



REVIEW OF RASASHALEEYA YANTRA W.S.R. "SWEDANA KARMA"

¹*Dr. Hrishikesh K. Upadhyay, ²Prof. (Dr.) L. B. Singh, ³Prof. (Dr.) U. U. Zala, ⁴Dr. B. L. Umrethia, ⁵Dr. B. D. Kalsariya and ⁶Prof. (Dr.) P. U. Vaishnav

¹³rd year MD (Ayu) scholar, Department of Rasashastra and Bhaishajya Kalpana, J. S. Ayurved College, Nadiad.

²Director-Pharmacy, Department of Rasashastra and Bhaishajya Kalpana, J. S. Ayurved College, Nadiad.

³Professor, Department of Rasashastra and Bhaishajya Kalpana, J. S. Ayurved College, Nadiad.

^{4,5}Reader, Department of Rasashastra and Bhaishajya Kalpana, J. S. Ayurved College, Nadiad.

⁶Principal and Head, Department of Rasashastra and Bhaishajya Kalpana, J. S. Ayurved College, Nadiad.

***Corresponding Author: Dr. Hrishikesh K. Upadhyay**

³rd year MD (Ayu) scholar, Department of Rasashastra and Bhaishajya Kalpana, J. S. Ayurved College, Nadiad.

Article Received on 19/03/2018

Article Revised on 09/04/2018

Article Accepted on 30/04/2018

ABSTRACT

Rasashastra and *Bhaishajya Kalpana* is the branch dealing with the manufacturing of different formulations and for that many types of instruments are mentioned in *Ayurvedic* classics i.e. *Yantra*, *Moosha*, *Koshthi* etc. Most of the instruments which are directly or indirectly involve in the manufacturing of formulations are included in the *Yantra* category by ancient *Acharya*. These *Yantra* are having specific principle like *Swedana*, *Mardana*, *Patana*, *Kuttana*, *Jarana*, *Dhalana*, *Dhmapana*, *Pachana*, *Peshana*, *Shodhana*, *Sandhana* etc. for specific use. Importance and utility of *Yantra* becomes clearer when they are studied in classified manner with their respective *Karma*. In present study "*Swedana Karma*" is taken into consideration to understand underling *Yantra* for more bonafied clarity.

KEYWORDS: *Yantra*, *Swedana Karma*.

INTRODUCTION

Word *Yantra* is derived from root word "*Yam*". Verbal meaning of *Yam* is the controller or regulator.^[1] This means an apparatus or instrument for holding, maintaining or fastening the process. *Yantra* word stands for various meanings as per different fields of subjects. Here for the present concerned, meaning is taken as, "Instruments used for medicine preparation".

Author of *Rasaratnasamuchchaya* has defined *Yantra* as, by which *Swedadi Karma* are performed and *Parada* is controlled is called as *Yantra*.^[2] *Acharya* have described different *Yantra*, which are based upon specific *Karma*. When *Yantra* are studied with their respective *Karma*, we can understand them clearly. Among all the *Karma*, *Swedana Karma* stands first while performing *Ashta Samskara* of *Parada*, which itself shows its importance.

IMPORTANCE OF PRESENT STUDY

When *Swedana* process is performed as *Samskara* of *Parada*, it purifies *Parada* by *Shithilikarana* of underlying impurities.^[3] Same process is useful for purification of substances like *Somala*, *Shankha*, *Shukti* etc. and also useful for extraction of *Swarasa* from the substances like *Vasa Patra*, *Nirgundi Patra* etc. It makes *Dravya Swinna*, *Shithila* and allows *Swarasa* to get release easily. This process has very wide use in

pharmaceutical science and there is wide range of instruments which solve this purpose but very few are in use. Hence, an attempt is made to enlighten *Yantra* of its class.

AIM AND OBJECTIVES

1. To develop better understanding regarding *Yantra*.
2. To review *Rasashaleeya Yantra*, designed on the basis of "*Swedana Karma*".

MATERIAL AND METHODS

Swedadi Karma includes *Swedana*, *Mardana*, *Utthapana*, *Patana*, *Achushana*, *Avapa*, *Ekatrikarana*, *Kuttana*, *Grahana*, *Chalana*, *Jarana*, *Dhalana*, *Tadana*, *Dravana*, *Dhupana*, *Dhmapana*, *Nirgamana*, *Nigrahana*, *Niyantrana*, *Nirvapa*, *Nirvahana*, *Parishrutikarana*, *Pachana*, *Peedana*, *Pruthakkarana*, *Peshana*, *Prakshalana*, *Bandhana*, *Mrudukarana*, *Rakshana*, *Shodhana*, *Shoshana*, *Sanghata*, *Sandhana*, *Sechana*, *Sthapana* etc.^[4]

Acharya have developed many instruments to apply specific action on material. Some of them are entirely dedicated for *Swedana* purpose and some conveys more than one purpose. *Yantra* which are having capacity to do *Swedana Karma* are enlisted in below mentioned table.

Table No. 1: Showing different Yantra used for performing Swedana Karma.

Yantra	Karma	Reference
Ghata	Swedana, Utthapana, Prakshalana, Rakshana, Shodhana, Sandhana, Sthapana	R.C., ^[5] A.K., ^[6] R.R.S. ^[7]
Swedana/ Swedani/ Kanduka/ Kundaka	Swedana	R.C. ^[8] R.R.S., ^[9] A.K. ^[10]
Kunda/ Kanduka Yantra Bheda	Swedana	R.C., ^[11] R.R.S. ^[12]
Dola/ Dulli-Stambham	Swedana, Ekatrikarana, Pachana, Shodhana, Sanghata	R.M., ^[13] R.S., ^[14] R.C., ^[15] A.K., ^[16] R.R.S., ^[17] R.T. ^[18]
Ushma	Swedana	R.S. ^[19]
Swarasa	Swedana	R.S. ^[20]
Bashpa Swedana Yantra	Swedana, Shoshana	R.T. ^[21]
Valabhi/ Palabhali/ Khalabhali	Swedana, Utthapana, Shoshana	R.C., ^[22] A.K., ^[23] R.R.S., ^[24] R.P.S. ^[25]

R.M. = Rasendra Mangala, R.S. = Rasayana Sara, R.C. = Rasendra Chudamani, A.K. = Ananda Kanda, R.R.S. = Rasaratnasamuchhaya, R.T. = Rasatarangini, R.P.S. = Rasa Prakasha Sudhakara.

(1) Ghata Yantra^[7]**Reference**

चतुष्प्रस्थजलाधारश्चतुरङ्गुलिकाऽऽननः ।

धटयन्त्रमिदं प्रोक्तं तदाप्यायनकं स्मृतम् ॥

- R.R.S. 9/ 51



It is a basic part of majority Yantra. It is also called as Ghata, Aapyayanaka, Rasapyayanaka and Sthali.

Structure

An earthen vessel which can accommodate 4 Prastha (1 Prastha = 64 Tola = 746 g.) of water and neck should be 4 Angula in diameter is known as Ghata Yantra.

(2) Swedani/ Swedana/ Kanduka/ Kundaka Yantra^[9]**Reference**

स्थूलस्थाल्यां जलं क्षिप्त्वा वासो बध्वा मुखे दृढम् ।

तत्र स्वेद्यं विनिक्षिप्य तन्मुखं प्रविधाय च ॥

अधस्ताज्ज्वालयेदग्निं यन्त्रं तत्कन्दुकाभिधम् ।

स्वेदनीयन्त्रमित्यन्ये प्राहुश्चेदं मनीषिणः ॥

- R.R.S. 9/ 74, 75



In classics, we get same description of Yantra under above titles. They are used as synonyms of each other. It can perform Swedana as well as Pachana Karma.

Parts

1. Sthaali
2. Vastra
3. Peedhanaka

Structure

A Sthali half filled with Drava Dravya. Open end of Sthali is tied with the cloth. Swedya Dravya is kept on the surface of cloth and covered with Peedhanaka. Pot is then subjected to heat; this apparatus is known as Swedani/ Swedana/ Kanduka/ Kundaka Yantra.

(3) Kunda Yantra/ Kanduka Yantra Bheda^[12]**Reference**

यद्वा स्थाल्यां जलं क्षिप्त्वा तृणं क्षिप्त्वा मुखोपरि ।

स्वेद्यद्रव्यं परिक्षिप्य पिधानं प्रविधाय च ।

अधस्ताज्ज्वालयेदग्निं यन्त्रं तत्कन्दुकं स्मृतम् ॥

- R.R.S. 9/ 76

Along with *Kanduka Yantra* we get description of *Kunda/ Kanduka Yantra Bheda*, it has a minor difference that; open end of *Sthali* is covered with *Trina* instead of tying *Vastra*.

Parts

1. *Sthaali*
2. *Trina*
3. *Peedhanaka*

Structure

A *Sthali* half filled with *Drava Dravya*, open end of *Sthali* covered with *Trina*. The drug which is to be *Swedita* is kept on the surface of *Trina* and covered with *Peedhanaka*. Pot is then subjected to heat; this apparatus is known as *Kunda Yantra/ Kanduka Yantra Bheda*.

(4) *Dola Yantra*^[17]

Reference

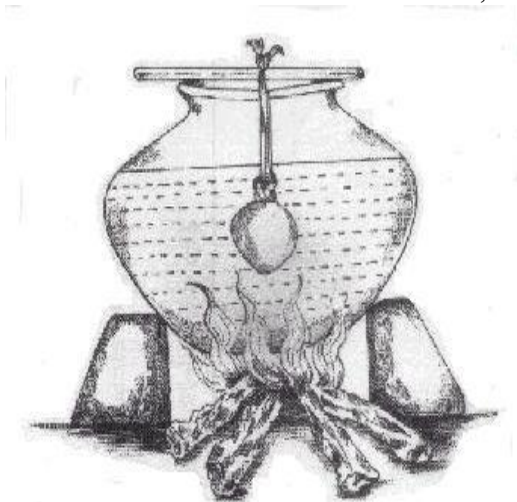
द्रवद्रव्येण भाण्डस्य पूरितार्धोदकस्य च ।

मुखस्योभयतो द्वारंद्वयं कृत्वा प्रयत्नतः ॥

तयोस्तु निक्षेपेदण्डं तन्मध्ये रसपोटलीम् ।

बध्वा तु स्वेदयेदेतद्दोलायन्त्रमिति स्मृतम् ॥

- R.R.S. 9/ 3, 4



Almost all *Rasa Grantha* have described *Dola Yantra*. Its synonym is *Dulli-Stambham* which is given in *Rasendra Mangala*. *Dola Yantra* is largely used instrument for the purpose of *Swedana*. It can also perform actions like *Ekatrikarana*, *Pachana*, *Shodhana* and *Sanghata*.

Parts

1. *Sthali*
2. Stick or rod
3. *Pottali* with thread

Structure

Take a *Sthali* and pour fluid in it up to the half vessel is filled. Make single pair of hole at the open end and

adjust a rod within. Tie the *Pottali* properly at the center of rod. *Pottali* should neither be touching the bottom nor above the fluid levels. This is subjected to heat from outside at the bottom. *Pottali* is free for movement in the fluid hence called *Dola Yantra*.

(5) *Ushma/ Ushna Yantra*^[19]

Reference

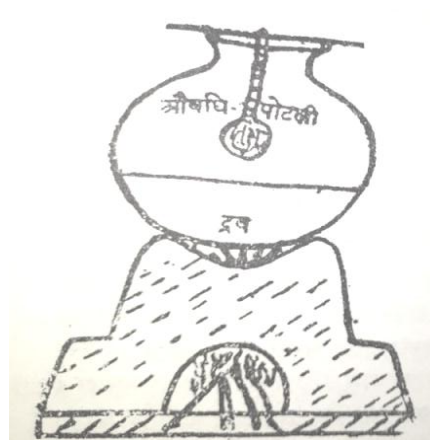
हण्डयां समुत्पटयां तु भृत्वाकाञ्ज्यादि लम्बयेत् ।

शुष्कप्रायोषधं बद्ध्वा वस्त्रे दोलासमं कृती ॥

अधो मन्दाग्नियोगेन स्विन्नप्रायं भवेद्यदा ।

सौकर्येण रसस्तैलं निस्सरेद्दुष्मयन्त्रतः ॥

- R.S.



Parts

1. *Sthali* covered with Mud-cloth
2. Stick or rod
3. *Pottali* with thread

Structure

It is having almost same arrangement as of *Dola Yantra* but the only difference is, *Swedya Dravya* do not get dipped into *Drava Dravya* and while heating, only vapors of *Drava Dravya* come in contact with *Swedya Dravya*.

(6) *Swarasa Yantra*^[20]

Reference

घृतवौषधं लोहमयेऽल्पपात्रे सङ्कुच्य तापेन पिधाय कामम् ।

एतत्करणं निदधीत लोहकटाहिकायां कृतपीठिकायाम् ॥

इयज्जलञ्चापि भरेत तत्र यन्न स्रुतं स्याच्च करण्डमध्ये ।

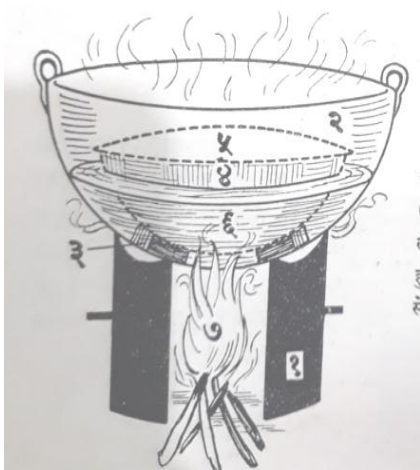
एनां कटाही निदधीत चुल्लयां ततो ददीताग्निमतिक्रियातः ॥

उष्णाम्भसा तत्र करण्डिकायां स्विन्नौषधं सार्यरसञ्च विद्यात् ।

एतत्स्वरसयन्त्रेण स्विन्ने जाते तदौषधे ।

वस्त्रपीडनतो गाढं स्नावयेत्स्वरसं सुधीः ॥

-R.S.



Swarasa Yantra is specially designed for processing drugs like *Bilva Patra*, *Vasa Patra*, *Kharjura Patra* etc. where extraction of Swarasa becomes difficult because they are having *Alpa Swarasa*, we don't get proper quantity of Swarasa without prior Swedana process. This Yantra ensures maximum yield of Swarasa from the processed drug.

Parts

1. Big iron pan
2. Iron container vessel with lid
3. Breaks

Structure

Iron vessel with lid containing *Swedya Dravya* is kept inside big iron pan by making stand of breaks. Drava is filled in pan, surrounding the container and below lid level. Water should not go inside the container. Then it is subjected to heat.

(7) Bashpa Swedana Yantra^[21]

Reference:

नीरपूरितगर्भं तु पात्रे पात्रं निवेशयेत् ।

पाश्वर्याः कर्णिकापेतं द्रव्य-क्वाथप्रपूरितम् ॥

चुल्लिकायां निधायाथ वह्निं प्रज्वालयेदधः ।

संशोषयेत्ततः क्वाथं यावादायाति चूर्णताम् ॥

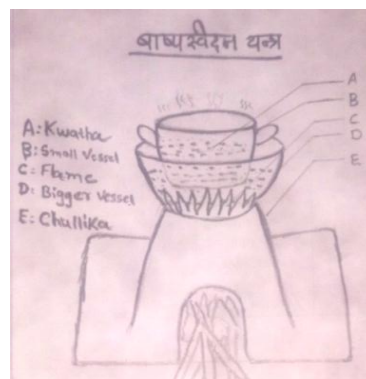
बाष्पेन स्वेदनं यस्माद् रसतन्त्रविशारदैः ।

तस्माद्यन्त्रमिदं ख्यातं बाष्पस्वेदनसंज्ञकम् ॥

वन्यौषधिविशेषाणां सत्वनिर्माणसाधकम् ।

यन्त्रमेतत्समाख्यातं भिषजां सुखहेतवे ॥

-R.K.D. 1/ 161-164



This instrument is used to perform Swedana on Swarasadi. It is very much helpful while preparing Satva.

Parts

1. Small vessel with holders on outer surface
2. Big vessel

Structure

A big vessel filled with *Drava Dravya*, other small vessel containing Swarasa, Kwatha etc. and having handles on outer surface which is to be set inside the bigger vessel. Then subjected to heat, it is called as Bashpa Swedana Yantra.

(8) Valabhi/ Palabhali/ Khalabhali Yantra^[24]

Reference

यत्र लोहमये पात्रे पार्श्वयोर्वलयद्वयम् ।

तादृक् स्वल्पतरं पात्रं बलयग्नोतकोष्ठकम् ॥

पूर्वपात्रोपरिन्यस्य स्वल्पपात्रे परिक्षिपेत् ।

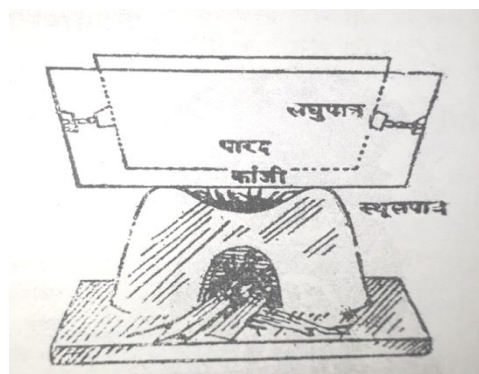
रसं सम्मूर्च्छितं स्थूलपात्रमापूर्य काञ्जिकैः ॥

द्वियामं स्वेदयेदेवं रसोत्थापनहेतवे ।

एतत्स्याद्वलभीयन्त्रं रसषाड्गुण्यकारणम् ॥

सूक्ष्मकान्तमये पात्रे रसः स्याद्गुणवत्तरः ।

- R.R.S. 9/ 44, 45, 46



This Yantra is used to perform Utthapana of Parada by Swedana process.

Parts

1. Small *Kanta Loha Patra* having holders at outer surface
2. Big *Loha Patra* having holders in inner surface

Structure

Loha Patra with holders at internal surface containing *Drava Dravya* and another small *Kanta Loha Patra* having holders on outer surface containing *Dravya* which is to be *Swedita*. Adjust smaller vessel hanging inside big vessel by joining holders and then it is subjected to heat.

DISCUSSION

Different formulations are made based upon many principles followed to achieve maximum benefit out of medicine. In *Rasa Shastra*, *Shodhana* and *Marana* are essential process for eradicating the toxicity and to improve therapeutic activities of particular drugs. Different types of *Yantra* are used for *Shodhana*, *Marana* and preparing formulations. *Swedana* is an important technique of *Shodhana* and drug preparation. *Swedana Sanskara* is performed in order to achieve *Dosha Shithilikarana* in *Parada*.^[26] It is also used for *Shodhana* of various *Rasa Dravya* like *Vaikranta*, *Makshika*, *Vimala*, *Tuttha*, *Gandhaka*, *Haratala*, *Somala*, *Varatika*, *Manikya*, *Mukta*, *Pravala*, *Tarkshya*, *Pushparaga*, *Hiraka*, *Neelama*, *Gomeda*, *Vaidurya*, *Rajavarta*, *Sphatik*, *Pairojaka*, *Godanti*, *Shankha*, *Shukti*, *Gunja*, *Dhattura*, *Vishamushti*, *Jayapala* etc. It is a main method for *Paka* in *Pottaali Kalpana*, which is known as *Gandhaka Drava Paka*. This procedure is helpful in releasing extractive values like *Swarasa* and *Taila* from the raw drug. After this process, material is subjected to *Peedana* which results in *Swarasa/ Taila* extraction.

Kanduka Yantra is described in *Ananda Kanda*. Author of *Rasaratnasamuchhaya* has described this instrument along with its Synonym, *Swedani Yantra*. We also get the same description under the title of *Kundaka Yantra* in *Rasendra Chudamani*, where *Acharya Somadeva* has quoted its synonym as *Swedana Yantra*. The only difference between *Kanduka Yantra* and *Kunda Yantra/ Kanduka Yantra Bheda* is, open end of *Sthali* stay covered by *Trina* instead of tying *Vastra*. Both are of close type of *Swedana* method.

Dola Yantra is widely used *Yantra* for *Swedana*. When *Shodhana* of *Rasa Dravya* is indicated by *Swedana* method, it is preferably done in *Dola Yantra*. Some *Acharya* consider taking 3 folds of cloth to make *Pottali* of *Swedya Dravya*, whereas *Rasayana Sara* advised 4 folds of cloth. Author of *Ananda Kanda* quotes *Pottali* must be touching bottom of the vessel,^[27] whereas other

authors opine that it should be immersed in *Drava Dravya*, Usually in *Dola Yantra*, *Pottali* is kept immersed into *Drava Dravya* but not touching to the bottom because if *Pottali* is kept touching the bottom there are chances of it to get burn. This *Yantra* is also used to prepare *Pottali Kalpana* where manifestation of functions like *Ekatrikarana* and *Sanghata* are seen.

Arrangement of *Ushma Yantra* is quite similar to the *Dola Yantra*, but the only difference is height of *Pottali*, which is situated above the fluid levels and only *Ushma* of *Drava Dravya* affects the medicine during the process. *Ushma Yantra* is best suitable equipment for steaming prior to extract oil from crushed oily seeds. *Dola Yantra* and *Ushma Yantra* both are of open type of *Swedana* method.

Swarasa Yantra is specially designed instrument to prepare *Swarasa*. Extraction of *Swarasa* becomes difficult from the drugs like *Bilva patra*, *Vasa Patra*, *Kharjura Patra* etc.; because they are having *Alpa Swarasa*, we don't get proper quantity of *Swarasa* from them, without prior *Swedana*. This *Yantra* ensures maximum yield of *Swarasa* from processed drugs. It is a close type of *Swedana* method.

Bashpa Swedana Yantra is given in *Rasatarangini*, its specific use is to reduce *Swarasa*, *Kwathadi* and make *Satva* without harming the contents. When *Paka* is done in this instrument, material will get the temperature as much as require reducing water contents only.

Structure of *Valabhi Yantra* is similar to the *Bashpa Swedana Yantra* but here, vessels are made up from *Loha* and *Kanta Loha*. Its main function is *Utthapana* by *Swedana* of *Parada*. When *Utthapana* is done in *Kanta Loha* vessel it increases *Guna* of *Parada*. According to *Rasaratnasamuchhaya* if *Parada* is processed by this method it becomes *Shada Guna Yukta*. In *Rasa Prakasha Sudhakara* same instrument is described under the title of *Palabhali/ Khalabhali Yantra*. *Bashpa Swedana* and *Valabhi* both are of open type of *Swedana* method. All these instruments can be classified in several categories.

Table No. 2: Showing classification of *Yantra* in close and open method.

Close Method	Open Method
<i>Kanduka Yantra</i>	<i>Dola Yantra</i>
<i>Kunda Yantra</i>	<i>Ushma Yantra</i>
<i>Swarasa Yantra</i>	<i>Bashpa Swedana Yantra</i>
-	<i>Valabhi</i>

Table No. 3: Showing classification of *Yantra* on the basis of situation of *Swedya Dravya*:

<i>Swedya Dravya</i> immersed in <i>Drava Dravya</i>	<i>Swedya Dravya</i> above the levels of <i>Drava Dravya</i>	No direct exchange between <i>Swedya Dravya</i> and <i>Drava Dravya</i>
<i>Dola Yantra</i>	<i>Ushma Yantra</i>	<i>Swarasa Yantra</i>
-	<i>Kanduka Yantra</i>	<i>Bashpa Swedana Yantra</i>
-	<i>Kunda Yantra</i>	<i>Valabhi Yantra</i>

In view of combining all, final categorization becomes;

Table No. 4: Showing final categorization of various Swedana techniques.

Swedya Dravya immersed in Drava Dravya		Swedya Dravya above the levels of Drava Dravya		No direct exchange between Swedya Dravya and Drava Dravya	
Close method	Open method	Close method	Open method	Close method	Open method
-	Dola Yantra	Kanduka Yantra	Ushma Yantra	Swarasa Yantra	Bashpa Swedana Yantra
-	-	Kunda Yantra	-	-	Valabhi Yantra
-	-	-	-	-	-

When *Swedya Dravya* is immersed in *Drava Dravya* and vessel is open. *Drava Dravya* does direct exchanges with *Swedya Dravya*, *Guna* of *Drava Dravya* comes into *Swedya Dravya* and vice versa, as an example when *Visha* (solid Phase) and specific *Agada* (liquid phase) are taken, then exchange in qualities will take place from both the side. *Agada* will do detoxification of *Visha* and *Visha* will be neutralized or/ and get exchange or/ and get evaporate along with the vapors of *Drava Dravya*. Boiling *Drava Dravya* softens the covering as well as material of *Swedya Dravya*. In case of preparing *Pottali Kalpana* same process is producing *Sanghata* in the *Pottali* because *Gandhaka* has special capacity of binding *Parada*. When *Ashuddha Parada* is taken for *Swedana*, *Drava Dravya Kanji* will penetrate *Parada* along with *Ashuddhi* and make them *Shithila* which get separated easily by further process. *Dola Yantra Swedana* is not useful for preprocessing raw drugs for *Swarasa* or *Taila* extraction because the extracts will get mix in *Drava Dravya*.

When *Swedya Dravya* is above liquid media and instrument is close then *Swedya Dravya* will be affected by steam of *Drava Dravya*. Hence it is a close method; effect of steam is higher than the open method. Qualities of *Drava Dravya* will effect on *Swedya Dravya* but the contents of *Swedya Dravya* will not come in to *Drava*. This technique is used as preprocess on raw drug for *Swarasa* extraction. When *Swedya Dravya* is bigger in size we may use either *Trina* or cloth as support but if particle size is small then use of cloth is must.

When *Swedya Dravya* is above the liquid media and instrument is open, in such case also *Swedya Dravya* will be affected by steam of *Drava Dravya* but intensity of steam will be lesser compared to close vessel, it generates warm atmosphere in *Yantra* but not too moist. Pressure factor will also effect on the *Swedya Dravya* because material is tied in cloth by making *Pottali*. Such factors create most favorable condition for oozing oil from oily substances hence used as preprocessing for *Taila* extraction. It is not that dominant regarding other functions of *Swedana*.

When there are no direct exchanges between *Swedya Dravya* and *Drava Dravya* with close instrument, indirect heat is supplied into the *Swedya Dravya*, by using *Drava Dravya* as barrier. Controlled heat is carried to the *Swedya Dravya*. Hence the *Swedya Dravya* containing vessel is close, residing Moisture in *Swedya*

Dravya itself penetrate the content and provide ease to the extraction of *Swarasa*. It is very effective method for extraction of *Swarasa*.

When there is no direct exchanges between *Swedya Dravya* and *Drava Dravya* with open instrument then, heat is controlled and transferred by barrier but, the *Swedya Dravya* containing vessel is open there for fluid/ water portion from *Swedya Dravya* will get evaporate and extracts are obtained easily without any harm to the final product. For *Utthapana of Parada*, instrument of same design is used, but the vessel, containing *Parada* is made up of *Kanta Loha*. In this case moisture will get evaporate and *Guna Vardhana* of *Parada* takes place by *Bhajana Samskara*.

CONCLUSION

One should select the appropriate *Yantra*, for specific *Swedana* to ensure best purification, detoxification, yield and *Guna Vardhana* of *Swedya Dravya*.

REFERENCES

1. Raja Radhakantadeva Bahadur, "Shabdakalpadruma", Compiled by Shree Varadaprasada Vaso and Haricharana Vaso, Published by Chaukhambha Sanskrit series office, Varanasi, work no: 93, Third edition, 1967, volume: 4, Page no: 13.
2. Acharya Vagbhatta Krita, "Rasaratnasamuchhya", compiled by Dr. Indradeva Tripathi, edited by Dr. Kapildev Giri, Publication Chaukhambha Sanskrit Sansthana, Varanasi, and reprint 2012, ISBN: 81-86937-46-3, 9/ 2.
3. IBID, 8/ 62.
4. Reviewed research work of Dr. Hasmukh T. Pamcholi, "Rasashaleeya Yantra Vigyanam", Department of Rasashastra and Bhaishajya Kalpana, I.P.G.T. & R.A., Jamnagar, Page number 65.
5. Acharya Somadeva Krita, "Rasendra Chudamani", compiled by Acharya Siddhinandana Mishra, Chaukhambha oriyantaliya, Varanasi, reprint 2009, ISBN: 978-81-7637-169-8, 5/ 46.
6. Acharya Shree. Bhairava Ukta, "Aananda Kanda", compiled by Acharya Siddhinandana Mishra, Chaukhambha oriyantaliya, Varanasi, reprint 2008, ISBN: 978-81-7637-096-7, 26/ 50.
7. Acharya Vagbhatta Krita, "Rasaratnasamuchhya", compiled by Dr. Indradeva Tripathi, edited by Dr. Kapildev Giri, Publication Chaukhambha Sanskrit

- Sansthana, Varanasi, and reprint 2012, ISBN: 81-86937-46-3, 9/51.
8. Acharya Somadeva Krita, "Rasendra Chudamani", compiled by Acharya Siddhinandana Mishra, Chaukhambha oriyantaliya, Varanasi, reprint 2009, ISBN: 978-81-7637-169-8, 5/ 86, 87.
 9. Acharya Vagbhatta Krita, "Rasaratnasamuchhya", compiled by Dr. Indradeva Tripathi, edited by Dr. Kapildev Giri, Publication Chaukhambha Sanskrit Sansthana, Varanasi, reprint 2012, ISBN: 81-86937-46-3, 9/74, 75.
 10. Acharya Shree. Bhairava Ukta, "Aananda Kanda", compiled by Acharya Siddhinandana Mishra, Chaukhambha oriyantaliya, Varanasi, reprint 2008, ISBN: 978-81-7637-096-7, 26/ 96, 97.
 11. Acharya Somadeva Krita, "Rasendra Chudamani", compiled by Acharya Siddhinandana Mishra, Chaukhambha oriyantaliya, Varanasi, reprint 2009, ISBN: 978-81-7637-169-8, 5/ 88.
 12. Acharya Vagbhatta Krita, "Rasaratnasamuchhya", compiled by Dr. Indradeva Tripathi, edited by Dr. Kapildev Giri, Publication Chaukhambha Sanskrit Sansthana, Varanasi, reprint 2012, ISBN: 81-86937-46-3, 9/ 76.
 13. Acharya Nagarjuna Krita, "Rasendra Mangalam", compiled by Acharya Kaviraja Harishankara Sharma, forwarded by Acharya P. V. Sharma, Publication Chaukhambha oriyantaliya, Varanasi, reprint edition 2008, ISBN: 978-81-7637-090-5, Part 1, 1/ 33.
 14. Pandita Shyama Sundaracharya Vaishya Krita, "Rasayana Sara", compiled and published by Umedilal Vaishya, Varanasi, third edition 2100, Paribhasha Prakarana, page number 49.
 15. Acharya Somadeva Krita, "Rasendra Chudamani", compiled by Acharya Siddhinandana Mishra, Chaukhambha oriyantaliya, Varanasi, reprint 2009, ISBN: 978-81-7637-169-8, 5/ 3, 4.
 16. Acharya Shree. Bhairava Ukta, "Aananda Kanda", compiled by Acharya Siddhinandana Mishra, Chaukhambha oriyantaliya, Varanasi, reprint 2008, ISBN: 978-81-7637-096-7, 26/ 106.
 17. Acharya Vagbhatta Krita, "Rasaratnasamuchhya", compiled by Dr. Indradeva Tripathi, edited by Dr. Kapildev Giri, Publication Chaukhambha Sanskrit Sansthana, Varanasi, reprint 2012, ISBN: 81-86937-46-3, 8/ 3, 4.
 18. Pranacharya Shree Sadananda Sharmana Virachita, "Rasa Tarangini", compiled by Pandita Kashinatha Shastri, Publication Motilal Banarasidas, Varanasi, reprint 1012, ISBN: 978-81-208-2542-0 4/ 2, 3, 4, 5.
 19. Pandita Shyama Sundaracharya Vaishya Krita, "Rasayana Sara", compiled and published by Umedilal Vaishya, Varanasi, third edition 2100, Paribhasha Prakarana, page number 57.
 20. IBID, page number 58.
 21. Pranacharya Shree Sadananda Sharmana Virachita, "Rasa Tarangini", compiled by Pandita Kashinatha Shastri, Publication Motilal Banarasidas, Varanasi, reprint 1012, ISBN: 978-81-208-2542-0, 4/35, 36, 37, 38.
 22. Acharya Somadeva Krita, "Rasendra Chudamani", compiled by Acharya Siddhinandana Mishra, Chaukhambha oriyantaliya, Varanasi, reprint 2009, ISBN: 978-81-7637-169-8, 5/ 14, 16.
 23. Acharya Shree. Bhairava Ukta, "Aananda Kanda", compiled by Acharya Siddhinandana Mishra, Chaukhambha oriyantaliya, Varanasi, reprint 2008, ISBN: 978-81-7637-096-7, 26/ 14, 15, 16.
 24. Acharya Vagbhatta Krita, "Rasa Ratna Samuchhya", compiled by Dr. Indradeva Tripathi, edited by Dr. Kapildev Giri, Publication Chaukhambha Sanskrit Sansthana, Varanasi, reprint 2012, ISBN: 81-86937-46-3, 8/ 44, 45, 46.
 25. Acharya Yashodhara Krita, "Rasa Prakasha Sudhakara", compiled and translated by Acharya Siddhinandana Mishra, published by Chaukhambha oriyantaliya, Varanasi, reprint 2009, ISBN: 978-81-7637-015-8, 10/ 2.
 26. Acharya Shree. Bhairava Ukta, "Aananda Kanda", compiled by Acharya Siddhinandana Mishra, Chaukhambha oriyantaliya, Varanasi, reprint 2008, ISBN: 978-81-7637-096-7, 26/ 106.
 27. Acharya Siddhinandana Mishra krita "Ayurvediya Rasashastra", Chaukhambha oriyantaliya, Varanasi, reprint 2014, ISBN: 978-81-7637114-8, page number 183.