



Review Article

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CRITICAL REVIEW OF BHAI SAJYA RATNAVALI WITH SPECIAL REFERENCE TO HARATALA

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ABSTRACT

Rasa Shastra and Bhaisajya Kalpana is an elaborate branch that deals with Ayurvedic pharmaceuticals comprising of herbal, mineral and plant origin. Arsenicals, a group of minerals listed in Schedule E (1) of Drugs and Cosmetics Rules 1945, have been widely used in the Ayurvedic fraternity since long for the treatment of various diseases. Haratala, a component of arsenicals has mostly been used after certain purification and potentiating. It has been used for treating a number of diseases like Jwara (fever), Kustha (skin disorders), Netra Roga (ophthalmic diseases) etc. This present review has compiled the formulations containing Haratala from Bhaisajya Ratnavali along with the percentage in each formulation. The percent of Haratala used per dose has also been mentioned. Total 156 formulations contained Haratala. Out of these, maximum formulations (41) were used in the treatment of Jwara. The present work has been done to view the broad spectrum of therapeutic potentialities of Haratala and will be helpful in comprehending its contribution in the treatment of diverse diseases.

Keywords: Arsenic trioxide, Dhoopana, Jwara, Kustha, Schedule E (1)

INTRODUCTION

Rasa Shastra and Bhaisajya Kalpana is an integral part of Ayurveda that harbours the drugs from nature (including herbs, metals, minerals and animal sources) along with the processes to design the drugs in a way to gain the maximum active components in the minimal dose and nullify the untoward effects. The use of gems, poisonous substances and heavy metals in Ayurveda have been applied in the treatment of various diseases without showcasing any adverse effects. The seers have brought about such conventional uses after rationally processing the crude drugs and subsiding their toxicity. This comprehensive and minute detailing of the formulations distinguishes Ayurvedic formulations.

Arsenic is ubiquitous in nature and its abundance ranks twentieth in the Earth's crust, fourteenth in seawater and twelfth in the human body.¹ From antiquity to the present, the history of arsenic is double-edged, comprising a poisonous edge and a medicinal edge.² In the 19th century, arsenic was the mainstay of the materia medica.³ Arsenicals are a prominent group that have been placed in Schedule E (1) of Drugs and Cosmetic rules 1945 i.e. list of poisonous substances under ASU Systems of Medicine.

The past decade, however, has witnessed concerns by the western scientific community, regarding the safety of Ayurvedic herbal, herbo-mineral and metallic preparations, which is a major concern for the age-old Ayurvedic heritage.⁴ Arsenical preparations, such as Fowler solution (1% potassium arsenite), were used by many physicians in the treatment of malignant diseases, such as leukemia, Hodgkin's disease, pernicious anemia and non-malignant diseases such as psoriasis, pemphigus, eczema and asthma for centuries.⁵⁻⁶ Inorganic arsenic is accepted in Western medicine as first line therapeutic agent against certain hematopoietic cancers and other malignancies.⁷ The Ayurvedic Pharmacopeia of India has clearly mentioned about the limits of

Arsenic in the monographs of different metals.⁸ Keeping it in view, the formulations within the limits can be used to heal humans. They have been widely used and their therapeutic dominance has been well-acclaimed in the texts of Rasa Shastra and Bhaisajya Kalpana. This work has been done to present the broad spectrum of therapeutic usage of Haratala in a concise form.

Haratala

Haratala is an eminent mineral belonging to arsenical group. It has Katu, Tikta and Kashaya Rasa, Snigdha, Guru Guna and Ushna Virya. It helps to eliminate diseases due to Kapha, Rakta, Visha, Vayu and Bhootavadha. It has Agni Deepana, Balakaraka, Kantikara, Vrishya, Pustikara, Ojakra, Rasayana and Mrityuhara properties. It is helpful in Vatavyadhi, Sleshmaja Vyadhi, Raktapitta, Vatarakta, Kustha, Kandu, Visarpa, Dadru, Pama, Shlipad, Shwasa, Kasa, Vishajanya Vyadhi, Jwara, Katigraha, Guda Roga, Kshaya, Prameha, Mukha Roga, Vrana, Rakta Vikara and Kapha Pittaja Roga and is Varnya.⁹⁻¹²

It has been classified into Patra Tala and Pinda Tala, the former being the superior. The Shodhana (Purification) of Patra Tala is to be done through Swedana (Fomentation) in Dola Yantra containing Kushmandaphala Swarasa, Teela Kshara or lime water for a duration of 3 hours. For Marana (Calcination), Shodhita Haratala is to be levigated thrice with concentrated Kwatha (Decoction) of Plashamula Twaka and urine of buffalo. It is later formed into pellets, enclosed in Sharavas (earthen plates) and given Laghu Puta for 12 times. Finally, the calcined Haratala Bhasma so obtained, gains properties of Kapha, Rakta, Visha and Vayu Nashaka properties. Ashuddha Haratala can be lethal, Kapha and Vayu Karaka, Prameha, Tapa, Phoda, Anga Sankocha. Hence Shodhana is necessary.¹³ The dose has been given as 1/4-1/2 Ratti.¹⁴

Although the proportion of Haratala varies in the formulations, they have been brought into the dosage form after undergoing a chain of reactions exposing them to various organic materials. The Ushna Virya has Deepana, Pachana, Swedana, Vamana, Virechana, Vilayana effect.¹⁵ Hence, Haratala may have encompassed a large number of diseases in its range that are caused due to Strotorodha, Ama and Mandagni.

Bhaishajya Ratnavali, a classic compendium of Acharya Govindadas Sen, has compiled the different formulations for the treatment of diseases. This paper attempts to screen Ayurvedic treatise Bhaishajya Ratnavali for compiling and grouping the references emphasizing the utilization of Haratala for therapeutic purposes. The formulations containing any form of the arsenical individually, in a paired form or containing all three of the arsenical compounds were screened, classified and tabulated. The percentage of Haratala present was also calculated. Percentage of Haratala = $\frac{\text{Weight of Haratala}}{\text{weight of total solid ingredients (including Haratala)}} \times 100$. Kwatha (decoction) is not considered for calculation. For Sneha Kalpana (medicated oil/ghee), the proportion of Haratala in Kalka (paste) has been calculated.

Bhaishajya Ratnavali contains compilation and systematic categorization of the different herbal and herbomineral formulations. Hence it can be called the first Ayurvedic formulary.¹⁶ This compendium was hence taken to compile the formulations of Haratala that have been mentioned for their therapeutic potencies.

91 formulations contained Haratala, 61 formulations contained both Haratala and Manahshila, only one formulation contained Haratala and Somala in combination and 3 formulations contained all three arsenicals. Maximum number of formulations were used for the treatment of Jwara (Pyrexia) i.e. 41 formulations (Table 1).

Among the formulations, maximum have been given in form of Vati, Gutika and Kharaliya Rasayana whereas 2 formulations have been described under the term of Lauha for internal medication (Pie-Chart No. 1). Bhasma of arsenicals has been specified to be taken in 2 formulations (Chudamani Rasa-2,¹⁷ Sarva Jwarahara Lauha-3,¹⁸ Kshaya Keshari Rasa Brihat,¹⁹ Navaratnaraj Mriganka Rasa,²⁰ Maha Taleshwara Rasa,²¹ Talkeshwara Rasa-2 (along with formation of Tala Bhasma)²² and Satva in 2 formulations (Vishama Jwarantaka Lauha-3,²³ Ananga Kusum Rasa²⁴). The use of Ashuddha Haratala and Manahshila has been mentioned in Paradadi Dhoopana.²⁵

Shodhana process of Haratala has been specified in Shitari Rasa,²⁶ Marana of Tamra Bhasma by Haratala in Tamra-Tala Bhasma Prayoga²⁷ and a combination of Marana of Vanga by Haratala and of Naga Bhasma by Manahshila in Tridoshadavanala Kalmegh Rasa²⁸ have been mentioned as well which indicates the utility of arsenicals in Shodhana (Detoxification) and Bhasmikarana (Incineration) of other metals and minerals. Hingvadi Dravya Siddha formulation, which has 14 ingredients has been mentioned to be given in a variety of dosage forms like Churna (Powder), Vati (Pills) and Sneha. The Sneha formed from it can be used for Abhyanga (Massage), Pana (Internal administration) and Nasya (Nasal instillation) as well. The Churna can be used internally as well as externally for Udvartana (Powder Massage). Kwatha can be used for Parimarjana (Washing) for curing Graha Dosha, Unmada and Apasmara.²⁹

Haratala has undergone Shodhana process i.e. processed with a number of acidic and alkaline media of organic origin and Marana to attain safer bio-assimilability before being incorporated in

most of the formulations. They have been mixed with various other drugs in the formulations that may act as an antagonist and subside the toxicity of the formulations. Rasarajendra has to be levigated 104 times in total (one Bhavana (Levigation) each of Kakamachi Swarasa, Ardraka Swarsa, Pancha Pita, Trikatu Kwatha and finally 100 Bhavana of Ardraka Swarasa). This formulation has been taken from Rasendra Sara Sangraha where only 1 Bhavana of Ardraka Swarasa has been mentioned. Acharya Govind Das Sen has mentioned 100 Bhavana to increase substances like starch content in the formulation and in such cases the dose has been increased to 250 mg.³⁰

Ardraka Swarasa has been frequently used as Anupana (Adjuvant) and Bhavana Dravya. *Zingiber officinale* affects the bioavailability, elimination and uptake of heavy metals in a time-dependent way in the liver. Ginger contains two important sulphur based amino acids called cysteine and methionine which can act as phytochelatins and makes arsenic a nontoxic element.³¹ 6-Gingerol isolated from ginger has been isolated and chemically characterized which has proven to reduce arsenic induced oxidative stress in arsenic intoxicated mice.³² Hence it may have been used in most of the formulations to reduce the deleterious effects of arsenicals. *Maricha*, the chief ingredient in many references, mainly contains Piperine which acts as an efficient bioavailability enhancer for different nutrients and trace elements.³³ It exhibits potent anti-microbial, anti-oxidant, anti-inflammatory, anti-cancer, anti-depressant, anti-apoptotic, antipyretic, analgesic and anti-asthmatic activities.³⁴

The potential role of oxidative stress in pathogenesis induced by arsenic suggests that antioxidants can be considered as an alternative approach in mitigating arsenic-induced toxicity.³⁵ Reports have indicated that treatment with chelating agents alone may not provide better clinical recoveries,³⁶ but combinational therapies with antioxidants like α -lipoic acid,³⁷ captopril,³⁸ quercetin, some herbal extracts³⁹⁻⁴⁰ or isolated chemical moieties from herbs (like Curcumin, ellagic acid,⁴¹ Ascorbic acid, L-Ascorbate,⁴² Arjunolic acid,⁴³ plant polyphenols), dietary supplements (phytochemicals in dietary supplements, casein⁴⁴ (milk protein) many of them (being used in Ayurvedic formulations of Arsenicals) have shown considerable promise in reversal of arsenic toxicity and protection against toxicity in animal and clinical studies. Besides providing beneficial effects in eliminating body burden of arsenic and reversing the altered biochemical variables, the intake of these herbal products could also be useful in enhancing endogenous antioxidant levels.⁴⁵ These could be a major reason for the treatment of the Haratala with various herbs so as to bring radical changes in the chemical moieties and bring out the therapeutic efficacy through a rational act of synergism. The herbo-arsenical interactions include a series of complex reactions which substantially annihilate the toxicity and enhance the medicinal value. It also emphasizes that the mere presence of a chemical compound of metallic origin does not contribute to the toxicity of the finished product as the standard manufacturing process inflicts intense changes and components of herbal origin after sequential reactions with diverse components of processing is responsible for the therapeutic action.⁴⁶⁻⁴⁷

CONCLUSION

The screening through Bhaishajya Ratnavali, the first Ayurvedic pharmaceuticals lexicon, reveal that Haratala has been therapeutically used in 156 formulations. Among the 70 diseases, arsenicals have marked themselves in aiding to cure 38 diseases. Haratala processed according to the classical methods when taken alone or in combination with other drugs impart a curative effect on diseases.

Table 1: Formulations for Jwara [Chapter 5]

No	Formulation	Reference	Dose (mg)	Anupana	Percent	Content/dose
1	Betala Rasa	605-12	125	Madhu, Ardraka etc.	20	25
2	Chakrika Rasa	613-4	125	Ardraka +Madhu	14.28	17.85
3	Chakri Rasa	615-16	125	Tulsi +Madhu	12.50	15.62
4	Brahmarandra Rasa	617-9	30-60	EA	6.25	1.8- 3.75
5	Mritotathapana Rasa	627-31	125-250	Kapoor,Ardraka etc.	7.69	9.6-19.2
6	Rasarajendra	696-02	125	Tulsi +Madhu	11.11	13.75
7	Prataptapana Rasa	719-22	125	Ardraka +Madhu	10	12.5
8	Sannipata Bhairava Rasa-Dwitiya	734-42	125	Ardraka +Madhu	5.88	7.35
9	Sannipata Surya Rasa	773-6	60-125	Ardraka +Madhu	6.55	3.93-8.2
10	Vadvanala Rasa-1	777-80	125	Chitraka+ Madhu	5.56	7
11	Vadvanala Rasa-3	785-8	250	Narikela Jala	17.64	44.10
12	Kasturi Bhairava Rasa (Brihata)	804-11	125	Ardraka+Tambula+Madhu	5.56	7
13	Jwaramatanga Keshari Rasa	857-62	125	-	5.56	7
14	Shitabhanji Rasa	906-9	250	Tambula	8.33	20.8
15	Jwarankush Rasa-2	913-5	60-125	Ardraka +Madhu	66.67	40-83.3
16	Jwarankush Rasa-5	921-3	250	Pippali+Madhu	12.50	31.25
17	Shitabhanji Rasa	959-60	125-250	Chiraita/ Ushnodaka	20	25-50
18	Chudamani Rasa-2	967-72	250	Ardraka +Madhu	4.34	10.8
19	Vatapittankata Rasa	1040-2	125	Milk/Mulethi+sugar	12.50	15.26
20	Shitari Rasa	1062-3	125-250	Tulsi +Madhu	25	31.2-62.5
21	Talanka Rasa	1081-2	125	Ushnodaka	28.57	35.7
22	Jwarari Abhra (Rasa)	1115-8	125	Ardraka +Madhu	8.26	10.32
23	Vishama Jwarantaka Lauha-3	1134-40	125	Pippali+Guda	8.33	10.41
24	Sarva Jwarahara Lauha-3	1158-70	125-250	Pippali+Guda	8.33	10.4-20.8
Haratala+Manahshila						
1	Mritsanjivani Rasa	632-36	125	Ardraka +Madhu	5.56	6.95
2	Paniyavatika Sidhaphala	668-87	30	Jala	9.09	2.72
3	Trailokya Chintamani Rasa	766-72	60	Narikela Jala	4.54	2.72
4	Tridoshadavanala Kalmegh Rasa	819-22	125-375	Tambul Patra Swarasa+Madhu	-	-
5	Prataplankeshwar Rasa	823-41	125	Chitraka/ Ardraka	3.22	4.03
6	Shleshmakalanala Rasa	847-51	125	Ardraka +Madhu	5.56	6.95
7	Rasaraj Rasa	894-7	250	Tambula Patra	54.54	136.3
8	Jwarankush Rasa Brihata	929-35	125	Ardraka +Madhu	6.66	8.32
9	Mahajwarankush Rasa	936-9	125	Ardraka +Madhu	7.14	8.92
10	Chintamani Rasa-3	989-94	250	According to Dosha	5.88	14.7
11	Chintamani Rasa-4	995-9	125-250	According to Dosha	6.89	8.62-17.24
12	Chaturthakari Rasa	1002-5	125	Takra+Maricha etc.	20	25
13	Jwara Kalaketu Rasa	1014-5	125	Madhu	14.28	17.85
14	Shitari Rasa	1023-6	125	Tambula +Maricha	26.67	33.33
15	Vidhya Vallabha Rasa	1059-61	125-375	Ardraka +Madhu	33.33	41.6-124.9
Haratala+Somala						
1	Sannipata Bhairava Rasa	731-3	10	Ardraka+Madhu	6.25	0.625
Haratala+Manahshila+Somala						
1	Vadvanala Rasa-2	781-4	60-125	Narikela Jala	-	-

Table 2: Formulations for Kustha [Chapter 54]

No	Formulation	Reference	Dose (mg)	Anupana	Percent	Content/dose
1	Ostha Shvitra Nashartha Lepa	51	QS	EA with Jala	14.28	-
2	Talkeshwara Rasa-1	90-93	125	Madhu/Guduchi	40	50
3	Talkeshwara Rasa-2	94-97	60-125	Madhu+Guduchi	2	12-25
4	Talkeshwara Rasa-3	98-106	60-125	Madhu+Guduchi	-	-
5	Mahataleshwara Rasa	107-10	60-125	Buffalo Ghee, Bakuchi+Madhu etc.	8.33	4.99-10.4
6	Rasamanikya (Rasa)	120-25	125	Madhu, Ghee etc.	100	125
7	Rajarajeshwara Rasa	135-38	125	Madhu+Ghee	25	31.25
8	Lankeshwara Rasa	140-2	250	Triphaladi Kwatha	14.28	35.70
9	Sarveshwara Rasa	162-67	250	Madhu+Bakuchi+Devdaru (6gm each) + Eranda Taila (12ml)	12.98	32.45
10	Haritaleshwara Rasa-1	168-74	250	Madhu etc.	31.57	78.92
Haratala+Manahshila						
1	Manahshiladi Lepa	6	12 g	Sarshapa Taila+ Arka Ksheera (25 ml each)	33.33	4000
2	Manikya Rasa	126-34	250	Madhu+Ghee+ Shitala Jala, Dugdha	32.25	80.64
3	Kachu Rakshaka Taila	261-5	QS	EA	5.88	-
4	Aragvadhadi Taila	269	QS	EA	14.28	-
5	Adityapaka Taila	272	QS	EA	11.11	-

6	Kustha Kalanala Taila	283-4	QS	EA	25	-
7	Kustha Rakshaka Taila	285-9	QS	EA	8.33	-
8	Shadbindu Taila	290-1	QS	EA	5	-
9	Marichadi Taila-1	292-3	QS	EA	7.14	-
10	Marichadi Taila-2	294-01	QS	EA Abhyanga/Nasya	2.94	-
11	Somaraji Taila-2	305-10	QS	EA	5.88	-
12	Vicharchakari Taila	315-7	QS	EA	8.33	-
13	Rudra Taila	318-25	QS	EA	4.34	-
14	Mahatrinaka Taila	327-33	QS	EA	1.51	-

Table 3: Formulations for Kshudra roga [Chapter 60]

No	Formulation	Reference	Dose (mg)	Anupana	Percent	Content/dose
1	Karanjabijadi Lepa	18	QS	EA	14.28	-
2	Kasisadi Lepa	85	QS	EA with Kanji	20	-
3	Lomapatana Lepa	166	QS	EA with Jala	50	-
4	Lomapatana Lepa	167	QS	EA	50	-
5	Lomapatana Lepa	168	QS	EA with Jala	33.33	-
6	Lomapatana Lepa	169-70	QS	EA	8.33	-
7	Lomapatana Lepa	171	QS	EA with Kadali Kanda	50	-
8	Aragvadhadi Taila	179-80	QS	EA (12ml)+ Sankha Bhasma (1 gm)+ Haratala (500mg)	25	-
Haratala+Manahshila						
1	Valmika Chikitsa (Taila)	10-11	QS	EA	16.67	-
2	Lomapatana Taila	174	QS	EA	16.67	-

Table 4: Formulations for Vatavyadhi [Chapter 26]

No	Formulation	Reference	Dose (mg)	Anupana	Percent	Content/dose
1	Vata Gajankusha Rasa	114-18	250	Madhu+Pippali etc.	7.69	19.22
2	Vata Gajankusha Rasa [Brihat]	119-21	250	Madhu+Pippali +Manjistha Kwatha	5.26	13.15
3	Maha Vata Gajankusha Rasa	122-23	250	Madhu etc.	7.69	19.22
4	Kubja Vinod Rasa	128-30	250	Madhu etc.	9.09	22.72
5	Talkeshwara Rasa	176-77	2 gm	Jala	3.33	66.6
6	Vata Vidhwanshana Rasa	178-84	250	Madhu etc.	28.57	71.42
7	Vatanashana Rasa	185-87	60-125	Madhu+Ardraka + Pipplai in Kwatha	9.09	5.45-22.72
8	Navaratnaraj Mriganka Rasa	207-12	125	Madhu, Pippali etc.	3.84	4.8
Haratala+Manahshila+Somala						
1	Navagraha Rasa	203-6	32-65	Makkhana	11.11	3.55-7.22

Table 5: Formulations for Vatarakta [Chapter 27]

No	Formulation	Reference	Dose (mg)	Anupana	Percent	Content/dose
1	Sarveshwara Rasa	58-63	250	Madhu + Bakuchi +Devdaru (5gm each)+Eranda Taila (10ml)	12.97	32.42
2	Tamra-Tala Bhasma Prayoga	73	125	Madhu + Gudhuchi	-	-
3	Tala Bhasma	74-79	60	Madhu / Ghee etc.	8.69	5.21
4	Maha Taleshwara Rasa	80-81	65-125	Madhu / Ghee + Guduchi	25	16.2-31.25
Haratala+Manahshila						
1	Vataraktantaka Rasa	42-46	125	Nimba + Ghee	4.76	5.95

Table 6: Formulations for Rajyakshma, Kasa, Sutika and Visha

No	Formulation	Reference	Dose (mg)	Anupana	Percent	Content/dose
1	Kshaya Keshari Rasa Brihata	Rajyakshma 14/91-100	125-250	Madhu, Pippali, Sharkara, Ardraka	4.34	5.42-10.85
2	Brihata Rasendra Gutika	Rajyakshma 14/124-31	250	Dugdha with Shita	12.5	31.25
3	Vijaya Bhairava Rasa	Kasa 15/80-83	1gm	Jala	1.67	16.7
4	Sutikahara Rasa-2	Sutika 69/76-78	250	According to Dosha	12.50	31.25
5	Rasashardula Rasa-1	Sutika 69/79-81	250	Madhu + Tambula	7.14	17.85
6	Sutika Vallabha Rasa	Sutika 69/89-92	250	Madhu +Kwatha etc.	9.09	22.72
7	Vrischika Visha	Visha 72/28	QS	EA with Jala (Lepa)	50	-
Haratala+Manahshila						
1	Rajmriganka Rasa	Rajyakshma 14/158-161	500	Madhu	18.18	90.9
2	Kanaka Sundara Rasa	Rajyakshma 14/197-203	250	Pipplai + Madhu/ Ardraka etc.	12.12	30.3
3	Manahshiladi Dhooma	Kasa 15/39-40	5 gm	Godugdha + Guda	16.67	833.3
4	Brihata Rasendra Gutika	Kasa 15/91-7	250	Ardraka +Madhu	7.69	19.22

5	Laxmi Vilasa Rasa	Kasa 15/130-7	250	Shitala Jala	22.22	55.55
6	Sutika Bharana Rasa	Sutika 69/93-6	65-125	Madhu+according to Dosha	7.69	4.99-9.62
7	Goha Sharata Visha	Visha 72/31	1 gm	External usage	20	200
8	Mahadhbhuta Vishaghna Yoga	Visha 72/45	QS	EA with Jala (Lepa)	16.65	-
Haratala+Manahshila+Somala						
1	Bhima Rudra Rasa-2	Visha 72/56-58	Mudga	Dugdha	11.11	-

Table 7: Formulations for Agnimanda, Gulma, Meda, Plihayaka and Bala roga

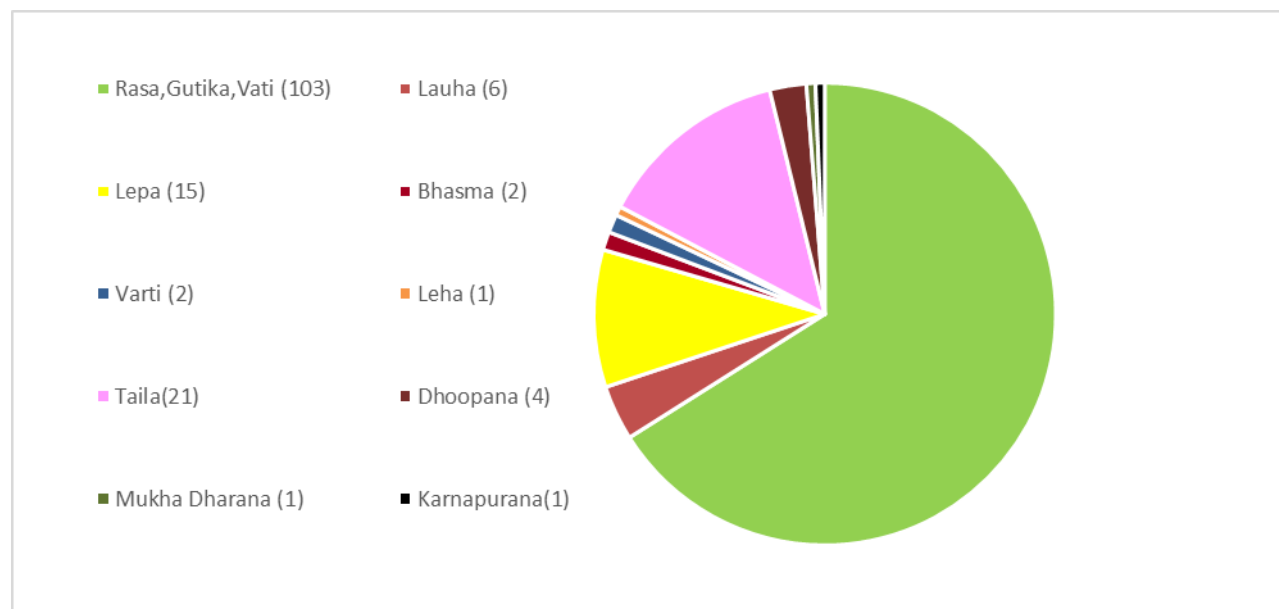
No	Formulation	Reference	Dose (mg)	Anupana	Percent	Content/dose
1	Ajirna Bala Kalanala Rasa	Agnimandha 10/176-86	250	According to Dosha	3.59	8.975
2	Gulma Kalanala Rasa-1	Gulma 32/90-94	500	Haritaki Kwatha	7.14	35.70
3	Gulma Kalanala Rasa-3	Gulma 32/101-3	250	Ardraka Swarasa	25	62.50
4	Gulma Vajrini Vati	Gulma 32/125-7	125-250	Ushnodaka	16.67	20.8-41.67
5	Harataladi Yoga-1(Lepa)	Medo 39/16	QS	EA with Gomutra	-	-
6	Harataladi Yoga-1(Lepa)	Medo 39/16	QS	EA with Gomutra	-	-
7	Vadavagni Lauha	Medo 39/29-30	125-250	Madhu+Ghee	25	31.25-62.5
8	Plihari Rasa-2	Plihayakrita 41/92-95	250	Chitrakamoola + Madhu	7.54	18.85
Haratala+Manahshila						
1	Bhakta Vipaka Vati	Agnimandha 10/157-162	250	Ushnodaka	4.54	11.36
2	Bhakta Vipaka Vati-2	Agnimandha 10/163-165	375	Ushnodaka / according to Dosha	3.03	10.6
3	Vidhyadhara Rasa	Plihayakrita 41/72-73	375	Saindhava Lavana	16.65	62.45
4	Mahamrityunjaya Lauha	Plihayakrita 41/147-156	1 gm	Sharpunkha Swarasa ,Gomutra etc	1.04	10.04
5	Bibhitakadi Taila	Bala 71/89	4-5 drop	EA	25	-
6	Kukkunaka-Pothakihara Upaya	Bala 71/94	QS	EA (Anjana)	14.28	-
7	Hingvadi Dravya Siddha Prayoga	Bala 71/171-176	QS	External + internal usage	3.57	-

Table 8: Formulations for Arsha, Krimi, Unmada, Apasmara, Udara, Shotha, Vridhi, Vranashotha, Upadamsha, Pradara, Garbhini, Rasayana and Vajikarana

No	Formulation	Reference	Dose (mg)	Anupana	Percent	Content/dose
1	Apamargadi Lepa	Arsha 9/16	QS	EA	50	-
2	Vidanga Lauha	Krimi 11/48-50	500-750	Guda+ Shitala Jala	2.78	13.9-20.8
3	Chulika Vati	Udara 40/82-84	250	Ushnodaka	1.81	4.525
4	Kshetrapala Rasa	Shotha 42/67-69	65-125	Godugdha	12.5	8.12-15.6
5	Baidyanath Vati	Shotha 42/86-94	125	Ushnodaka, Kajjali + Pippali	8.33	10.41
6	Vridhivadhika Vati	Vridhi 43/74-78	250	Ushnodaka	3.44	8.60
7	Paradadi Dhoopana-2	Upadamsha 52/22-31	-	-	5.88	-
8	Ratnaprabha Vatika	Pradara 66/60-64	125	Bala Kwathadi	8.33	10.42
9	Pradrantaka Lauha	Pradara 66/76-80	1-2 g	Madhu + Sharkara + Ghee	3.33	33.3-66.6
10	Garbha Chintamani Rasa-3	Garbhini 68/84-86	125	Madhu + Ardraka	11.11	13.88
11	Indusekhara Rasa	Garbhini 68/89-93	250	According to Roga	14.2	35.70
12	Mahalaxmi Vilasa Rasa	Rasayana 73/115 -27	250	According to Roga	4.08	10.20
13	Ananga Kusum Rasa	Vajikarana 74/72-75	250-500	Madhu / according to Roga	25	62.5-125
14	Mofarwa (Leha)	Vajikarana 74/371-74	6-12g	Godugdha	1.67	100-200
Haratala+Manahshila						
1	Brihata Kashishadhya Taila	Arsha 9/204-206	QS	EA	6.25	-
2	Krimi Kasthanala Rasa	Krimi 11/26-28	125	Shitala Jala	7.14	8.92
3	Bhutankusha Rasa	Unmada 24/46-51	250	Ardraka + Madhu	5.19	12.98
4	Chaturbhuja Rasa	Unmada 24/52-57	125	Ardraka +Madhu	16.67	20.83
5	Varishoshana Rasa	Udara 40/93-108	250	Madhu + Katha Gulara etc.	2.67	6.67
6	Bhaktatara Rasa	Vridhi 43/58-63	1250	Ushnodaka	-	-
7	Vrana Rakshaka Taila-1	Vranashotha 47/69-71	QS	EA	12.5	-
8	Vrana Rakshaka Taila-2	Vranashotha 47/72-76	QS	EA	-	-
9	Paradadi Dhoopana-1	Upadamsha 52/19-21	5 g	External usage	3.33	166.6
10	Trailokya Chintamani Rasa	Rasayana 73/141-147	125	According to Roga	7.69	9.61

Table 9: Formulations for Atisara, Raktapitta, Trishna, Apasmara, Amavata, Mutrakrichha, Slipad, Sadyavrana, Bhagandara, Mukha, Karna and Netra Roga

No	Formulation	Reference	Dose (mg)	Anupana	Percent	Content/dose
1	Purna Chandrodaya Rasa	Atisara 7/130-3	250	Madhu	15.97	39.92
2	Raktapittantaka Rasa	Raktapitta 13/48-49	125	Madhu	14.28	17.85
3	Bhoota Bhairava Rasa	Apasmara 25/23-25	625	Madhu+Naramutra (125ml), ghee (10gm), Hinga and Trikatu (2gm each)	4.76	29.75
4	Mutrakrichhantaka Rasa-2	Mutrakrichha 34/43-45	250-500	Madhu+ Tulsi, Bilvamula etc.	33.33	83.3-166.6
5	Nityananda Rasa	Shlipad 45/28-36	375	Shitala Jala	2.94	11.02
6	Vishyandana Taila	Bhagandara 51/34-35	QS	EA	8.33	-
7	Malatyadi Rasa	Karna 62/34	QS	EA	-	-
8	Taladi Varti	Netra 64/152	QS	EA with Jala	33.3	-
Haratala+Manahshila						
1	Mahodadhi Rasa	Trishna 20/29	375	Makhhan + Mishri	20	75
2	Suta Taila (Vijaya Bhairava Ras)	Amavata 29/203-207	2 drop	Tambula Patra	25	-
3	Savarnakara Yoga	Sadyavrana 48/13-16	QS	EA with Madhu + Ghee	16.6	-
4	Pitaka Churna	Mukha 61/89-90	QS	Madhu + Ghee	16.6	-

**Chart 1: Classification of formulations with Haratala according to dosage forms**

The review suggests that herbomineral formulations containing Haratala should be prepared as per classical pharmaceutical process and prescribed as per the classical dose with proper Anupana or Sahapana to avoid any toxic or side effect. This work is anticipated to be convenient for referring the formulations and different dosage forms of Haratala emphasized in Bhaisajya Ratnavali and reduce the strenuous efforts of researchers to gather information.

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