VOLUME - 15, ISSUE - 08, AUGUST - 2026 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper

Ayurvedic Pharamaceutical Science

STANDARDIZATION OF CLASSICALLY PREPARED NAVASAADARA: A PHARMACEUTICO-ANALYTICAL STUDY

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ABSTRACT

Background: Navasaadara is an important Ayurvedic pharmaceutical preparation described in classical texts and traditionally prepared from the ash of Kareera (Capparis decidua (Forssk.) Edgew.) and Peelu (Salvadora persica L.) Kaashtha. Despite the widespread availability of synthetic ammonium chloride, scientific standardization of classically prepared Navasaadara is essential to establish its pharmaceutical quality and authenticity. **Aim:** To develop a Standard Manufacturing Procedure (SMP) and evaluate the pharmaceutico-analytical profile of classically prepared Navasaadara. **Materials and Methods:** Navasaadara was prepared in three batches following the classical method. Kshaara Jala was prepared using demineralized water (1:4), filtered seven times through a three-fold cotton cloth, and evaporated over mild heat. The prepared drug was evaluated for organoleptic and physicochemical parameters. **Results:** All three batches showed reproducible pharmaceutical characteristics. The prepared Navasaadara was white, fine in texture, with an average pH of 10.8, LOD of 1.64%, ash value of 99.76%, and water-soluble extractive value of 95.8%. **Conclusion:** The study established a Standard Manufacturing Procedure and generated preliminary pharmaceutico-analytical standards for classically prepared Navasaadara.

KEYWORDS : Navasaadara, Kshaara, Kareera, Peelu, DM water, Plant alkali

INTRODUCTION:

Ayurveda utilizes medicinal substances of plant (*Audbhida*), animal (*Jangama*), and mineral (*Parthiva*) origin for the preparation of various formulations. Among the plant-derived products, Kshaara is an important pharmaceutical preparation described by Acharya Charaka. Navasaadara, a well-known Ayurvedic drug, is mentioned in classical texts such as *Rasa Ratna Samuccaya* and *Rasatarangini*. Traditionally, it is prepared from the ash of Peelu (*Salvadora persica* L.) and Kareera (*Capparis decidua* (Forssk.) Edgew.) wood, although it is also described to be obtained from animal, mineral, and artificial sources.

Navasaadara possesses Deepana, Pachana, Kapha-Vatahara, and Tridosha Shamaka properties and is widely used in Ayurvedic therapeutics and pharmaceutical processes, particularly in Parada Jarana Samskara. It is also an ingredient of several classical formulations such as Kshaara Parpati and Shankha Drava. Chemically, *Navasaadara* corresponds to ammonium chloride (NH Cl), which is recognized for its expectorant and mild systemic acidifying properties.

Although synthetic ammonium chloride is readily available in the market, it is manufactured through a process different from the classical Ayurvedic method. Therefore, scientific standardization of classically prepared *Navasaadara* is essential to establish its identity, quality, and authenticity. The present study aims to standardize classically prepared *Navasaadara* through pharmaceutico-analytical evaluation and to generate reference quality parameters for its traditional preparation.

Aim & Objectives:

- To develop Standard Manufacturing Procedure (SMP) of *Navasaadara* by using classical method of preparation.
- To analyze the Pharmaceutico-analytical profile of classically prepared *Navasaadara*

MATERIAL AND METHOD:

Table No.1: Showing ingredients for prepration of *Navasaadara*

Sr. No.	Name of Ingredients	*Navasaadara*		
		Batch1	Batch2	Batch3
1	Wt. of *Kareera* ash (g)	125	125	125
2	Wt. of *Peelu* ash (g)	125	125	125
3	Wt. of Total ash (g)	250	250	250
4	Wt. of Total Ash (ml)	350	350	350
5	Dm Water(demineralized Water(ml)	1400	1400	1400

Kareera and *Peelu Kaashtha* were collected from Khoda Village, Vav–Tharad, North Gujarat, with due permission from the concerned authorities. The collected raw materials were shade-dried for three months and authenticated by the Department of Botany, J. & J. College of Science, Nadiad. The pharmaceutical preparation of *Navasaadara* was carried out in the Pharmaceutical Laboratory, Postgraduate Department of Rasa Shastra Evam Bhaishajya Kalpana, J.S.Ayurveda Mahavidyalaya, Nadiad.

Preparation of ash: *Kareera* and *Peelu Kaashtha* were separately incinerated to obtain ash. For each batch, 125 g of Kareera ash and 125 g of Peelu ash were mixed thoroughly to obtain 250 g of total ash, which was used for the preparation of *Kshaara Jala*.

Preparation of *Kshaara Jala* : The mixed ash (250 g; 350 ml by volume) was mixed with 1400ml of demineralized (DM) water (1:4 ratio). The mixture was macerated thoroughly and kept undisturbed overnight. The supernatant liquid was then decanted and filtered seven times through a three-fold cotton cloth to obtain clear *Kshaara Jala*.

Preparation of *Navasaadara*: The filtered *Kshaara Jala* was heated over a mild flame until complete evaporation of the *Kshaara Jala*. The contents were stirred intermittently to prevent adhesion. The obtained *Navasaadara* was carefully scraped, powdered, and stored in an airtight container. Three batches were prepared using the same procedure.

RESULTS

Pharmaceutical Study:

Table No.2: Showing Results of All batches of *Navasaadara*

Results of *Navasaadara*				
Sr. No	Parameters	Batch 1	Batch 2	Batch 3	Average
1.	Wt. of Total Ash taken for Pharmaceutical Study(g)	250	250	250	250
2.	Vol. of DM water taken (ml)	1400	1400	1400	1400
3.	Wt. of Ash taken for Pharmaceutical Study (g)	1st wash - 250 2nd wash - 220 3rd wash - 180 Avg. = 216.67	1st wash - 250 2nd wash - 200 3rd wash - 170 Avg. =206.67	1st wash - 250 2nd wash - 210 3rd wash - 169 Avg. =209.67	1st wash - 250 2nd wash - 210 3rd wash - 173 Avg. = 211
4.	*Kshaara Jala* obtained (ml)	1st wash - 900 2nd wash - 725 3rd wash - 675 Avg. = 766.67	1st wash -870 2nd wash - 730 3rd wash - 645 Avg. = 748.34	1st wash -860 2nd wash -725 3rd wash - 590 Avg. =725	1st wash -873 2nd wash -691 3rd wash - 608 Avg. = 724
5.	*Navasaadara* (g)	1st wash- 29.69 2nd wash -14.14 3rd wash -07 Avg. =16.95	1st wash -24.12 2nd wash-10.46 3rd wash - 06 Avg. = 13.52	1st wash -26.69 2nd wash -12.86 3rd wash -05 Avg. = 14.85	1st wash -26.83 2nd wash-12.54 3rd wash -06 Avg. = 15.12
6.	Total time require for *Navasaadara* prepration(hrs:min)	1st wash – 19:55 2nd wash –19:40 3rd wash -19:12 Avg.=19:35	1st wash – 19:58 2nd wash –19:45 3rd wash -19:15 Avg.=19:40	1st wash -19:50 2nd wash -19:42 3rd wash -19:17 Avg.=19:36	1st wash -19:55 2nd wash –19:42 3rd wash -19:14 Avg.= 19:34

Analytical Study: Table No. 3: Showing organoleptic characters of *Kareera & Peelu Kaashtha* Powder & Ash, *Navasaadara Kshaarajala* and *Navasaadara* & Physico-chemical parameters of *Navasaadara*

Result of *Navasaadara*													
Physico-chemical Parameters	Batch 1 Wash				Batch 2 Wash				Batch 3 Wash				Avg.
	1st	2nd	3rd	Avg	1st	2nd	3rd	Avg	1st	2nd	3rd	Avg	Avg
pH	11.2	10.9	10.8	10.9	11.6	10.6	10.2	10.8	11.4	10.8	10.6	10.9	10.8
LOD 105° (%W/W)	1.00	1.20	1.30	1.10	1.60	1.8	1.9	1.7	1.5	1.8	1.2	1.5	1.64
Ash value(%W/W)	99.7	99.8	99.8	99.7	99.7	99.7	99.7	99.7	99.7	99.8	99.8	99.7	99.7
Acid Insoluble Ash(%W/W)	0.99	0.99	0.99	0.99	0.98	0.99	0.99	0.98	0.98	0.99	0.99	0.98	0.9
W.S.E(%W/W)	96	95.8	95	95.6	96.2	95.7	95.2	95.7	96.8	96	95.6	96.1	95.8
A.S.E(%W/W)	51.2	50.8	50.2	50.7	51	50.6	50.4	50.6	51.4	51	50.8	51	50.7
Alkanality(ml of 0.1M HCL)(mg/L)	40	39	38	39	39	38	38	38.3	39	38.6	38.4	38.6	38.6

Organoleptic characters of *Navasaadara*						
	Kareera Powder	*Peelu* Powder	*Kareer a*Ash	*Peelu* Ash	*Kshaar ajala*	*Navasaadara*
Color	Light creamish – yellow	Light creamish – yellow	Smoky greyish	Smoky greyish	Light yellow	White
Touch	Fine	Fine	Rough	Rough	Slimy	Fine
Taste	Sweet & Astringent	Sweet & Astringent	Salty	Salty	Salty	Salty
Odor	Characteristic	Characteristic	Charac teristic	Charact eristic	Charac teristic	Characteristic

DISCUSSION

Classically prepared *Navasaadara* was successfully standardized through three pharmaceutical batches prepared from *Kareera* (*Capparis decidua*) and *Peelu* (*Salvadora persica*) *Kaashtha*. Shade drying of the raw materials for three months reduced moisture content and ensured uniformity before pharmaceutical processing. The higher ash yield obtained from *Peelu* compared to *Kareera* may be attributed to its relatively higher inorganic mineral content.

Kshaara Jala was prepared by macerating mixed ash with demineralized (DM) water in a 1:4 ratio followed by overnight sedimentation and three-fold cotton cloth 7 times filtration, as described in classical Ayurvedic texts. The use of DM water minimized interference from dissolved minerals and facilitated the preparation of clear *Kshaara Jala*. Repeated extraction of the residual ash through three successive washes improved the recovery of water-soluble alkaline constituents, demonstrating that a single extraction is insufficient for maximum yield.

During heating, gradual evaporation of *Kshaara Jala* produced a white crystalline *Navasaadara*. Mild heating with continuous stirring prevented charring and ensured a uniform product. The first wash yielded the maximum quantity of *Navasaadara*, followed by progressively lower yields in the second and third washes; however, the cumulative yield obtained from all three washes was considerably higher than that of a single extraction, supporting the importance of repeated washing in the classical pharmaceutical process.

The analytical evaluation demonstrated good batch-to-batch consistency. The prepared *Navasaadara* exhibited strong alkalinity (average pH 10.8), very low moisture content (LOD 1.64%), high ash value (99.76%), low acid-insoluble ash (0.98%), high water-soluble extractive value (95.8%), and acceptable alcohol-soluble extractive value (50.7%). These findings indicate the purity, reproducibility, and pharmaceutical quality of the classically prepared *Navasaadara* and provide preliminary reference standards for its quality assessment.

CONCLUSION:

The present study successfully established a Standard Manufacturing Procedure (SMP) for the classical preparation of *Navasaadara* using *Kareera* and *Peelu Kaashtha*. Repeated extraction of *Kshaara Jala* with demineralized water followed by controlled evaporation produced a reproducible, good-quality product in all three batches. The pharmaceutico-

analytical evaluation demonstrated consistent organoleptic and physicochemical characteristics, indicating the purity and batch-to-batch reproducibility of the prepared *Navasaadara*. The findings provide preliminary reference standards for the pharmaceutical quality assessment of classically prepared *Navasaadara* basis for its future standardization and quality control.

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