

REVIEW ON FORMULATIONS OF RASAKARPURA (MERCURIAL SALT)

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Abstract

Rasakarpura, the mercurial preparation is chemically found chloride salt of mercury associate with trace elements. Many formulations are available in Rasa classics in which Rasakarpura is used as an ingredient, but they are scattered in different classics. Here an attempt has been made to compile the formulations of Rasakarpura in context of different methods of preparations, therapeutic indications, dose, anupana (vehicles) and percentage of Rasakarpura etc. Total 77 formulations are found during the study. By this effort formulations of Rasakarpura can be found collectively and could be used widely to get better efficacy to cure the many diseases.

Key words: Rasakarpura; Kharaliya; Kupipakva; Pottali Rasayana; Avaleha; Vilayana.

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INTRODUCTION

Ayurveda is considered as Upaveda of Atharvaveda,^[1] which deals with the science of life. On virtue of its Holistic approach and its unparalleled fundamentals, Ayurveda serves humanity by prolonging the life span, maintaining positive health and indeed curing diseases.^[2] To achieve these goals substances of different origin, after exposure to unique pharmaceutical processing, are used as medicine. One such drug is Rasakarpura which is used separately as well as an ingredient in preparing other formulations.

The word Rasakarpura comprises 'Rasa' and 'Karpura'. Rasa indicate Parada and Karpura indicate a substance which is white in colour. Rasakarpura is a white colored mercurial product prepared by Kupipakva method.^[3]

Rasakarpura is indicated to cure diseases like Krimivisha (worms), Vranasrava (discharge from wound), Pravahika (cholera), Phiranga (syphilis), Twakroga (skin diseases), Aruchi (tastelessness), Upadansha (gonorrhoea), Raktadosha (diseases of vitiated blood), Atisara (diarrhoea), Pama (papillae) and Mandala (one type of skin disorder).^[4]

Rasakarpura is also used as an ingredient in various formulations and are prepared by different methods like Kharaliya Rasayana, Kupipakwa rasayana, Vilayana, Bhasma (Putra method), Lepa, Pottali, Avaleha, Snehapaka etc. But the formulations are found scattered in classics. So, present study was planned to review on various formulations and their method of preparation in which Rasakarpura is used as ingredient.

MATERIAL AND METHODS

Review on formulations of Rasakarpura was under taken from different Rasa classic like Rasa Yoga Sagar, Bharat Bhaishajya Ratnakar, Rasa Tarangini, Rasa Tantra Sara

avam Siddha Prayoga Sangraha, Vasavrajija, Rasakamadhenu, Yogatarangini, Vaidhya Rahasya, Yoga Chintamani, Sidhabhaishajya Manimalla, Siddha Yoga Sangraha and Ayurvedic Formulary of India. Present study covers the formulation's name, percentage of Rasakarpura, therapeutic dose, anupana (vehicle) and therapeutic use of the formulations.

RESULTS AND DISCUSSION

Rasakarpura is a mercurial salt, unlike the other member of its periodic group (II B), mercury forms two series of compounds i.e. the mercuric compound and mercurous compound.^[5] The Rasakarpura is opinioned as mercuric chloride, mercurous chloride and mixture of mercuric chloride and mercurous chloride along with other trace elements.^[6] Recent researches also showed that Rasakarpura is a combination of mercuric chloride and mercurous chloride if prepared by traditional method^[7] and 98% mercuric chloride if prepared by Rasa Tarangini method.^[8] Rasakarpura is enlisted as poisonous substance under the Ayurvedic and Unani system of medicine in Schedule E1 of Drug and Cosmetic Act 1940 and Rule 1945.^[9]

Total 77 formulations were found in various classical texts, in which Rasakarpura is one of the ingredients. Among these formulations 44, 12, 7, 5, 4, 3, 1 and 1 are prepared through Kharaliya (Table 1 & 2), Kupipakwa (Table 3), Vilayana (Table 4), Puta / Bhasma (Table 5), Lepa process (Table 6), Pottali (Table 7), Avaleha process (Table 8) and Sneh Kalpana method (Table 9) respectively.

Maximum 100% of Rasakarpura in 3 formulations were found in different texts in the name of Karpuradi Vati-1, Upadanshara Panchak and Upadanshadi Lepa. These compositions are indicated to treat the diseases Upadansha.

Table 1: Formulations of Rasakarpura prepared with Kharaliya Rasayana method

No.	Name Of formulation with reference	Percentage of Rasakarpura (%)	Dose	Anupana	Use
1	Karpuradi Vati - 1 ^[10]	100.00	1/14 Part	Sarkara (sugar candy)	Upadansha
2	Upadanshhara Panchak ^[11]	100.00	1-4 Masha	Lavanga	Upadansha
3	Karpuradi Vati-3 ^[12]	80.00	1 Chanaka	-	Upadansha
4	Rasakarpura Yoga ^[13]	50.00	4 Ratti	Tambula	Phiranga
5	Rasakarpura Vati ^[14]	50.00	1 Marich	Stanya, Madhu	Prameha, Vataroga, Balaroga
6	Rasakarpura Gutika ^[15]	50.00	1 Badariphal	-	Upadansha
7	Phirangshamani Vati-1 ^[16]	33.33	857 mg	Jala	Phiranga
8	Poora Vati ^[17]	33.33	1 Masura	-	Stanyavardhaka
9	Karpuradi Vati-2 ^[18]	33.33	-	Nagavalli Patra	Upadansha
10	Tripurrajmadan Rasa ^[19]	33.33	1 Marich	-	Virya stambhaka
11	Mehagajankush Rasa ^[20]	32.00	1 Ratti	Eranda Taila	Prameha
12	Phirangari Rasa-1 ^[21]	25.00	1 Badara	Jala	Phiranga
13	Shukrastamkari Vati ^[22]	25.00	1 Udada	-	Shukra stambhana, Balya, Mansa vardhak
14	Amrutsajeevan Rasa ^[23]	25.00	1 Mudga	Purana Guda, Draksha phal, Madhu	Mahasannipat Dosha, Prameha, Granthi, Upadansha, Parshava Shoola, Vankshana Granthi
15	Chanda Marutam Rasa ^[24]	25.00	1 Tandula	-	Sannipata
16	Dev kusumadi Gutika ^[25]	20.00	-	-	Phiranga
17	Karpura Rasa-10 ^[26]	20.00	4 Masha	Ghee, Madhu	Upadansha
18	Akkalkarayadi Churna ^[27]	19.04	4 Masha	Kadali	Upadansha
19	Pramehharirsa-3 ^[28]	16.67	1 Chanaka	Sarkara	Upadansha, Prameha
20	Rasakarpura Gutika ^[29]	16.67	1 Ratti	Navaneeta	Phiranga

88.39% of Rasakarpura was found in one formulation i.e. Rasa Garbha Pottali – 2. It is prepared by using Pottali method.

80% of Rasakarpura was found in two formulations i.e. Karpuradi Vati-3 and Bhandya Rasa. In Karpuradi Vati, Rasakarpura and Maricha- only two ingredients are found. The Bhandya Rasa is prepared through Bhasma/Putta method and Hingula is another ingredient of this formulation.

In Vilayana (lotion) type of seven formulations, Rasakarpura is used in very less

amount. It is found in between 1.79% to 0.0005%.

Percentage of Rasakarpura was calculated in comparison to other ingredients in which bhavana dravya are not considered. For the pharmaceutical methods like Vilayana, Snehapaka and Lepa, quantity of base like water, taila used were considered to calculate the percentage of Rasakarpura, because in these types of procedures the base used are much in quantity on comparison. The percentage which is calculated is based on raw material taken and may vary when the final product is considered.

Table 2: Formulations of Rasakarpura prepared with Kharaliya Rasayana method

No.	Name of formulation with reference	% of Rasakarpura	Dose	Anupana	Use
1	Kesharadi Vati-1 ^[30]	14.28	3 Ratti (375mg)	Navaneeta, Anantmoola	Upadansha, Agnimandya, Bhagandara, Raktavikara
2	Kesharadi Vati-2 ^[31]	14.28	3 Ratti	Navaneeta	Upadansha
3	Gorochan Vati-1 ^[32]	13.16	1 Mudga	Madhu, Stanya	Sannipatoga, Agnimandya, Shitadhikya
4	Pramehharirasa-4 ^[33]	12.30	3 Ratti	Sarkara, Ghee, Nagavalli Patra	Upadansha, Phiranga
5	Phirangari Rasa-2 ^[34]	11.11	1 Kola	-	Phiranga
6	Indravarani Rasa ^[35]	11.11	1 Mudga	-	Pakshaghata, Prameha, Sandhivata, Jwara, Upadansha, Parshvashoola, Aptanaka
7	Ramaban Rasa-7 ^[36]	9.09	1 Ratti	-	Visham Jwara, Daruna Jwara
8	Gorochan Vati -2 ^[37]	9.09	1 Ratti	Stanya	Kantha – kubja prabhuta Sannipata, Shleshma Jwara, Shita Jwara, Sannipata Dosha, Dhanurvata, Sarvanga Shoola, Upadansha
9	Upadanshakeshari Rasa-2 ^[38]	8.33	1 Chanaka	Dadhi	Upadansha
10	Hinguladi Vati-1 ^[39]	6.67	1 Marich	Ushnodaka	Sarvajwara
11	Pushpamanimatra Rasa ^[40]	6.40	Atrishtabeej	Sarkara, Trikatu	Mehadi Jwara, Shitavatavyadhi
12	Udaybhaskar Rasa ^[41]	6.25	-	-	Upadansha
13	Lohyadi Yoga ^[42]	6.25	1 Tank	Ghrit, Madhu	Shukra stambhana
14	Trikatu Gutika ^[43]	6.25	1 Gunja	Bhunimba, Jambira, Bhringaraj, Amalaki Kwatha, Mahisa Dadhi, Bhrista Jiraka, Madhu, Amla Dadimaphala Rasa	Sarva Jwara, Visha Upavisha, Swayathu, Pandu, Kamala, Vatapitaj Mehapidika, Sarvanga shoola, Atisara, Gulma, Garbhavata, Pitashool, Vamana, Arochaka, Bhrama
15	Astadasha Kalarasa ^[44]	6.25	½ Ratti	-	Sannipata Kustha, Vata Shleshma Jwara
16	Vranantaka Rasa ^[45]	6.25	Arista Beej	Goghrita	Vrana
17	Phirangkuthar Rasa-1 ^[46]	6.25	1 Tola	Dadhi	Phiranga
18	Ling Maheshwer Rasa ^[47]	4.76	2 Ratti	Dugdha	Upadansha, Vrana, Gandamala, Bhagandara
19	Kasturika Vati-1 ^[48]	4.46	1 Mudga	Stanya	Sarvabalrog, Tarun Jwara
20	Karpura Rasa-6 ^[49]	4.16	3 Ratti	Sarkara, Ushaondak	Upadansha, Sandhivata
21	Karpuradi Vati ^[50]	2.23	2 Ratti	Madhu	Grahani, Raktatisara, Shoolyukta Amatisara, Sannipatik Atisara,
22	Mrit Sanjivani Vati-4 ^[51]	2.08	1 Ratti	Madhu	Raktatisara, Grahani, Amatisar
23	Rasakarpura Churna ^[52]	2.04	1 Ratti	-	For Internal Use
24	Bhutaghna Chakrika ^[53]	0.90	6 Ratti (Ext Use)	-	Krimiroga

Table 3: Formulations of Rasakarpura prepared with Kupipakva Rasayana method

No.	Name	Percentage of Rasakarpura (%)	Anupana	Use
1	Asthamurthi Rasa ^[54]	40.91	Adraka Swarasa, Madhu	Upadansha, Parivartita, Jwara, Kashaykhanja, Aptanaka, Aptantranka, Sanyas, Vishama Jwara, Bhutonmada, Apasmara, Mutraghata
2	Mallasindura ^[55]	32.14	Adraka Swarasa, Madhu	Tamkaswasa, Vata Kapha Roga, Phiranga.
3	Daradsindur Rasa ^[56]	32.14	-	Vataroga, Sannipatropa, Upadansha
4	Vyadhiharana Rasa-2 ^[57]	25.00	Ghee, Madhu, Nagavalli Patra	Phiranga, Upadansha, Balya
5	Panchsuta Rasa ^[58]	25.00	Madhu, Adraka, Tulsi, Bibhitaki, Vasa, Mishri	Shwasa, Kasa, Amashoola, Vatavikara, Phupphus Avarana. Sotha
6	Baddha darada-3 ^[59]	25.00	Madhu	Sarva Vata Vyadhi, Savikara Jwara
7	Mallasindura-2 ^[60]	22.22	Ghee, Madhu, Adraka Swarasa	Upadansha, Pakshaghata, Kustha, Raktavikara, Phiranga
8	Baddha talakam ^[61]	22.22	Madhu, Trikatu	Sadosha Jwara, Shwasa, Kasa Kshaya
9	Tripurabhairav Rasa ^[62]	21.74	Ghee	Upadansha, Raktavikara, Nadivrana, Kanthmala, Pakshaghata, Sandhivata, Netraroga, Asthigatvrana,
10	Vyadhiharana Rasa-1 ^[63]	16.67	Ghee, Madhu	Phiranga, Sandhivata, Kustha, Nadivrana, Nasavrana
11	Amir Rasa ^[64]	12.50	Draksha	Granthivata, Upadansha
12	Baddha Maharasa ^[65]	9.09	Stanya, Chitraka moola Swarasa	Sakala Roga, Agyat Moola Baddha Roga

Table 4: Formulations of Rasakarpura prepared with Vilayana method

No.	Name	Percentage Of Rasakarpura (%)	Dose	Anupana	Use
1	Siktha Dravakam ^[66]	1.79	4 Bindu Or Tandula Pramana	Jala, Madhu	Swayathu, Kara - Pada Sotha
2	Rasakarpura Drava ^[67]	0.60	30-60 Drops	-	For Internal Use
3	Rasakarpura Drava ^[68]	0.1	Q.S.	-	Phirangaja Vrana, Navina dusta Vrana, Anga prakshanlana
4	Rasakarpura Drava ^[68]	0.05	Q.S.	-	Chirakalin Vrana
5	Rasakarpura Drava ^[68]	0.02	Q.S.	-	Yoni-Garbhshaya Netra prakshalana
6	Rasakarpura Drava 1 ^[69]	0.0005	Q.S.	-	Phirangaja Vrana, Puyayukta Vrana, Samkramaka Vishahara
7	Rasakarpura Drava 2 ^[69]	0.0005	Q.S.	-	Phirangaja Vrana, Puyayukta Vrana, Samkramaka Vishahara

Table 5: Formulations of Rasakarpura prepared with Puta / Bhasma method

No.	Name	Percentage Of Rasakarpura (%)	Dose	Anupana	Use
1	Bhandya Rasa ^[70]	80.00	2 Ratti	Nimbu Rasa	Upadansha, Vatarakta
2	Maha Lavana Kshara ^[71]	50.00	-	-	Sakala Roga Nasayadi
3	Rudra Pratap Rasa ^[72]	25.00	1 Tandula, Mudga for children	Madhu, Stanya, Anda, Taila, Haridra, Navaneeta, Talaguda, Sarkara, Trikatu, Yastimadhu, Triphala Kwatha, Bilvadi Leha	Meha Vyadhi, Balanam Garbha Vyadhi, Upadansha, Bahumutra, Hridashoola, Sharira Ushnadhikya, Sarvanga Shoola, Chitah Vibhrama, Arsha, Pitaja Pandu
4	Suta Sindoor ^[73]	16.67	¼ Ratti	Navaneeta	Kukkura Kasa, Pitt a -Vayu Vankshana Granthi, Dosha Jwara
5	Tarunarka Rasa ^[74]	8.33	-	-	Sannipata

Table 6: Formulations of Rasakarpura prepared with Lepa Kalpana method

No.	Name	Percentage of Rasakarpura (%)	Dose	Use
1	Upadanshadi Lepa ^[75]	100.00	6 Masha	Upadansha
2	Gulabi Malahara ^[76]	34.50	Q.S.	Dadru, Pama, Agnidagdha,, Arsha
3	Hingulamrit Malahara ^[77]	1.45	Q.S.	Vrana Shodhana, Vrana Ropana, Nadi Vrana, Bhagandara
4	Sinduradi Lepa ^[78]	0.79	-	Vicharchika, Vipadika, Vrana, Kandu, Upadansha vrana

Table 7: Formulations of Rasakarpura prepared with Pottali method

No.	Name	Percentage of Rasakarpura (%)	Dose	Anupana	Use
1	Rasa Garbha Pottali -2 ^[79]	88.39	1 - 2 Tandul	Roganusara	Upadansha, Sarvaroga, Vajikara, Vrushya
2	Hiraya Garbha Pottali ^[80]	76.20	1 Ratti	-	Sarvaroga
3	Rasa Garbha Pottali-4 ^[81]	31.60	1 - 2 Tandul	Dugdha, Kanaka Swarasa	Vajikara, Sarvaroga

Table 8: Formulations of Rasakarpura prepared with Avaleha method

No.	Name	Percentage of Rasakarpura (%)	Dose	Anupana	Use
1	Bhallatak Leha ^[82]	4.76	1 Badariphala	-	Kustha, Shoola, Vankshana Granthi, Gulma, Mehashoola, Swet-Pitta-Rakta adi Roga (discoloration)

Table 9: Formulation of Rasakarpura prepared with Sneha Kalpana method

No.	Name	Percentage of Rasakarpura (%)	Duration Of Heat (Hr)	Use	
1	Chaturvidh vandhtyaha Yoga Sagar-2)	Taila ^[83] (Rasa)	0.0007	Till snehapaka lakshana	Vandhyatva

Formulations of Rasakarpura are mainly used to treat Updansha (gonorrhoea), Kustha (skin diseases), Jwara (fever), Shoola (pain), Vrana (wound), Prameha (diabetes), Atisara (diarrhoea) etc diseases. Rasakarpura is found moderately sensitive to bacteria, while it is poorly sensitive to fungus.^[84] By its antimicrobial and antifungal activity it cures many diseases caused by bacteria and fungus. In acute mercury poisoning, patient complains of a metallic taste in mouth, excessive salivation and inflammation of gum.^[85] So great surge of Ayurveda advised to take such medicine in Munakka (dry grapes), Guda (jagarry) or wrapping in things.^[86] For Vilayana type process, Rasakarpura dissolved in water. Dissolving mercuric chloride in water forms an auto complex as shown in



As the reaction indicates, the hydrolysis of the mercuric ion provides a slightly acidic solution. Mercuric chloride, only slightly ionized in solution, is sufficiently reactive with certain substance (e.g. proteins) to provide appreciable amount of mercuric ion. For this reason, mercuric chloride solutions are quite irritating when applied to the skin.^[87]

CONCLUSION

Rasakarpura was abundantly used to treat the Upadansha (gonorrhea) diseases in earlier periods before the development of antibiotic and sulpha drugs. A number of dosage forms along with several formulations proved its efficacy in present era too. By this work it is hope that formulations of Rasakarpura may use with proper dose and anupan to cure diseases. This research may preliminary work for the further researches on Rasakarpura formulations.

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