International Research Journal of Ayurveda & Yoga Vol. 8(3), pp. 25-36, March, 2025
Available online at http://irjay.com
ISSN: 2581-785X
DOI: 10.48165/IRJAY.2025.80304

ORIGINAL RESEARCH ARTICLE

Standardization of *Seesa Salaka*

Surya Surendran[1]*, C. Sindhu[2]

[1]Former PG Scholar, Department of Salakyatantra, Government Ayurveda College, Ernakulam, Kerala, India.
[2]Principal, Government Ayurveda College, Ernakulam, Kerala, India.

ARTICLE INFO

Article history:
Received on: 19-01-2025
Accepted on: 01-03-2025
Published on: 31-03-2025

Key words:
Anjana,
Payana,
Seesa Salaka,
Sodhana

ABSTRACT

Seesa Salaka Samskarana Vidhi has been well described in Ayurvedic classical texts. The *Samanya and Vishesha Sodhita Seesa* are subjected to *Payana Vidhi* for 7 times separately in *Triphala kashayam*, *Bhringa Swarasa*, *Jala*, *Go Ghritam*, *Ajaksheera,* and *Madhuyashti kashayam.* Even though it is told as an instrument it itself acts as a medicine. This can be understood from the following verse "*netre yukta sanjana ananjana va,*" i.e., it provides the quality of medicine even without *anjana*. Hence, in this study, an effort has been made for the preparation and standardization of *Seesa salaka*. The standardization of *Seesa Salaka* was carried out in four steps. The initial three were done by conducting physicochemical analysis of raw material, *Samanya Vishesha Sodhita Seesa*, and *Payitha Seesa,* respectively. Finally, standardization of *Seesa salaka* has been done as per the dimension criteria mentioned in Ayurvedic classics.

1. INTRODUCTION

Seesa salaka[1] is an invaluable entity in *Salakyatantra* since it possesses the qualities of an instrument as well as medicine, even without *Anjana*. *Seesa* is considered the first *poothi loha* mentioned in *Rasasastra* classical texts. It melts quickly, is heavy in weight, on cutting it looks shiny black, emits a foul smell on boiling, and is externally black in color.[2] *Seesa,* with such properties, is considered the best in quality. These properties are coinciding with the properties of lead in contemporary science. According to *Acharya Vagbhata*, *Salaka* which is used for *Anjana karma* is having a standard size of 10 *angulas*, thin in the middle with bluntly pointed ends resembling flower buds.[3] *Seesa Salaka* is extensively beneficial for curative aspects of the eye as it is devoid of all blemishes by various preparatory procedures. In *Ashtanga Hridaya Uttara Sthana Timira Pratishedha* (13th chapter), the therapeutic indications of *Seesa Salaka* such as *Kandu* (itching sensation), *Raktaraji* (mild congestion on bulbar conjunctiva), *Paichilya* (slimy discharge), *Srava* (lacrimation), and *Jadya* (difficulty in lid movements) are mentioned.

The standardization procedure has been conducted in four steps. They are standardization of raw material (*Seesa*), *Samanya Vishesha Sodhita Seesa*, *Sodhita Seesa* after *Payana,* and standardization of *Seesa Salaka* (as per Ayurveda classics). Physicochemical analysis was done in each stage by various parameters. *Seesa salaka* was prepared from this sample as per the standard dimension criterion mentioned in Ayurvedic classics.

Corresponding Author:
Surya Surendran,
Salakyatantra Medical Practitioner,
Former PG Scholar, Department of Salakyatantra,
Government Ayurveda College, Ernakulam, Kerala, India.
Email: drsurendrans477@gmail.com

1.2. Aim

1. To prepare and standardize *Seesa Salaka.*

2. MATERIALS AND METHODS

1. Standardization of raw material (*Seesa*)
2. Standardization of *Samanya Vishesha Sodhita Seesa*
3. Standardization of *Sodhita Seesa* after *Payana*
4. Standardization of *Seesa Salaka* (as per Ayurveda classics).

2.1. Preparation of *Seesa Salaka*

The preparation of *Seesa Salaka* mainly comprises the following procedures:

1. *Sodhana* of *Seesa*
   a. *Samanya Sodhana*
   b. *Vishesha Sodhana*
2. *Payana* of *Seesa*
3. Making of *Seesa Salaka* as per *Ayurvedic* classics (standardized form).

Before these procedures preparation of *kashaya* as well as *Churnodaka* is necessary as a part of *Purvakarma* (preparatory procedure).

2.1.1. Preparation of kashaya

The preparation of *kashaya* was done as per the standards for *kwatha kalpana* mentioned in *Sarangadhara Samhita*.[4] Based on that one part of the drug was boiled in 16 times water and reduced to one-eighth. So for *Samanya Sodhana* in *Kulatha Kashaya* 1,750 g *Kulatha* was boiled in 28,000 mL (2.8 L) of water and got reduced to 3,500 mL. 500 mL of *kashaya* was taken for each *dalana*. Similarly, *Triphala kashaya, Bhringaraja kashaya,* and *Yastimadhu kashaya* were prepared initially for carrying out the *Payana* procedure.

2.1.2. Preparation of churnodaka

The method of preparation of *Churnodaka* is mentioned in *Rasatarangini*.[5] In that two *ratti* (125 mg) of calcium hydroxide were added with 5 *tola* (60 mL) of water; mixed thoroughly and kept undisturbed for 3 *yama* (9 h). Here, the total quantity of *Churnodaka* required was 3,150 mL. Hence, 6,562.5 mg (6.6 g) of calcium hydroxide was mixed with 3,150 mL of water and was kept undisturbed for three *yama*. For each *Dalana* process, 450 mL of *churnODaka* was taken.

2.2. *Sodhana* of *Seesa*

For any drug to be therapeutically effective, it is necessary for its assimilation, especially in the affected tissues. Furthermore, they are likely to produce adverse effects on the body. Hence, to make them non-toxic and suitable for assimilation in tissues several methods should be performed depending on the nature of the element [Figure 1].

Definition:

- "*Uddhishteraushadhai: sardham kriyate peshanadikam* |
- *Mala vicchittaye yattu sodhanam tadihocyatae* ||"

For the purpose of vanishing the impurities present along with the medicine through the process of *Peshana, Swedana, Dalana, Nirvapa,* and other methods is called as *Sodhana*.

In general *Dhatus* (metals) should undergo both *Samanya* as well as *Vishesha Sodhana* to get rid of the harmful residues in them and to improve their potency also. Hence, *Seesa* requires both *Sodhanakramas*.

2.2.1. Samanya sodhana

The common method used to purify a group of drugs is known as *Samanya Sodhana*. This process eliminates general impurities of metals and minerals. It is described in *Rasaratna Samucchaya*[7] which is common for all metals. The procedure involved in it is *Nirvapa*. Metals are subjected to red hot and dipped in *Tilataila* (sesamum oil), *Takra* (buttermilk), *Gomutra* (cow's urine), *Aranala* (*dhanyamla*), and *Kulatha kashaya* (horse gram decoction) separately for 7 times in each. In the case of *Seesa,* its melting point is very low compared to other metals. Hence, it was subjected to *Dalana*. In *Dalana* there are two phases. In the first phase, *Seesa* was subjected to melting, and in the second phase, the molten *Seesa* was quenched in a liquid medium. These heating and quenching were repeated for specific times and in particular media.

2.2.2. Vishesha sodhana

It is done specifically for a particular drug with the view of purifying it with the help of specific *Sodhana* material as well as procedure. The *Vishesha Sodhana* of metals is specific and different for each metal in *Dhatu Varga*. There are various modes of *Vishesha Sodhana* for *Seesa* which have been described in classical *Rashasatra* references. Among them, *Dalana* is the most common procedure employed. The *Samanya Sodhita Seesa* was subjected to melting and immersed in *Churnodaka* for 7 times based on *Rasaratna Samucchya*.[8]

2.2.3. Importance of Dalana

- Metal is equally distributed in its molten state so that all the molecules undergo *Sodhana*
- To reduce the particle size of a metal
- To separate the physical impurities with different melting points
- To remove the soluble impurities.

2.2.4. Payaná of Seesa

Payanavidhi is specifically mentioned in the 13th chapter of *Timira Pratishedha* of *Astanga Hridaya Uttarasthana*. The *Samana* and *Vishesha Sodhita Seesa* were again melted and dipped in *Triphala kashaya*, *Bhringaraja kashaya, Jala, Ghrita, Ajaksheera,* and *Yasti kashaya* separately for 7 times in each.

2.3. Making of *Seesa Salaka*

Seesa Salaka was prepared as per the dimension criteria explained in *Ashtanga Hridaya Sutrasthana* with the help of an expert goldsmith. The specifications mentioned for *Seesa Salaka* are:

- Size: 10 *angulas*, i.e., 18 cm
- *Tanu Madhya*: Thin at the center
- Tip/ends: Slightly enlarged and bluntly pointed such as *mukula*

After all procedures, 60 g of *Seesa* was obtained. Three *salakas* were prepared weighing 20 g each [Figure 2].

2.4. Samanya Sodhana Dravyas

Mentioned in Table 1 and Figures 3-7.

2.5. Observations during *Vishesha Sodhana*

- Weight of *Seesa* taken before *Vishesha Sodhana*: 450 g
- Quantity of *Churnodaka* taken during each *Dalana* 450 mL.

2.5.1. Findings

- Color of *Churnodaka*: During the 1st time of *Dalana*, the color turned into a mild brown color. However, it remains unchanged afterward
- Very mild unpleasant odor and fumes evolved during *Vishesha Sodhana*
- Bursting sound was heard while pouring molten *Samanya Sodhita Seesa* into *churnodaka*
- Time taken for each *Dalana*: About 5–10 min
- *Seesa* obtained after *Vishesha Sodhana*: 380 g.

2.6. *Vishesha Sodhana Dravya*

Mentioned in Figure 8.

2.7. *Payana Dravyas*

Mentioned in Figures 9-17 and Table 2.

2.8. Standardization

According to World Health Organization guidelines, standardization is a measurement for ensuring quality and is used to describe all measures which are taken during the manufacturing process and quality control leading to a reproducible quality.[9] The standardization procedure in this study involves four steps:

a. Standardization of raw material (*Asodhita Seesa*)
b. Standardization of *Samanya Vishesha Sodhita Seesa*
c. Standardization of purified *Seesa* after *Payana Vidhi*
d. Standardization of *Seesa Salaka* (as per *Ayurvedic* classics)

In the first three steps, standardization was done by physicochemical analysis, and the manufacture of *Seesa Salaka* was done as per the standards told in *Ayurvedic* references. The physicochemical analysis includes:

i. Physical analysis
ii. Chemical analysis: 2 types.
    a. Qualitative
    b. Quantitative.

2.9. Physical Analysis

In general, the physical properties of metals are[10]

- Lustrous (shiny)
- Good conductors of heat and electricity
- High melting point
- High density (heavy for their size)
- Malleable (can be hammered)
- Ductile (can be drawn into wires)
- Usually solid at room temperature (an exception is mercury)
- Opaque as a thin sheet (cannot see through metals)

Hence, the physical analysis of *Seesa* includes its organoleptic characteristics. As per *Rasasastra's* classical references, *Seesa* should possess the following characteristic features[11]

a. *Druta dravam*: Melts easily
b. *Mahabharam*: Heavy in weight
c. *Chede krishnam samujwalam*: On cutting, the portion looks a shiny black color
d. *Poothigandham*: Contains foul smell on boiling
e. *Bahi krishnam*: Black in color.

As per modern science, identifying features of *Seesa* or lead are[12]

a. Appearance: Metallic gray
b. Standard atomic weight: 207.2
c. Atomic number: 82
d. Melting point: 327.46°C
e. Boiling point: 174.90°C
f. Density (solid-state): 11.34 g/cm^3
g. Density (liquid-state): 10.66 g/cm^3

2.10. Chemical Analysis

1. Qualitative analysis indicates the presence of *Seesa*, trace elements, and organic particles in the available material. In all samples (raw material, *sodhita,* and *payita Seesa*), Lead (*Seesa*), and trace elements such as iron, copper, zinc, and tin were found to be present. Among organic particles, only nitrogen was detected
2. Quantitative analysis includes,
    a. Percentage of trace elements (zinc, tin, iron, and copper) in *Seesa* by Inductively coupled plasma mass spectrometry (ICP-MS) method.
    The ICP-MS method (Inductively Coupled Mass Spectrometry) was used to quantify the trace elements. In ICP-MS analysis, the given samples were digested in nitric acid, made to, filtered and analyzed with the ICP-MS system.
    b. Presence of organic particles (carbon, hydrogen, nitrogen, and sulfur) by CHNS analysis
    Elemental analysis can be qualitative (determining what elements are present), and it can be quantitative (determining how much of each is present). Here analysis of total carbon, hydrogen, nitrogen, and sulfur are performed to get some idea of the composition of the organic matter.
    c. Phase identification of Seesa by using X-ray diffraction
    X-ray diffraction analysis (XRD) is one of the microstructural analysis methods used for the identification of the crystallinity of polymers, recognition of crystalline phases (polymorphism), and orientation of polymers. A primary use of the technique is the identification and characterization of compounds based on their diffraction pattern.

2.11. Standardization of Raw Material (*Asodhita Seesa*)

2.11.1. ICP-MS analysis

Mentioned in Table 3.

2.11.2. CHNS analysis

Mentioned in Table 4.

2.11.3. X-ray diffractogram

Dipict in Figure 18.

2.12. Standardization of *Samanya Vishesha Sodhita Seesa*

2.12.1. ICP-MS analysis

Mentioned in Table 5.

2.12.1. CHNS analysis

Mentioned in Table 6.

2.12.2. X-ray diffractogram

Mentioned in Figure 19.

2.13. Standardization of *Purified Seesa* after *Payana vidhi (Payita Seesa)*

2.13.1. ICP-MS analysis

Mentioned in Table 8.

2.13.2. CHNS analysis

Mentioned in Table 9.

2.13.3. X-ray diffractogram

Mentioned in Figure 20.

2.14. Interpretation on Elemental Analysis of Various Forms of *Seesa*

2.14.1. ICP-MS analysis

- From this analysis, it has been found out that the natural form of Lead is always in combination with these elements. Further processing with other media the quantity of elements was reduced considerably. This may be due to the nature of liquid media used for *sodhana* as well as *payana*
- Among the measured elements, Iron, Copper,
- and Tin were found more in raw material, i.e., *Asodhita Seesa* whereas, Zinc was found more in *Payita Seesa*
- The detection quantity of elements (except Zinc and Tin) was found to be reduced from *Asodhita Seesa* to *Payita Seesa*
- These measurements are standard for each form of *Seesa*.

2.14.2. CHNS analysis

- In this analysis, only the presence of nitrogen was detected in all forms of *Seesa*
- The quantity of nitrogen has been identified more in *Payita Seesa*
- This measurement is typical for each form of *Seesa*.

2.14.3. X-ray diffraction

- There are three diffractograms showing the crystalline nature that has been developed from raw material. The other two forms of *Seesa* are having two patterns
- XRD pattern indicates that crystallinity in the raw material has been increased during the *payana* of *Seesa* because the intensity of the peaks increased continuously
- These patterns are unique in all forms of *Seesa*.

3. DISCUSSION ON PREPARATION AND STANDARDIZATION OF *SEESA SALAKA*

The preparation of *Seesa salaka* has been done based on relevant classical references. *Seesa* is considered a *poothiloha* and is having several *doshas* associated with its natural state. That's why *sodhana* (purificatory procedures) is of utmost essential before its conversion into *salaka* form. Both *samanya* and *vishesha sodhanas* should be done since *Seesa* belongs to *dhatu varga*. The benefits are not only to get rid of unwanted blemishes but also to improve the potency of *Seesa*. Similarly, *payanavidhi* even enhances the attributes of *seesa salaka* to exert its action.

3.1. *Samanya* and *Vishesha Sodhana*

The changes during these procedures occur in two phases:

a. First phase: In this phase *Seesa* was subjected to heat and unlike other metals; it turned into a molten state at a low temperature. A particular heating pattern must be followed to achieve the desired changes in metal. Only when completely melts, desired changes can be achieved in metal
b. Second phase: Here molten metal was quenched in a specific medium. The quenching must be immediate because sudden cooling is needed to achieve the desired changes in metal. The change in the structure of metal depends on intensity of heat and mode of cooling. The changes in instant cooling must happen faster than that of slow cooling. Hence, after melting it should be quenched in the particular liquid medium instantly.

3.1.1. Role of media

Particular liquid media are used in *Sodhana* of materials. For *Sodhana* of *Dhatus* generally *Tila taila, Takra, Gomutra, Aranala/Kanji,* and *Kulattha Kwatha* are used. These media may have particular functions in the purification and detoxification of metals.

a. *Tila taila:* It has *Sukshma* and *Ashukari* properties. By these properties, it may easily and rapidly enter into the material through the cracks and make film coating and further heating causes chemical reaction and breaking of the material
b. *Takra:* It is having *Teekshna*, *Sanghata-Bhedana,* and *Shaithilikarana* properties. By this properties, it may cause softening and breaking of the material
c. *Gomutra:* It has *Dahana* and *Pachana* properties so it may cause worn-out of the material. It may cause the eradication of undesired substances from the material
d. *Aranala/Kanji:* It is also having the same properties such as *Takra* which may cause softening and breaking of the material
e. *Kulattha Kwatha:* It has *Ashmari Bhedana* property which may cause the breaking of the material. All these liquid media act as cooling media during the process of *Dalana*. It may serve as a favourable atmosphere to the material for the occurrence of a particular chemical reaction
f. *Churnodaka:* It may help in breaking down the crystalline structure of *Seesa* to gain an amorphous nature. The breaking of bonds helps in quenching the metals.

3.1.2. PAYANA

It is the major procedure compared to *sodhanadi karmas* which may be considered the preparatory procedure before the manufacture of *Salaka*. Hence, it is specifically mentioned as the *Seesa Salaka Samskara Vidhi* by *Acharya Vagbhata*. It has been done by melting and quenching *Seesa* in six different media. This process helps in increasing the medicinal properties of *Seesa Salaka* rather than a mere purification. Since the technique was conducted only after *Sodhana, Seesa* becomes more efficient and therapeutically effective in various clinical conditions.

3.1.3. Standardization

Standardization is a need of the hour in *Ayurvedic* science. So far individualistic approach has been addressed by different personalities in the stream of *Ayurveda*. This leads to various controversies.

4. CONCLUSION

An evidence-based study is necessary in each and every field of medicine. This is the main lacuna of the *Ayurvedic* line of treatment as it is practiced without universal acceptance. This is an attempt to make standards in the preparation of *Seesa Salaka* and the techniques advocated in the study denote the unique behaviour of *Seesa Salaka*.

5. ACKNOWLEDGMENTS

Nil.

6. AUTHORS' CONTRIBUTIONS

All the authors contributed equally to the design and execution of the article.

7. FUNDING

Nil.

8. ETHICAL APPROVALS

This study did not require ethical clearance as it is a review study.

9. CONFLICTS OF INTEREST

Nil.

10. DATA AVAILABILITY

This is an original manuscript and all data are available for only review purposes from principal investigators.

11. PUBLISHERS NOTE

REFERENCES

1. Murthy KRS. Astanga hrudaya sarvanga sundara vyakhyanasahitam. Uttarasthana 13/34-35. Varanasi: Chaukhambha Sanskrit Sansthan; 2012. p. 820.
2. Kulkarni D. A vagbhata rasaratna samucchaya siddhiprada hindivyakhyanasahitam. Vol. 5/170. Varanasi: Chaukhambha Orientalia; Edition Reprint; 2011. p. 70.
3. Murthy KRS. Astanga hrudaya sarvanga sundara vyakhyanasahitam. Sutrasthana 23/12. Varanasi: Chaukhambha Sanskrit Sansthan; 2012. p. 304.
4. Murthy KR, Translator. Sharangadhara samhita. Madhyama Khanda 9/3. Varanasi: Choukhamba Surbharti Publication; 2001. p. 218.
5. Sharma S. Shastri K, editor. Rasatarangini. 11/216-218. Delhi: Motilal Banarasidas Publications; 2009. p. 280.
6. Sharma S. Rasatarangini Hindi commentary by Pandit Kashinath Shastri. 11th ed., 2/52. Delhi: Motilal Banarasidas Publications; 1979. p. 22.
7. Kulkarni D. A vagbhata rasaratna samucchaya hindi commentary. Vol. 5/13. Bangalore: Meharchand Lachhmandas Publications; 1998. p. 197.
8. Sharma S. Rasatarangini Hindi commentary by Pandit Kashinath Shastri. 11th ed., 19/10. Delhi: Motilal Banarasidas Publications; 1979. p. 458.
9. Gavali J. WHO (World Health Organization) guidelines for standardization of herbal drugs. Int Ayurvedic Med J. 2015;3:2239.
10. Brown TL, LeMay HE, Bursten BE, Murphy CJ, Woodward P. Chemistry: The central science. 11th ed. New Jersey: Pearson Education; 2009.
11. Kulkarni D. A vagbhata rasaratna samucchaya siddhiprada hindivyakhyanasahitam. Vol. 5/170. Varanasi: Chaukhambha Orientalia; 2011. p.71.
12. Juris M, Coplen TB, Berglund M, Brand WA, De Bièvre P, Gröning M, Holden NE, Irrgeher J, Loss RD, Walczyk T, Prohaska T. Atomic weights of the elements 2013 (IUPAC technical report). Pure Appl Chem. 2016;88(3):265-91.

How to cite this article:
Surendran S, Sindhu C. Standardization of *Seesa Salaka.* IRJAY. [online] 2025;18(3);25-36.
Available from: https://irjay.com
DOI link- https://doi.org/10.48165/IRJAY.2025.80304

Figure 1: *Seesa* (Lead)

Figure 2: *Seesa Salaka*

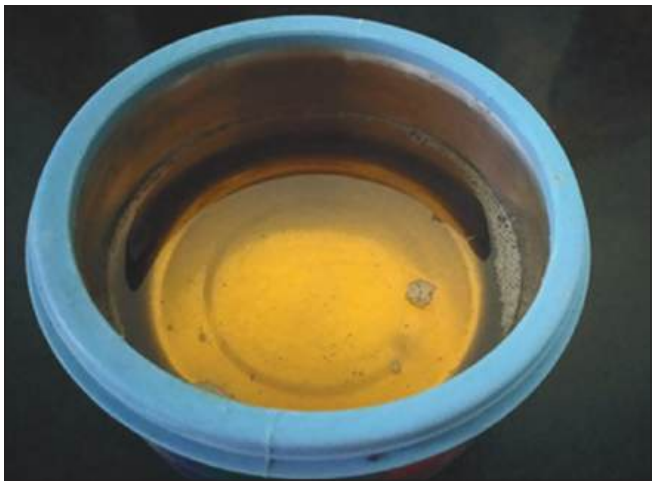

Figure 3: *Taila*

Figure 5: *Gomutra*

Figure 4: *Takra*

Figure 6: *Aranala*

Figure 7: *Kulattha kashaya*

Figure 10: *Bhringaraja kashaya*

Figure 8: *Churnodaka*

Figure 11: *Jala*

Figure 9: *Triphala kashaya*

Figure 12: *Ghrita*

Figure 13: *Ajaksheera*

Figure 14: *Yastimadhu kashaya*

Figure 15: *Samanya Sodhita Seesa*

Figure 16: *Vishesha Sodhita Seesa*

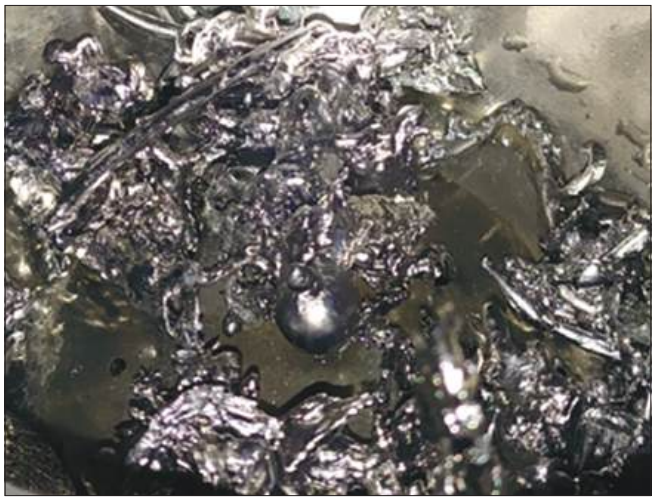

Figure 17: *Payitha Seesa*

Table 1: Observations during *samanya sodhana*

Serial number	Weight of *seesa*	*Sodhana dravya* and its quantity during each *dalana*	Findings
1	1 kg (1000 g)	*Taila* 1 L (1000 mL)	Color of *taila* – deep brown Mild fumes during 1st time, but more fumes evolved later Unpleasant odor Mild hizzing sound Time taken for each *dalana* – 15–20 min *Seesa* obtained after 7 *dalana*s – 920 g
2	920 g	Takra 920 mL	Initially, the color of takra – mild black tinge Black fumes for the 1st time, afterward very mild fumes Curdling of takra was seen after the procedure Mild odor Bursting sound Time taken for each *dalana* – 10–15 min *Seesa* obtained after 7 *dalana*s – 810 g
3	810 g	*Gomutra* 810 mL	Color – deep brown Mild black fumes present Strong foul smell Bursting sound Time taken for each *dalana* – 8–10 min *Seesa* obtained after 7 *dalana*s – 695 g
4	695 g	*Aranala* 695 mL	Color almost remained as same (brown) Mild odor and fumes Bursting sound Time taken for each *dalana* – 8–10 min *Seesa* obtained after seven *dalana*s – 500 g
5	500 g	*Kulatha kashaya* 500 mL	Same color as *samanya sodhana* Mild odor and fumes Bursting sound Time taken for each *dalana* – 5–8 min *Seesa* obtained after 7 *dalana*s – 450 g

Table 2: Observations during *payana*

Serial number	Weight of *seesa*	*Payana dravya* and its quantity during each *dalana*	Findings
1	380 g	*Triphala kashaya* 380 mL	Color of *kashaya* turned into dark brown from a light brown color Mild fumes evolved Mild unpleasant odor Bursting sound Time taken for each *dalana* – 5–8 min *Seesa* obtained after 7 *dalana*s – 310 g
2	310 g	*Bhringaraja kashaya* 310 mL	Color remained the same (coffee brown) Mild fumes Mild odor Bursting sound Time taken for each *dalana* – 5–6 min *Seesa* obtained after 7 *dalana*s – 265 g
3	265 g	*Jalam/visham* 265 mL	No color change Very mild fumes present Mild smell Bursting sound Time taken for each *dalana* – 5–6 min *Seesa* obtained after 7 *dalana*s – 205 g
4	205 g	*Ghritam* 205 mL	Not enough color change occurred Black fumes evolved with a strong foul smell Hizzing sound Time taken for each *dalana* – 5 min *Seesa* obtained after 7 *dalana*s – 150 g
5	150 g	*Ajaksheera* 150 mL	For the 1st time, a mild blackish tinge appeared, thereafter no change was noticed Mild odor and fumes Bursting sound Time taken for each *dalana* –5 min *Seesa* obtained after 7 *dalana*s –100 g
6	100 g	*Yastimadhu kashaya* 100 mL	Color changed into dark brown mild odor and fumes Bursting sound Time taken for each *dalana* – 5 min *Seesa* obtained after 7 *dalana*s – 60 g

Table 3: Data related with inductively coupled plasma mass spectrometry analysis of raw material

Serial number	Elements	Quantity
1	Iron (Fe)	2.89 ppm
2	Copper (Cu)	24.97 ppm
3	Zinc (Zn)	2.65 ppm
4	Tin (Sn)	5.0 ppb

Table 4: Data related with CHNS Analysis of raw material

Serial number	Elements	Quantity
1	Carbon (C)	ND
2	Hydrogen (H)	ND
3	Nitrogen (N)	0.02 ppm
4	Sulphur (S)	ND

ND: Not detected

Table 5: Data related with Inductively coupled plasma mass spectrometry analysis of *Samanya vishesha sodhita Seesa*

Serial number	Elements	Quantity
1	Iron (Fe)	1.94 ppm
2	Copper (Cu)	16.65 ppm
3	Zinc (Zn)	5.58 ppm
4	Tin (Sn)	1.8 ppb

Table 6: Data related with CHNS Analysis of S*amanya vishesha sodhita Seesa*

Serial number	Elements	Quantity
1	Carbon (C)	ND
2	Hydrogen (H)	ND
3	Nitrogen (N)	0.01 ppm
4	Sulphur (S)	ND

ND: Not detected

Table 7: Data related with Inductively coupled plasma mass spectrometry Analysis of *payita Seesa*

Serial number	Elements	Quantity
1	Iron (Fe)	1.20 ppm
2	Copper (Cu)	15.96 ppm
3	Zinc (Zn)	6.65 ppm
4	Tin (Sn)	2.1 ppb

Table 8: Data related with CHNS Analysis of *payita Seesa*

Serial number	Elements	Quantity
1	Carbon (C)	ND
2	Hydrogen (H)	ND
3	Nitrogen (N)	0.09 ppm
4	Sulphur (S)	ND

ND: Not detected

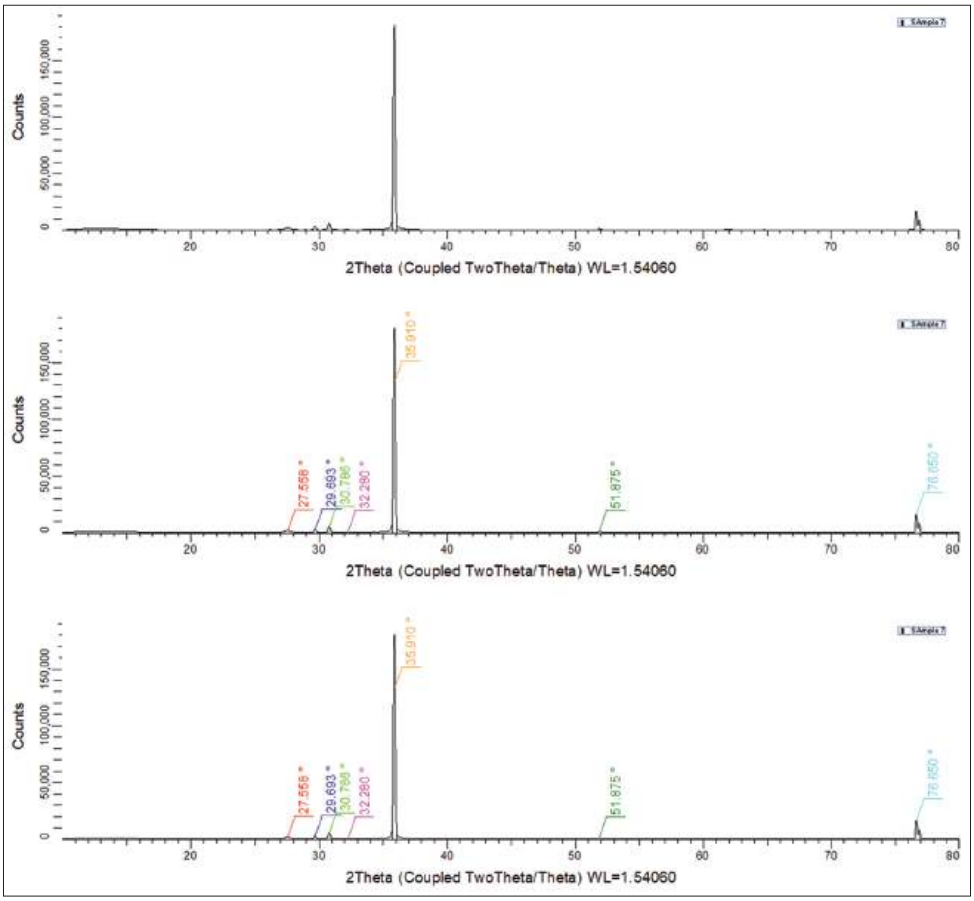

Figure 18: X-ray diffractogram

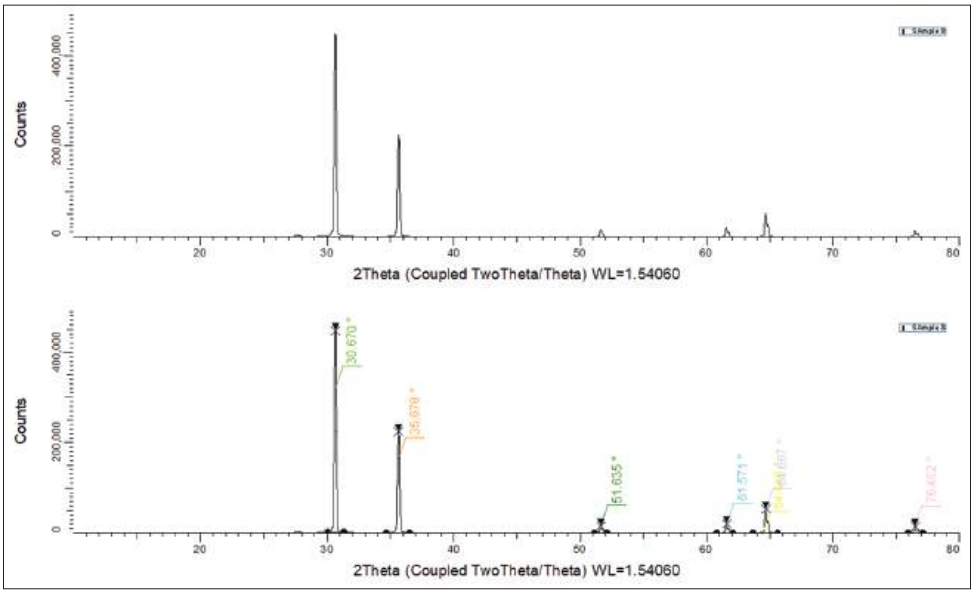

Figure 19: X-Ray Diffractogram

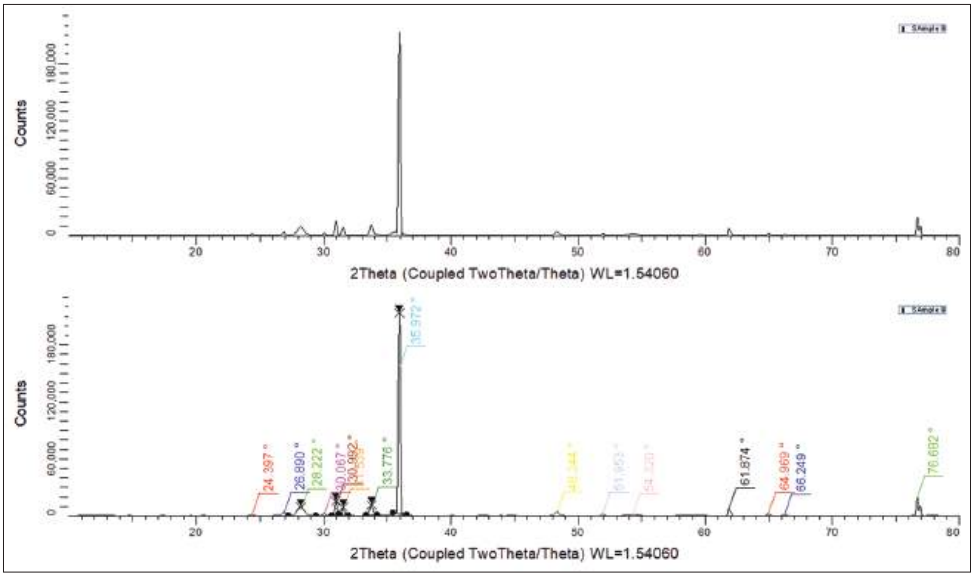

Figure 20: X-Ray Diffractogram