

Critical Study of Gandhashastra with Special Reference to Rasashastra and Bhaishajya Kalpana

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Abstract: Gandhashastra, a Science of Cosmetology and perfumery was contemporary to ancient Ayurveda. The modern day herbal cosmetology has its roots in the Gandhashastra. It deals with the formulations meant for Face care, Body care, Oral care, Hair care and the perfumery products like Fragrant water, Fragrant fabric, Armpit deodorants and the Room-fresheners. The Gandhashastra, while preparing the gandhakalpanas have utilized most of the basic principles of Rasashastra & Bhaishajya Kalpana. The present paper deals with the Critical study of Gandhashastra with special reference to Rasashastra & Bhaishajya Kalpana.

Keywords: Gandhashastra, Gandhakalpanas, Rasashastra, Bhaishajya Kalpana.

I. Introduction:

From Vedic times, India has witnessed great civilization and cultures. It has also witnessed the development of sciences like Shilpashastra, Jyotishashastra, Ganitashastra, Pakashastra, Dhatushastra, Vyakaranashastra, Gandhashastra as well as Ayurveda. All these shastras were contemporary to ancient Ayurveda. The basic principles of these sciences were applied to each other. Sushruta has rightly stated the need of studying the contemporary sciences¹.

Gandhashastra, a science of Gandhas i.e. cosmetics and perfumes was contemporary to ancient Ayurveda. A rare manuscript viz. Gandhasara by Gangadhar (12th Century A.D.) and Gandhavada by an anonymous author is the base of this research work. The literature pertaining to Gandhashastra is scattered right from the Vedas to the modern day Ayurvedic texts. This research work is an exploratory study where the primary and secondary data was used for critical study. The Gandhashastra has applied the basic science and technologies described by Rasashastra and Bhaishajya Kalpana. It also has a strong resemblance to the cosmetics industry. This paper deals with the Critical study of Gandhashastra with special reference to Rasashastra and Bhaishajya Kalpana.

II. Literary View:

The literature regarding Gandhashastra is widely scattered. The Vedas-Upanishadas-Puranas-Smritis-Samhitas are the sources referred for literature of Gandhashastra.

Scientific base of Gandhashastra:-

1) It states that a Gandhadravya should be subjected to the following Six processes viz.

Bhavana, Pachana, Bodhana, Vedhana, Dhupana and Vasana. These processes are summarized as follows²-

Bhavana:- It is a maceration process where a solid base is macerated by a liquid base. It is done for 5-6 times. This process is used for the preparation of gandhodaka, mukhavasa and udvartana etc.

Pachana:- It is a process of baking or ripening. Here a solid base is baked with the help of various yantras. It has 11 sub-types. This process is used for the preparation of gandhataila and kusumdruti etc.

Bodhana:- It is the process of intensification where a solid base is intensified by another solid base. It is done for about a week for the preparation of udvartana and mukhavasa etc.

Vedhana:- In this process a liquid base is intensified by another liquid base. This process is done once for preparing niryasa, parijata and dipataila etc.

Dhupana:- It is the process of fumigation where a solid base is fumigated by a gaseous base. It is done once with the help of dhupayantra. It is used to prepare udvartana and mrugaraja etc.

Vasana:- In this process of transmission of scents a solid or liquid base is made fragrant by a gaseous base ; used to prepare gandhataila and jalavasa etc.

2) Gandhayukti (Blending Techniques for Perfumes as described by Varahamihira)

It says that out of the group of 16 Substances, the number of Perfumes that can be prepared by selecting any 4 at a time will be 1820 i.e.

$${}^n\text{Cr} = \frac{n(n-1)(n-2) \dots (n-r+1)}{1.2.3 \dots r}$$

Where n = 16 (total number of drugs)

r = 4 (no. of drugs taken at a time)

$${}^{16}C_4 = \frac{16 \times 15 \times 14 \times 13}{1 \times 2 \times 3 \times 4} = 1820$$

Thus Varadhamihira has described a Blending technique of the Perfumes, which was further applied by Gangadhara.

3) Preparation of artificial scents by Rasaratnakara e.g. Chandana, Karpura, Kasturi, Kumkuma.

4) Preparation of artificial scents by Haremekhala.

Haremekhala, a Pali text describes the preparation of artificial scents using the unique method of Fermentation.

5) Agreeability of the Gandhadavyas :-

Depending on the agreeability of the gandhadavyas, they were classified as Shatru (non-agreeable); Mitra (agreeable) and Udasina (neutral) dravyas.

6) Gandhadravyanighantu :-

Gandhasara has described a unique Gandhadravya-nighantu which deals with synonyms of aromatic substances, classification of them, method of testing their genuineness, grahya and agrahya gandhadavyas, precautions regarding collection and storage of drugs, abhava varga (substitutes).

This description is sufficient enough to prove the scientific base of Gandhashastra.

Aims and Objectives:-

1. To have a conceptual study Gandhashastra with reference to Rasashastra and Bhaishajya Kalpana.
2. To prepare 4 gandhakalpas by traditional and modern methods.
3. To have an analytical study of these gandhakalpas.

III. Materials and Methods:

1. Conceptual Study :-

a) Contribution of Rasashastra to Gandhashastra³ –

The yantras (equipments) are the back-bone of Rasashastra. Gandhashastra has used some of these yantras for preparing the gandhakalpas eg.

Dolayantra – Snaniya jalavasa, gandhadravya svedana.

Patana Yantra –Arka nishkasana

Nalika Yantra – Gandhodaka nirmana

Patala Yantra – Kusumadi druti nirmana

Khalva Yantra – Bhavana, bodhana, vodhana, parijata, gandhodaka, jalavasa etc.

Samuputa Yantra – Putapaka, gartapaka, kharparapaka

Bhudhara Yantra –Gartapaka

Dhupana Yantra – Mukhavasa, gandhataila, dhupa, niryasa, syanda etc.

Ulukhala Yantra – Vasana Samskara

Svedani Yantra – Venupaka

Kharparapaka Yantra –Bilvapaka, Karabhapaka etc

Similarly Hansapaka, ghatayantra and arkapatana yantra find mention in the texts of Gandhashastra, Thus Rasashastra plays an important role in the preparation of Gandhakalpanas.

b) Contribution of Bhaishajya Kalpana to Gandhashastra⁴ :-

Bhaishajya Kalpana is a science that deals with the samskaras to be done over a bhaishajya. The implementation of these Samskaras in various gandhakalpanas are as follows:-

Toyasannikarsha –Gandhaodaka, mukhavasa, jalavasa

Agnisannikarsha - Gandhataila

Saucha – Mukhavasa, dhupana samskara

Kala – Dantakashtha nirmana, bhavana, pachana

Vasana –Gandhataila nirmana

Bhavana – Bhavana samskara

Kalaprakarsha –Kalapaka

Bhajana – Rajatpatra, ayaspatra.

Manthana – Vedhana Samskara

Desha – Kashmiraja (Keshara) etc.

Samshlesha –Mitra-dravyavarga

Vishlesha – Shatru-dravyavarga.

The Kashayakalpanas and gandha Kalpanas can be correlated as follows:-

- a) Svarasa - Niryasa, syanda, putapaka
- b) Kalka - Dantakashtha
- Churna – Mukhavasa, parijata, uddhulana, pugavasa
- Varti – Dipavarti, dhupararti
- Lepa – Udvartana, Keshavasa, patavasa
- c) Kvatha –Gandhodaka
- d) Hima – Snaniya jalavasa

Thus Bhaishajya Kalpana has provided a lot of ideas to the Gandhashastra.

2.Pharmaceutical Study :-

This study includes a preparation of 4 gandhakalpas by traditional and modern methods.

Ia) Preparation of Priyangvadi Lepa (Complexion Promoting face salve)

Ingredients:- Priyangu, Keshara, Badar majja, Hribera, Rakta Chanda. (24 %, 2 %, 24 %, 24 %, 26 % respectively).

Procedure: - Each crude drug was finely powdered and sieved with a 80 # mesh. These Powders were then compounded together. Thus Priyangvadi Lepa is prepared.

Ib)Preparation of Priyangvadi Cream :-

Sr. No.	Ingredients	Wt. in gram	Sr. No.	Ingredients	Wt. in gram
1	Aq. Extract of Priyangvadi Lepa	25 %	8	Glycerine	11 g
2	GMS SE	11 g	9	PG	11 g
3	Ginol	35 g	10	Phenoxy ethanol	2 g
4	CM 1000	11 g	11	Methyl Paraben	2 g
5	Brij 72	0.2 g	12	Propyl Paraben	0.3 g
6	Brij 721	2 g	13	EDTA	0.1 g
7	IPM	11 g	14	Water	404 ml

Procedure :- All the ingredients of wax phase were added into one vessel and heated to about 75-80’ C. Similarly all the ingredients of water phase were added into another vessel and heated to about 75-80’ C. At about 75-80’ C the wax phase was added into water phase. The mixture was homogenized for 30 min.

II a) Preparation of Kanakadi Lepa (Cosmetics for lips)

Ingredients :-Ghruta, Phanita, Tiltaila, Suvarnagairika, Sarjarasa, Saindhavalavana and Siktha (14.3 % each)

Procedure. To a hot Tilataila, Siktha was added and then oil was filtered. Into this mixture ghruta & phanita were added Gairika, lavana and sarjarasa powders were further added to this mixture.

II b)Preparation of Kanakadi Lip-stick.

Sr. No	Ingredients	Wt. in gram
1	Bees wax	25 g
2	Candellila wax	5 g
3	Seasame oil	25 g
4	Ghee	20 g
5	Jaggery	10 g
6	Suvarnagairika	5 g
7	Sarjarasa	5 g
8	Saindhavalavana	5 g

Procedure:-All the ingredients and pigments were melted. The molten mass was transferred to previously lubricated moulds. The lip-sticks were removed after they got solidified.

III a)Preparation of Bilvadi Kakshavasa (Armpit deodarent)

Ingredients :- Bilva, Haritaki - (50 % each)

Procedure :- Each crude drug was finely powdered and sieved with a 80 # mesh. These powders were then compounded together to get a Bilvadi Kakshavas.

III b) Preparation of Bilvadi Gel :-

Sr. No	Ingredients	Wt. in gram
1	Aq. Extract of Bilvadi Kakshavasa	125 g
2	Carbopol 940	4.5 g
3	Water	945 ml
4	Formalin	0.15 g
5	TEA	0.6 g

Procedure : Carbopol was added into small portion of water under constant stirring. The remaining ingredients were also added under constant stirring. TEA was added to attain neutral pH between 6.5 to 7.5. Thus Bilvadi Gel was obtained.

IVa) Preparation of Alambushadi Taila (Breast size enhances)

Ingredients :- Alambusha, Taila, Pippali, Jala (30 g, 250 ml, 30 g, 1 ltr. respectively)

Procedure :- A paste of Alambusha and Pippali was processed with Tilataila and jala. After proper 'Siddhilakshana', taila was ready.

IVb) Preparation of Alambushadi Cream:-

Sr. No	Ingredients	Wt. in gram	Sr. No	Ingredients	Wt. in gram
1	Alambushadi Taila	250 g	7	EDTA	0.2 g
2	Ginol	50 g	8	Sod. Methyl paraben	3 g
3	Cetylalcohol	10 g	9	Sod. Propyl paraben	0.6 g
4	Cm 1000	20 g	10	TEA	5 g
5	Stearic Acid	20 g	11	Water	636 g
6	Carbopol 940	5 g			

Procedure:-All the Ingredients of wax-phase were added to one vessel and that of water-phase into another vessel. These vessels were heated to about 75-80' c. At about 75-80' c, the wax phase was added into the water phase. The mixture was homogenized for 30 minutes. Thus Alambushadi Cream was obtained.

Analytical Tests:-

Analytical Tests	Priyangvadi		Kanakadi		Bilvadi		Alambushadi	
	Lepa	Cream	Lepa	Lipstick	Kakshavasa	Gel	Taila	Cream
Color	Violet	Off White	Reddish	Dark Brown	Yellowish	Off White	Off White	white
Odor	Characteristic	Odorless	Odorless	Odorless	Characteristic	Odorless	Characteristic	Odorless
Total Ash	6.80%	-			4.20%	-		
Acid Insoluble Ash	1.80%				0.85%	-		
pH	5.83	6.45			5.3	6.98		6.93
Water Soluble Ext	29%				27%	-		
Alcohol Sol. Ext.	26%				19%	-		
LOD at 105' C.	6.50%				7.7. %	-		
Wt/ml	-	10.24	0.902		-	0.968	0.905	1.128
Particle Size	# 80		# 80		# 80			
Heavy Metals	Complies	Complies	Complies	Complies	Complies	Complies	Complies	Complies
Bacterial Load (300 cfu/g)	110	210			140	110		
Iodine Value			-				102	
Saponification Value			89.3	94.7			184	
Refractive Index			1.471				1.481	
Acid Value			2				1.9	

IV. Observations and Results

The transformation of these four traditional products into their modernized forms made them more acceptable as can be seen by their odorless, appealing colors and suitable pH. The analytical tests were within the normal limits.

V. Discussion:

From pre-historic times, India has witnessed the development of the shastras like Jyotisha-Ganita-Paka-Dhatu-Vyakarana-Gandhasastra as well as Ayurveda. These sciences were contemporary to each other. Hence Ayurvedic texts have references from the fields like Jyotisha-Ganita-Paka shastra & Gandhasastra. The Gandhasastra, a science contemporary to ancient Ayurveda, is a co-ordinated, integrated and comprehensive faculty of the orient times.

Various yantras from Rasashastra find description in the texts of Gandhasastra eg. Dola-patana-nalika-patala-khalva-samputa-bhudhara-dhupa-ulukhala-svedani-kharparpaka-hansapaka-ghata-arkapatana yantra. Few changes were noted in the texts of Gandhasastra eg. dolayantra from Rasashastra is an open vessel while that of Gandhasastra is a closed vessel having its mouth luted with clay (to avoid loss of aromatic vapours during dolapaka). Similarly in bhudharayantra, the follow pit is to be filled by Valuika, whereas Gandhasara recommends the clay.

Thus yantras mentioned in Rasashastra have an important role in the preparation of Gandhakalpanas. Various bhashajya samskaras are implemented in the preparation of Gandhakalpanas eg. Toya/Agnisannikarsha, saucha, kala, vasana, bhavana, kalaprakarsha, bhajana, manthana, desha and yukti.

During application of these samskaras Gandhasastra has made few changes eg. in Gandhasastra, bhavana is done for 5 or 6 times while in Bhaishajya Kalpana it is done for 7 times. Similarly in Gandhasastra vasana, samskara is done to transmit the floral fragrance to the cosmetics while in Bhaishajya Kalpana, it is done for transmission of scents to the cosmetic as well as non-cosmetics eg. Asava & Arishta.

Although 895 Gandhakalpas have been described in the ancient texts the present paper has dealt with 4 gandhakalpas prepared by traditional and modern methods.

VI. Conclusion:

At one time in the history of humanity, Gandhasastra was perhaps the most predominant science of life. Even the ancient Royal families were enjoying the essence of Gandhasastra. Hence the importance of studying a contemporary science to ancient Ayurveda, like Gandhasastra cannot be ruled out.

The experimentation was carried for representative four products, which were then tested for the necessary laboratory findings. From these studies it can be said that Gandhasastra has utilized the basic principles of Rasashastra and Bhaishajya Kalpana, for preparing the Gandhakalpanas.

Such a multi-disciplinary work may provide useful information to the cosmetics industry of the 21st Century.

References

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