hordeum vulgare) and Kulthi (Horse gram, Macrotyloma uniflorum), Go-Ksheera</td>
<td>8 parts</td>
</tr>
<tr>
<td>Tila Taila (sesame oil)</td>
<td>1 part</td>
</tr>
</tbody>
</table>

**Table 2. Ingredients of Bala Taila as Per Sharangadhara Samhita.**

<table>
<thead>
<tr>
<th>Dravya (Ingredients)</th>
<th>Matra (Quantity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bala Moola Kwatha</td>
<td>8 parts (8 Ser)</td>
</tr>
<tr>
<td>Dashmoolaswa Kwatha</td>
<td>8 parts (8 Ser)</td>
</tr>
<tr>
<td>Kwatha of Ber (Ziziphus mauritiana), Jau (Hordeum vulgare) and Kulthi (Horse gram, Macrotyloma uniflorum)</td>
<td>8 parts (8 Ser)</td>
</tr>
<tr>
<td>Go-Ksheera</td>
<td>8 parts (8 Ser)</td>
</tr>
<tr>
<td>Tila Taila</td>
<td>1 part (1 Ser)</td>
</tr>
<tr>
<td>Kalka of Jeevniye Gana Dravya, Kakoli, Ksheerkakoli, Meda-Mahameda, Jeevaka, Rishbhaka, Jivanti, Multhei, Mughdarni, Mashparni, Shatatvari, Devedaru, Manjeetha, Kutha, Shailair, Tagara, Agara, Saindhava Lavana, Vacha, Punarnava, Jatamansi, Anantmoola, Shyamalata, Patraka, Saunf, Ashwagandha and Ilaichi</td>
<td>Equal part</td>
</tr>
</tbody>
</table>
Table 3. Showing the difference between the methods of preparation of Ksheerabala Taila.

<table>
<thead>
<tr>
<th>Ksheerabala Taila</th>
<th>Shatapaka- Sahasra Paka Bala Taila</th>
<th>Bala Taila and Shata Paka Ksheerabala Taila</th>
<th>Dasha Paka Ksheerabala Taila</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is mentioned in Sahasrayogam. Formula contains a single drug for Kalka. Milk is used as Drava Dravya. No Kwatha is mentioned.</td>
<td>It is mentioned in Charaka Samhita, Ashtanga Hridaya, Bhavprakash as Shata Paka – Sahasra Paka Bala Taila. The preparation contains a single drug for Kwatha (decoction) and Kalka (paste). Milk and decoction are added in equal amounts. If the processing repeated 100 times then Shata Paka Ksheerabala Taila and 1000 times Sahasra Paka Ksheerabala Taila.</td>
<td>It is mentioned in Sushruta Samhita. The recipe contains a single drug for decoction. Kalka Dravya is not mentioned. But Dalhana mentioned the Kalka Dravya.</td>
<td>It is mentioned in Chakradatta, Vangasena, Gadanigraha and Bhavaprakasha. It contains only one drug for Kwatha and Kalka. Amount of milk is added four times to oil. The preparation is repeated for 10 times hence it is called Dasha Paka Bala Taila.</td>
</tr>
</tbody>
</table>

**BALA**

Bala is a highly valuable drug in Ayurveda and the fact that it is one amongst the three most utilized raw drugs by Ayurvedic pharmacetics. Presently many species of Sida are recognized as Bala throughout the country. *Sida cordifolia* Linn. is proposed as source plant in Ayurvedic Formulary of India. Bala, as the name itself suggests a drug providing energy or strength. It is abundantly mentioned in Ayurveda and has been largely used in neurological as well as heart diseases. *Sida cordifolia* contains alkaloids to extent of 0.085 per cent. The main portion of the alkaloid is identified to be ephedrine by virtue of which it possesses psycho-stimulant properties on CNS. It is kept among Balya Mahakashaya [Charaka Samhita, Sutrasthana, chapter 4, verse 7] and Madhura Skandha [Charaka Samhita, Vimanasthana, chapter 8, verse 139] by Charaka. Sushruta has kept it among Vatashamaka Gana, hence it is best for promoting strength and alleviating Vata. The root possesses Madhura Rasa, Guru, Snigdha Guna, Sheeta Veerya and Madhura Vipaka. It is Balya, Rasayan, Brimhania, Oojavardhaka, Raktapittahara, Vrishya, Vatahara, Kshayanashaka, Prajastapana, Grahi. It is useful in neurological disorders like hemiplegia, facial paralysis, sciatica, general debility, headache, dysuria, leucorrhoea, tuberculosis, diabetes, fever and uterine disorders. *Sida cordifolia* has been reported to possess analgesic, anti-inflammatory as well as hepatoprotective activity.

**TILA TAILA (SESAME OIL)**

Tila Taila is oil extracted from the seeds of *Sesamum indicum*. Sesame oil contains a crystalline substance sesamin and phenol compound sesamol. Sesame oil is used as a base for oil preparation. Tila Taila is Madhura Rasa and Vipaka, Balya and Rasayana in Karma; it nourishes and strengthens all Dhatu, checks Dhatukshaya and thus alleviates Vata. Snigdha and Guru Guna decreases Rukshata of Vata and with the help of Ushna Guna and Veerya it alleviates Vata. Tila Taila is Brimhana/ Lekhana, Preenana, Vrushya, Tvakprasadana, Mardavakara, Shairvyakara, Balya, Garbhshayam Shodhaka, Bhagna Sandhanakara, Medhavardhaka, Keshya, Shulaprashamana, Ropaka, Vrana-Nashaka. It provides lipophilic base to Nasya drug which helps in its better absorption as lipid soluble substances have greater affinity through cell membrane of nasal mucosa. It also possesses anti-inflammatory and antioxidant properties. Moreover Tila is a good source of Vitamin E (1.4mg/100g) and other ingredients like magnesium, copper, calcium, iron, zinc and Vitamin B₁₂, are reported to have beneficial effects in dysmenorrhoea.
DISCUSSION

The probable mode of action of *Ksheerabala Taila* could be analyzed by its *Rasa Panchaka*. All the three ingredients *Bala*, *Ksheera* and *Tila Taila* possess *Madhura Rasa* and *Vipaka*. *Madhura Rasa* mitigates both *Vata* and *Pitta Dosha*. It is *DhatuanaaPrabalam* (strength to the tissue) and is good for sense organs and pleasing to mind (*ShadindriyaPrasadaka*). It nourishes the body (*Tarpayati*) and plays a major role in promoting life (*Jeevayati*). *Tila Taila* possesses *Tikta Rasa* (bitter taste), the most effective in mitigating *Pitta Dosha* and *Kapha Dosha* in addition to *Madhura Rasa*. *Tika Rasa* is effective in relieving fainting (*Murchaprasamana*) and promotes memory and intellect (*Medhya*). *Ushna Veerya* (of heating virtue) of *Tila Taila* reduces the *Vata* and *Kapha*. Since it has gone through processing by *Sheeta Veerya* drugs like *Bala* and *Ksheera*, its *Ushnatva* may get altered. *Vata* and *Kapha* are alleviated without agitating *Pitta* which is also *Ushna*. Thus, *Ushna Gunas* of *Ksheerabala* acts without having adverse on *Dhatu*. This clears the channels, thereby allowing the action of the properties like *Snigdha*, *Manda*, *Sukshma* and *Vyavayi*. *Ksheerabala Taila* is said to have pacifying effects on all the eighty chronic conditions of *Vata* origin (*Vata Nanatamja Vikara*) such as *Akshepaka* (~convulsions), *Vepathu* (~tremors), *Shrama* (~fatigue), *Glani* (~malaise), *Vishada* (~depression), *Aswapna* (~insomnia) and *Anavasthitachitata* (~behavioral disorders)~. *Ksheerabala Taila* is being utilized as a *Rasayana* drug in conventional *Ayurveda* treatment for epilepsy. The continuous administration of this formulation prevents the release of abrupt electric discharges and improves the physical and mental condition of the patient. It has profound soothing and relaxing effect on mind~. Recent research has showed that it reduces the oxidative stress in rat brain and hence proven effect on neurotoxicity~. The oxidative stress is the most important mechanism in the development and progression of epilepsy and other diseases including Alzheimer’s disease, chronic degenerative disorders, stroke, rheumatoid arthritis, diabetes and cancer. The presence of flavonoids in *Sida cordifolia* has been confirmed by phytochemical analysis and these as well as their glycosides exert anxiolytic, sedative and anticonvulsant effects on the central nervous system~. The presence of antioxidants prevents the possible damage of neurons. The anti-inflammatory activity of *Trividha Paka* of *Ksheerabala Taila* against carrageenan induced acute inflammation and edema was compared to the standard anti-inflammatory drug, Diclofenac. Significant anti-inflammatory activity with late onset was observed in the *Mridu* and *Madhyama Paka* of *Ksheerabala Taila*.~ The Nasya with *Ksheerabala Taila* suppresses nerve inflammation due to its *Sheeta* property and promotes nerve regeneration and gives strength to muscles due to its *Balya* and *Brihmana* properties of drug present in it. It precludes wear and tear of nervous and muscular tissue. Another similar study shows that *Ksheerabala* (101) significantly protects brain cells and reduces the severity of damage caused by alcohol intoxication~. *Nasya* with *Ksheerabala Taila* in case of *Sandhigata Vata* with special reference to cervical spondylosis shows highly significant results~. *Shirobasti* with *Ksheerabala Taila* along and *Navana Nasya* with *Mahamasha Taila* are found to be effective in the management of *Arda* (facial paralysis)~. *Snehana Karma* with *Ksheerabala Taila* nourishes the *Sleshaka Kapha* stimulate the sensory nerve endings and provide strength to the facial muscles~ [Charaka Samhita, Sutrasthana, chapter 14, verse 20-24]. *Moordha Taila* with *Ksheerabala Taila* when applied on the head, produces clarity of the sense organs, confers strength to the voice, lower jaw and head. It serves to rejuvenate the body and eliminate mental exhaustion~. *Ksheerabala Taila Matra Basti*~ and *Parisheka Sweda*~ has a role in the management of *Katigraha* (lumbar spondylosis). *Ksheerabala Taila* is used for the purpose of *Anuvasana Basti*. *Panchatikta Ksheera Basti* and *Anuvasana Basti* with *Ksheerabala Taila* as per *Yog Basti* regime are found significant in case of *Greeva Hundana* (cervical spondylosis).~ *Ksheerabala Taila Basti* is one among the treatment protocol in the management of childhood *Karshya* (undernutrition).~ *Ksheerabala Taila Matra Basti* has effect in children with cerebral palsy~. *Talam* with *Ksheerabala Taila* is one of the complementary treatment protocols for *Diabetic Retinopathy*.~ *Kavala* (gargling) with *Ksheerabala Taila* (10-15 ml) along with other therapies is found effective in the management of *Oral Submucous Fibrosis*~ (OSMF). *Virechana* (therapeutic purgative), *Tarpana* (ocular therapy used to treat eye disorders) and *Nasya* (errhine therapy with *Ksheerabala Taila*) can be adopted as a line of treatment for Stargardt’s Disease~. *Ksheerabala Taila Matra Basti*~
helps to prevent recurrence of dysmenorrhea\textsuperscript{30}. Shirobasti and Nasya with Ksheerabala Taila show improvement in patients of Kampavata (parkinson’s disease) \textsuperscript{40,41}.

**CONCLUSIONS**

Different methods of preparation are described in many texts and numerous studies have been conducted regarding the clinical efficacy of Ksheerabala Taila. Pharmaceutico-Analytical study of Trividha Sneha Paka of Ksheerabala Taila shows Madhayama Paka Ksheerabala Taila having maximum therapeutic efficacy. The presence of Go-Ksheera, Bala and Tila Taila makes Ksheerabala Taila to pacify all the eighty chronic conditions of Vata origin. It is widely used oil in various Panchakarma therapies like Snehana, Kavala, Talam, Matra Basti, Nasya, Shirobasti and other methods of Moordhini Taila. Ksheerabala Taila is an important oil formulation and there is a need to conduct more scientific studies on Ksheerabala Taila in order to prove its efficacy on various neurological disorders.

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