

## A Critical Appraisal of Parada in the Context of Different Authoritative Books

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Ayurvedic formulations are divided into two groups-

- Rasausadhis- Predominately metals and minerals are used for the preparation and dispensed in Rasashastra.
- Kasthausadhis- predominately plant drugs are used for the preparation and dispensed in Bhaisajya Kalpana.

Rasausadhis are categorized under different heading such as Khalveeya Rasayogas, Parpati Kalpana, Kupipakva Rasayanas, and Pottali Kalpana etc. Among these Khalveeya Rasayogas is important as it is indicated in various diseases and also In Rasashastra the prefix Rasa stands for Parada<sup>i</sup> or otherwise called as Rasa dhatu. This Rasa (Parada) has got superior place as the nucleus of Rasa Shastra. Parada is one of the main components of Rasoushadhi preparation. It has some specific properties like Rasayana and Yogavahi (augmenting properties) etc. In different pharmaceutical processes it plays a major role i.e. during Bhasma preparation it converts the main drugs into finest, easily absorbable and assimilable

state in comparison to other substances. Mythologically it is having divine origin as shiva veerya<sup>ii</sup>

### ❖ History:

In koutilya arthashastra the use of Parada has been given. Therapeutic use of Parada has been given in Charaka Samhita for kushtanashanartha and for savarnikarana.

### ❖ Place of origin<sup>iii</sup>:

In "Rasa Ratna Samucchaya", it is mentioned that in ancient times Parada was found mainly on the banks of river Ganga, Darada Desha and also in Himalayas in small amount. But now a day it is obtained mainly from the mines of Spain, America, Italy, Australia, China, Russia, Japan and Africa etc.

### ❖ Synonyms:

- ◆ Symbol : Hg
- ◆ Sanskrit: Parada, Shiva, Rasa, Suta, Harabija etc.
- ◆ Hindi: Para
- ◆ English: Mercury
- ◆ Latin: Hydrargirum

**Table No.3.3: Showing Important Characters of mercury**

Atomic Number	80	Atomic Radius	1.57
Atomic Weight	200.6	Ionic Radius (h) (+2)	1.10
Outer Electronic configuration	5d <sup>10</sup> 6S <sup>2</sup>	First Ionization Energy (K.cal./mole)	241
Density (gm/cc)	13.6	Oxidation Potential (Volt M-M <sup>2</sup> +2e)	-0.85
Atomic Volume (cc)	14.8	Stable oxidation state	+2
Heat of Vaporisation (K.cal/mole)	13.9	Heat of Fusion (K.cal./mole)	0.56
Freezing Point (°C)	-38.83	Boiling Point (°C)	357
Specific Heat	0.033	Electronegativity	1.9

### ❖ Occurrence of Mercury

The native form of mercury is very rare, but chiefly it occurs as Sulphide (i.e. Cinnabar, HgS).

It is also found as-

- ◆ Calomel (Hg<sub>2</sub>Cl<sub>2</sub>)
- ◆ Metacinnabar (HgS)
- ◆ Tiemannite (HgSe)
- ◆ Montroydite (HgO)
- ◆ Living Stonite (2Sb<sub>2</sub>S<sub>3</sub>HgS)
- ◆ Amalgams of Gold and Tellurium in small quantities.
- ◆ Steel ore of Mercury
- ◆ Liver ore of Mercury
- ◆ Coralline ore of Mercury
- ◆ Brick ore of Mercury

- ◆ Falh ore of Mercury
- ◆ Barsenite ore of Mercury

### ❖ Physical Properties of Mercury

Mercury is shining silver white metal, liquid at ordinary temperature. It is insoluble in water, HCl and cold sulphuric acid, but soluble in nitric acid. The vapour density determination shows that its molecule is monoatomic in the vapour state.

### ❖ Varieties of Parada

The ancient classics have described following varieties of mercury based either on its colour or on its source of origin.

**Table No.4: Showing the Varieties of Parada as mentioned in Rasa Prakasa Sudhakara (based on its colour or shining) .**

S.No.	Type of Parada	Varna	Use
1.	Shweta or White	Brahmana	Shweta karma
2.	Rakta or Red	Kshatriya	Therapeutics
3.	Pita or Yellow	Vaishya	Pita Karma or gold making
4.	Krishna or Black	Kshudra	Maintenance of health

According to Rasa Sanketa Kalika following six varieties of Parada (Bhasma Parada) has been described which are based on its colour (Varna) –

1. Raktam (Red)
2. Pitam (Yellow)
3. Neela (Blue)
4. Pandura (Yellowish white)

5. Krishna (Black)
6. Aruna (Orange)

The other texts like Rasendra Chudamani and Rasa Ratna Samuchaya have described its following varieties which are based on its physical and pharmacological properties.

**Table No.5: Showing the Varieties of Parada as mentioned in Rasendra Chudamani and Rasa Ratna Samuchaya<sup>iv</sup>.**

S. No	Type	Colour	Purity/ Impurity	Use	Available now-a-days
1.	Rasa	Rakta (red)	Pure	Rasayana	Unavailable
2.	Rasendra	Shyava (Blakish)	Pure	Rasayana	Unavailable
3.	Suta	Ishat pita(Light yellow)	Impure	Deha lohakara	Available
4.	Parada	Shweta (White)	Impure	Sarva roghakara	Available
5.	Mishraka	Mayura Chandrikachhaya	Impure	Sarva Siddhiprada	Available

### ❖ Grahya Parada Swarupa<sup>v</sup>

The superior quality of Parada should possess following properties such as "Antah-Suneelata" (bluish tinge internally) and externally appears like "Madhyahna Surya Pratima Pariksha (brilliant shining like mid day sun).

### ❖ Agrahya Parada Swarupa<sup>vi</sup>

Mercury which looks smoky-greyish (Dhumra) slightly yellowish (Paripandura) or contain various shades of colour (Chitra), contaminated or

associated with impurities, that is Agrahya or not recommended for therapeutic use.

### ❖ Doshas of Parada

The impure varieties of Parada possess mainly three types of Doshas.

- ◆ Naisargika Dosha (Natural impurities / blemishes)
- ◆ Yaugika Dosha (Adultrative impurities)
- ◆ Kanchuka/Aupadhika Dosha (Physico-Chemical or surfaceCovering impurities)
- ◆ Naisargika Dosha<sup>vii</sup>

Naisargika Doshas are those, which are mixed or found present in mercury from the nature or natural sources. The number of these Doshas varies from 3 to 10 according to different Rasa

classics. But most of the texts have mentioned Visha, Vahni and Mala Doshas as Naisargika Doshas

**Table No.6: Showing Naisargika Doshas according to different texts:**

S.No.	Name of Doshas	R.M	Rn	R.H.T	R.P.S	R.R.S	R.R	R.Ka	R.K.D
1	Visha	+	+	+	+	+	+	+	+
2	Vahni	+	+	+	+	+	+	+	+
3	Mala	+	+	+	+	+	+	+	+
4	Gurutwa	+	-	-	-	-	-	+	-
5	Chapalatwa	+	-	-	-	-	-	+	-
6	Manda	-	-	-	-	-	-	-	-
7	Darpa	-	-	-	-	-	-	-	-
8	Unmatta	-	-	-	-	-	-	-	+
9	Saila	-	-	-	-	-	-	-	+
10	Uddinatwa	-	-	-	-	-	-	+	-
11	Kautilya	-	-	-	-	-	-	+	-
12	Anavarta	-	-	-	-	-	-	+	-
13	Sankar	-	-	-	-	-	-	+	-
14	Sandhatva	-	-	-	-	-	-	+	-

**Table No.7: Showing the Naisargika Doshas & their effects**

S.N.	Name of the Doshas	EFFECTS			
		R.R.S.	R.M.	R.P.S.	R.K.D.
1	Visha	Marana	Mritya	Mrityu	Mrityu
2	Vahni	Santapa	Daha	Daha	Daha
3	Mala	Murchchha	Murchchha	Murchchha	Murchchha
4	Gurutva	-	Sula	-	-
5	Chaplatva	-	Asthiratva <sup>89</sup> (Viryanasha)	-	-
6	Mada	-	-	Sphota	-
7	Darpa	-	-	Sirobhrama	-
8	Unmatta	-	-	-	Sula
9	Shaila	-	-	-	Asthiratva

In this text, Only the names of nine Naisargika Doshas are available. Here, the author has not mentioned the effects of these Doshas.

❖ **Yaugika Doshas**<sup>viii</sup>

All the Rasa texts have mentioned two types of Yougika Doshas except "Rasendra Mangalam", where these are included in Aupadhika Doshas.

1. Nagaja -Jadya, Adhmana (R.R.S.)
2. Vangaja -Kushtha (R.R.S)

There is also difference of opinion regarding Yougika doshas amongst ancient scholars. According to Anand Kanda these are of 3 types. Their names and effects are described as below<sup>93</sup> –

1. Naga - Jadya
2. Vanga - Putigandha
3. Visha - Mrityu

❖ **Aupadhika/Kanchuka Doshas<sup>ix</sup>**

In Rasa Ratana Samuchya the terms Aupadhika and Kanchuka have been used as synonyms. But their different Varnas, Swarupa, Vikarakarita and Variations in their antidotes are also found in the texts.

Aupadhika Doshas are those which form a covering like a layer on mercury, hence these are also called ‘Kanchuka Doshas’. Their adverse effects are also mentioned in these texts. The Kanchuka doshas along with their sources and effects are shown below.

**Table No.8: Showing Kanchuka Doshas with their source & effect**

S.N.	Doshas	Sources	Effects
1	Parpati	Mrinmaya (from Prthvi)	Kushtha
2	Patini	Pashanaja (from mountains)	Jadya
3	Bhedi	Jalaja (from water)	Vali, Palita & Khalityakara
4	Dravi	Nagaja (Kapalika)	Maha Kushtha, Shwet Kushtha, Prameha, Kamala, Pandu
5	Malakari	Nagaja (Shyama)	Dadru, Gajacharma, Doshavardhaka.
6	Dhwankshi	Vangaja (Kalika)	Maha & Sweta Kushtha
7	Andhakari	Vangaja (Kapali)	Marmachcheda Viryahani

**Table No.9: Showing the Name of Kanchuka Doshas and their effects according to Rasa Prakash Sudhakara & Rasendra Chudamani.**

S.No.	Name of Kanchuka Doshas		Effects	
	R.P.S.	R. Chu.	R.P.S.	R. Chu.
1.	Mritika	Bhumij	Effects are not described	Kushtha
2.	Pashanaj	Shailaj		Vata
3.	Jalaj	Jalaj		Vatarti
4.	Tamraj	Tamraj		Daha
5.	Lohaj	Ayaj		Aavritkantha
6.	Nagaj	Nagaj		Unmada
7.	Vangaj	Vangaj		Mahashula

It is clear from above study that Naga and Vanga doshas are counted as 2 types in different texts but in R.P.S. and R. Chu. Both doshas have

not any types, but Lohaj and Tamraj are described in place of Naga and Vanga types.

The Total No. of Parada Doshas are eight according to Ayurveda Prakasha.

**Table No.10: Showing the name of Doshas and their effects on the body described as below (Rasa Ratna Samucchaya-11/20).**

S.No.	Name of Parada Doshas	Effect
1.	Naga	Jadata, Galaganda
2.	Vanga	Kushtha
3.	Mala	Ruja
4.	Vahni	Daha
5.	Chapalya	Viryana
6.	Visha	Mrityu
7.	Giri	Sphota
8.	Ashhayaagni	Moha

According to various texts the total No. of doshas are 45 which are classified under above 3 types.

❖ **Effects of Ashodhita (impure) Parada**

It is mentioned that if Ashuddha Parada is taken internally it produces Vidaha, Kushtha, Agnimandya, Krimi, Aruchi, Vamana, Jadya and finally Mrutyu i.e. death. Parada associated with impurities is considered as poison; while without impurities it is considered as Amrita (nectar). Thus scholars have advocated purification properly before its use internally.

◆ **General Purification of Parada Shodhana:**

Two types of Shodhana are mentioned in classics.

1. Samanya Shodhana – For Vyadhinashanartha
2. Vishesha Shodhana – For Rasayana and Dhatuvadhartha.

◆ **Need for Shodhana:**

As the above said Parada doshas cause dreadful problems if consumed in unpurified form and as mercury is a liquid metal, it has great affinity towards other elements. So the chances of

impurities are more in it. So shodhana is essential for Parada.

◆ **Samanya Shodhana of Parada<sup>x</sup>**

In general the processes which are described in Rasa Tarangini are applied for Samanya Shodhana of Parada. Accordingly Parada is triturated with equal amount of Shuddha and triturated for 3 days then filtered through the cloth.

Then further triturated with equal amount of Nistusha Lashuna (peeled garlic) and half part of Saindhava lavana (Rock salt) in Khalva yantra till Parada gets divided into smaller particles and gets mixed with the paste properly and is converted into blackish in colour. Finally it is washed with Luke warm water and filtered through double folded cloth.

◆ **Vishesha Shodhana of Parada:**

In Vishesha Shodhana for the removal of each Doshas, specific drugs are used. Each Shodhana Dravya is taken 1/16 part of Parada in quantity and triturated for one day. Then it is washed with Kanji. The drugs which are used to remove each doshas are given in tabular form:

**Table No.11: Showing different Dravya used in Vishesha Shodhana.**

S. No.	Doshas	Shodhana Dravyas
1	Naga	Grihadhuma, Ishtika, Haridra churna and Una
2	Vanga	Indrayana, Ankola and Haridra churna
3	Vahni	Chitrakamula churna
4	Mala	Aragvadha
5	Chapalya	Krishna Dhatura churna
6	Visha	Triphala churna
7	Giri	Trikatu churna
8	Asahyagni	Gokshura churna.

❖ **Samskaras of Parada**

There are 16 samskaras of Parada described by Rasopnishada for the removal of its impurities and for its potentization from alchemical and or therapeutic point of view. According to Rasopnishada. These sixteen Samskaras of Parada

are similar to the human's sixteen (shodus) samskaras as the concept of pinda Brahmand in sristi. Rasaratna Samucchaya has described 18 samskaras of parad<sup>xi</sup>

◆ **Ashta Samskaras**

These are commonly useful for Dravya karmas (Alchemical purposes) and Rasayana karmas (Therapeutic purposes). Hence, these have been described in detail in almost all the Rasa texts.

❖ **Pharmaco - therapeutic properties of Mercury:**

(Moorchhita Marita/Baddha Parada)

- ◆ **Rasa:** Shad Rasa, Kashaya
- ◆ **Guna:** Snigdha, Sara, Guru
- ◆ **Virya:** Ushna
- ◆ **Vipaka:** Madhura/Katu
- ◆ **Prabhava:** Yogavahi.
- ◆ **Karma:** Yogavahi, Rasayana, Vrishya, Vajikarana, Deepana, Pushtikara, Ayushkara, DristibalaPrada, Dehasiddhikara, Lohasiddhikara, Ropana, Shodhana, Purushartha chatusthayakara, Krimighna, and etc.
- ◆ **Doshas Prabhava :** Tridosaghna
- ◆ **Vyadhi Prabhava:** Jwara, Raktapitta, Kasa, Pandu, Atisara, Pravahika, Visucika, Ajirana, Arsa, Hikka, Vamana, Mutrakriccha, Amajanya Shula, Parinama Shula, Shotha, Kamala, Vatarakta, Grdhrasi, Krimi, Kustha, Kilash, Apasmara, Unmada, Prameha etc.
- ◆ **Dose:** 1 Ratti.
- ◆ **Anupana:** Madhu or according to disease.
- ❖ **Properties of Parada in specific form:**
- ◆ **Shuddha Parada:** The Parada which is shuddha can sustain the heat of Mridvagni
- ◆ **Moorchita Parada:** It can eradicate all kinds of diseases.
- ◆ **Mrita Parada:** It is not affected even by intensive heat of teevragni and it can impart health and longevity.
- ◆ **Baddha Parada:** It can be used for Vyadhinashamnartha as well as for dehasiddhi (Khecharatva).
- ❖ **Diagnosis of Mercury Poisoning :**
- ◆ Toxic dose of Hg in liver - 1 mg/ 100g
- ◆ Toxic dose of Hg in Kidney - 2 mg / 100g
- ◆ Toxic Symptoms develops when Blood - Hg above 20 mg \ dL
- ◆ Urine - Hg above 60 mg \ dl.
- ❖ **Fatal dose :** 1-4 gm
- ❖ **Fatal period:** 3-5 days
- ❖ **Important Formulation**
- ◆ Rasa Karpura
- ◆ Rasa Pushpa
- ◆ Mugdha Rasa
- ◆ Laxmi Vilas Rasa
- ◆ Arogya Vardhani Vati

<sup>i</sup> R.R.S. 1/68.

<sup>ii</sup> R.R.S. 1/64.

<sup>iii</sup> R.R.S.1/61.

<sup>iv</sup> R.R.S. 1/68.

<sup>v</sup> R.T. 5/5.

<sup>vi</sup> R.T. 5/6.

<sup>vii</sup> R.T. 5/7.

<sup>viii</sup> R.R.S. 11/18.

<sup>ix</sup> R.R.S. 11/19.

<sup>x</sup> R.T. 5/27-30.

<sup>xi</sup> R.R.S. 11/12-13