

HISTORY OF AYURVEDIC PHARMACEUTICAL PREPARATIONS

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ABSTRACT

Pharmaceutical preparations are the primary and mandatory part of any medical science. These preparations act as bridge between dietary & medicinal raw materials and success of therapy. The basic preparations of medicines (*Aushadha Kalpana*) & diet (*Ahara Kalpana*) from both herbs & metals-minerals are only five- *Swarasa, Kalka, Kwatha, Hima* & *Phanta*. The other preparations like – *Vati, Gutika, Varti, Snehapaka, Ksheerapaka, Asava, Arishta, Pishti, Kajjali, Parpati, Bhasma, Kupi-pakwa Rasayana* etc. are based on five basic *Kalpanas* (Preparations) & can be called as derived Preparations. Their Chronological developmental historical description will be beneficial to students regarding thorough knowledge of subject.

KEYWORDS: *Ahara Kalpana, Bheshaj Kalpana, Primary*

preparations and Derived preparations.

HISTORY OF AYURVEDIC PHARMACEUTICAL PREPARATIONS

It is the natural instinct of the human beings to utilize the raw materials of plants (*Sthavara*), animals (*Jangam*) & mineral (*Audbhid*) origin, according to the daily requirements in diet & treatment. They are doing so, since antiquity, for the maintenance of health & curing the disease. For these purpose, the raw materials should be first converted into most effective, acceptable & agreeable form so that they can be ingested & assimilated properly, called

preparations (*Kalpana*). Depending on the aim they are of two types- Dietetic (*Ahara Kalpana*) & Pharmaceutical (*Bheshaj Kalpana*), for Dietetic & Therapeutic purpose respectively. Initially people were might be taking food articles & drugs, without any specific preparation, by crushing with their own teeth. But later, in Paleolithic (40,000 – 10,000 BC) & Mesolithic ages (10,000 – 8000 BC, Pre-Vedic – Pre-Historic period) they were probably started crushing of drugs with stone to express juice or prepare powder. With the invention of fire later in Stone Age, people were started using fire for heating & boiling the food articles & drugs. These were the initial step of the presently existing preparation, decoction & hot infusion. This historical review verifies the successive invention of present day existing five basic pharmaceutical preparations in *Charak Samhita* like *Swarasa* (Expressed Juice), *Kalka* (Powder & Paste), *Kwatha* (Decoction), *Hima* (Cold infusion) & *Phanta* (Hot infusion).

Vedas (6000 – 1000 BC) are the oldest scriptures & source of almost all the subjects, so the roots of various pharmaceutical preparations in preliminary form were also found existing in them. *Rig-Veda* (6000 – 2500 BC), Ninth *Mandal*, is holding a description of *Soma Rasa*.^[1] *Soma Rasa* is also found described in *Yajurveda*, *Samaveda* & *Atharvaveda*. But detail process of its preparation is found mentioned in *Brahman* text. During its preparation, one may find several pharmaceutical processes & appliances. *Soma*, called king of herbs, is a divine herb was used to prepare *Soma Rasa* through crushing with instrument made from stone. Crushed *Soma* as paste is then mixed with water in earthen or metallic pot & strained in another pot with special appliance by drop by drop method. *Soma Rasa* preparation is thus basically a *Swarasa Kalpana* (Juice preparation). In *Atharvaveda*, various drugs are mentioned to use externally & internally in different forms. *Silachi* & *Laksha* were mentioned to treat traumatic wound & probably applied externally as paste². This was the example of *Kalka Kalpana* (Paste Preparation). A toxic herb *Aavaya* found to use in skin disorder after detoxification of its juice in fire in *Atharvaveda*. This was the primitive example of *Srita* or *Kwatha Kalpana* (decoction Preparation). *Shatpatha Brahamana* contains description of boiling of milk with drugs in fire.^[3] This was the primitive form of *Ksheerapaka Kalpana* (Medicated milk preparation) based *Kwatha Kalpana*. *Kaushika Sutra* contains making of *Phanta* with milk.^[4] *Rig-Veda* as well as other *Vedas* also contains description of use of various wines with the names of *Madya*, *Sura* etc., as an example of *Sandhana Kalpana*^[5] (Fermented Preparation). *Atharvaveda* holds the description of fermented preparation used in treatment with the name " *Arishta* ".^[6] But there is no clear description of process of *Sandhan* (Fermentation) is found in *Vedas*. *Atharvaveda* contains description of boiling of poison with

oil, an example of *Sneha Kalpana* (Fatty/Oily Preparation).^[7] These are the few examples taken into consideration, from several one, found mentioned in *vedic* literature for historical background of pharmaceutical preparations.

It is only from the period of *Ayurvedic* compendia (2000-1000 BC), systematic & scientific descriptions of pharmaceutical preparations were found. The word *Kalpa* or *Kalpana* (Preparation) is found first in *Charak Samhita* (2000BC - 400AD), though it may be applied to both *Ahara* (*Ahara Kalpana*) & *Bheshaj* (*Bheshaj Kalpana* called Pharmaceutical preparations). *Bahukalpana* (Multiple preparation) is described as a characteristic of ideal drug.^[8] It is the *Charaka Samhita* that incorporated first time the scientific & systematic description of pharmaceutical preparations. The primary pharmaceutical preparations that propounded by *Charaka Samhita* are *Swarasa* (Expressed Juice), *Kalka* (Pulver / Paste), *Kwatha / Srita* (Decoction), *Hima / Sheeta* (Cold infusion) & *Phanta* (Hot infusion), called *Pancha Kashaya Kalpana* (Five pharmaceutical preparations).^[9] They are mentioned in order of decreasing potency. The derived meaning of word *Kashaya* in *Kashaya Kalpana* is extract (*Niryas*) & etymologically means that which is obtained by pressing.^[10] The drugs of six *Rasa* (taste) except *lavana* (salt), can be used as source for *Kashaya Kalpana* and called *Kashaya Yoni*.^[11] *Sushrut Samhita* (1500 BC- 950 AD) is containing six pharmaceutical preparations- Latex (*Ksheera*), Juice, Paste/Powder, Decoction, Cold & Hot infusion.^[12] They are progressively weak in potency. *Ksheera Kalpana* of *Sushrut* is included in *Swarasa Kalpana* of *Charak. Ashtang Samgraha* & *Ashtang Hridaya* also containing five preparations like *Charak. Swarasa* is generally prepared by expressing the wet herb without heating. It is also made by heating the herb after covering with earthen paste (Closed Heating Method) & *Swarasa* so obtained is called *Putpaka Swarasa*, described in *Sushrut Samhita*. *Swarasa* that is obtained after cutting root or branch of live plant from lower end & applying heat from upper end & collecting at lower end is called *Nirdaha Swarasa*, mentioned in *Charak & Sushrut Samhita*.^[13] *Swarasa* is also prepared from *Patalyantra* & *Swarasa* so obtained is called *Patal Yantra Swarasa*, described in *Charak & Sushrut Samhita*.^[14] Other preparations of *Charak, Sushrut, Ashtang* & *other Samhita* like *Asava-Arishta / Abhishav* (Fermented Preparations), *Rasa kriya, Panak* (Syrup), *Paniya* (Medicated Water), *Sneha Kalpana* (Medicated Oils), *Avaleha* (Linctus) & *Ksheer Pak* (Milk Decoction / Medicated Milk) are based on *Srita Kalpana* and *Vati* (Tablets), *Varti* (wick shaped stick) etc. are based on *Kalka Kalpana*, amongst the basic five pharmaceutical preparations & can be called derived preparations.

Initially before development of *Rasa Shastra Ratna* (Gems) & *Uparatna* (Semi Gems) are used in treatment as powder (*Churna*).^[15] With the beginning of emergence of *Rasa Shastra*, they are converted into different preparations for therapeutic purpose called *Bhasma* & *Pishti*, based on five basic preparations of *Charak*. The specific preparation of *Ratna* & *Upratna*, called *Pishti*, probably came in *Ayurvedic* text from *Unani* medicine.

Plants whose active principles are existing in its volatile parts were started to use in treatment as specific preparation called *Arka*.^[16] This preparation was introduced in *Ayurveda* in medieval period probably from interaction with Muslims. It was *Gada Nigraha* of *Sodhala* (1175-1215 AD), that probably contain description of *Arka* extraction first time from *Kharjurasav*.^[17]

Bhasma preparation is basically preparation of *Rasa Shastra* for Metals. The word *Bhasma* is used in *Charak* & *Sushrut Samhita* for the ash of herbal drugs, not in the sense of *Bhasma* of metals as in *Rasa Shastra*. *Bhasma* of animal products in *Sushrut Samhita* is also mentioned as *Masi Kalpana* (*Krishna Sarpa Masi*). Before the emergence of *Rasa Shastra* metals in *Charak* & *Sushrut Samhita* are mentioned with use in treatment as *Churna* (Powder) or *Rajas* or *Ayaskriti*.^[18] These Metals are made into fine powder by heating thin foils to red hot & then dip into the decoctions of *Triphala*, cow urine, saline water & different *Kshar* (*Nirvapan Process*).^[19]

Ashtanga Samgraha (505-587 AD) probably contains first time the indication of preparation of *Bhasma* by subjecting the metals to heating in a closed crucible (*Musha*).^[20] This view is further supported by mentioning of *Musha*, *Ghati Musha* & *Andha Musha* at different places in the text.^[21] But in this text too, the word *Bhasma* is not mentioned instead of this the word *Churna* (powder) is used. True method of making *Bhasma* of metals & minerals through *Agniputa* (medium of indicating the intensity of heat during process of *Bhasma* preparation) became popular only after the development of *Rasa shastra* in sixth century & onwards. Initial steps involved currently in *Rasa Shastra* in making *Lauha* (Iron) *Bhasma* through heating are *Sthalipak* & *Bhanupaka*, found first in *Sushrut Samhita*^[22] & *Ashtanga Samgraha*^[23] respectively. The process of *Bhasma* preparation is called *Marana*. The minerals usually contain some or other metals as their important constituents & the method of separating them is called *Sattva Patana* & separated metal is called *Sattva* in *Rasa Shastra*. They were also subjected to *Bhasma* formation for internal use. *Sattva Patan* of *Makshika* is found first in *Rasa Ratnakara* & *Rasendra Mangal* in 7th – 8th century.^[24]

Parada (Mercury) is also called *Rasa* & the science that deals mainly with the use of *Parada* is known as *Rasa Shastra*. Mercury cannot be used alone for therapeutic purpose. It must be combined with other drugs so that can be used for therapeutic purpose effectively. The drugs which are produced with the combination of mercury are called *Rasa-Aushadhi* & the preparations are known as *Parpati*, *Kajjali*, *Khalva Rasa*, *Kupi-pakwa Rasa*, etc.

Parpati, generally made from *Parada* (Mercury), is described first in text of *Chakrapani* called *Chakradutta* (11th century), as *Rasa Parpati*, in the context of a disease known as *Grahani* (Sprue).^[25] This preparation was the beginning of use of mercury for therapeutic purpose internally. Text before *Chakradutta*, *Rasendra Mangala* of *Nagarjuna* (8th century), also containing the word *Parpati* but authenticity regarding validity of this text is doubtful. Otherwise this was the first text to contain the description of *Parpati* preparation.^[26] Therefore Mercury (*Parada*) was started to use internally since eleventh century. Before this it was found to be used externally as *Anjana* (Collyrium) in *Sushrut Samhita*^[27] & *Ashtang Samgrah*.^[28] *Charak Samhita* is also containing the word *Rasottamaih* in the context of treatment of wound in one of the formulation, applied externally for *Savarnikaran* of skin (making skin color normal).^[29] But the word *Rasa* in this referencsse is not definitely for Mercury, it might be for clarified butter (*Ghrit*). The word *Nigrahita Rasa* is mentioned in *Charak Samhita* in the context of *Gandhak-Swarnamakshika Yoga* for *Kushtha*, but probably it was not for Mercury instead used for *Jati Swarasa*.^[30] Therefore, internal use of Mercury is found to be used first time in *Ashtang Samgraha* with *Swarnamakshika*, *Lauha*, *Shilajatu* etc. not with sulphur as in text of *Rasa Shastra*.^[31]

Khalva preparations are more important & basic preparations. They don't require heat during preparation & are made in mortar. They were used for therapeutic purpose as well as a vehicle for manufacturing of other drugs like *Kajjali*, *Mugdha Rasa* etc.

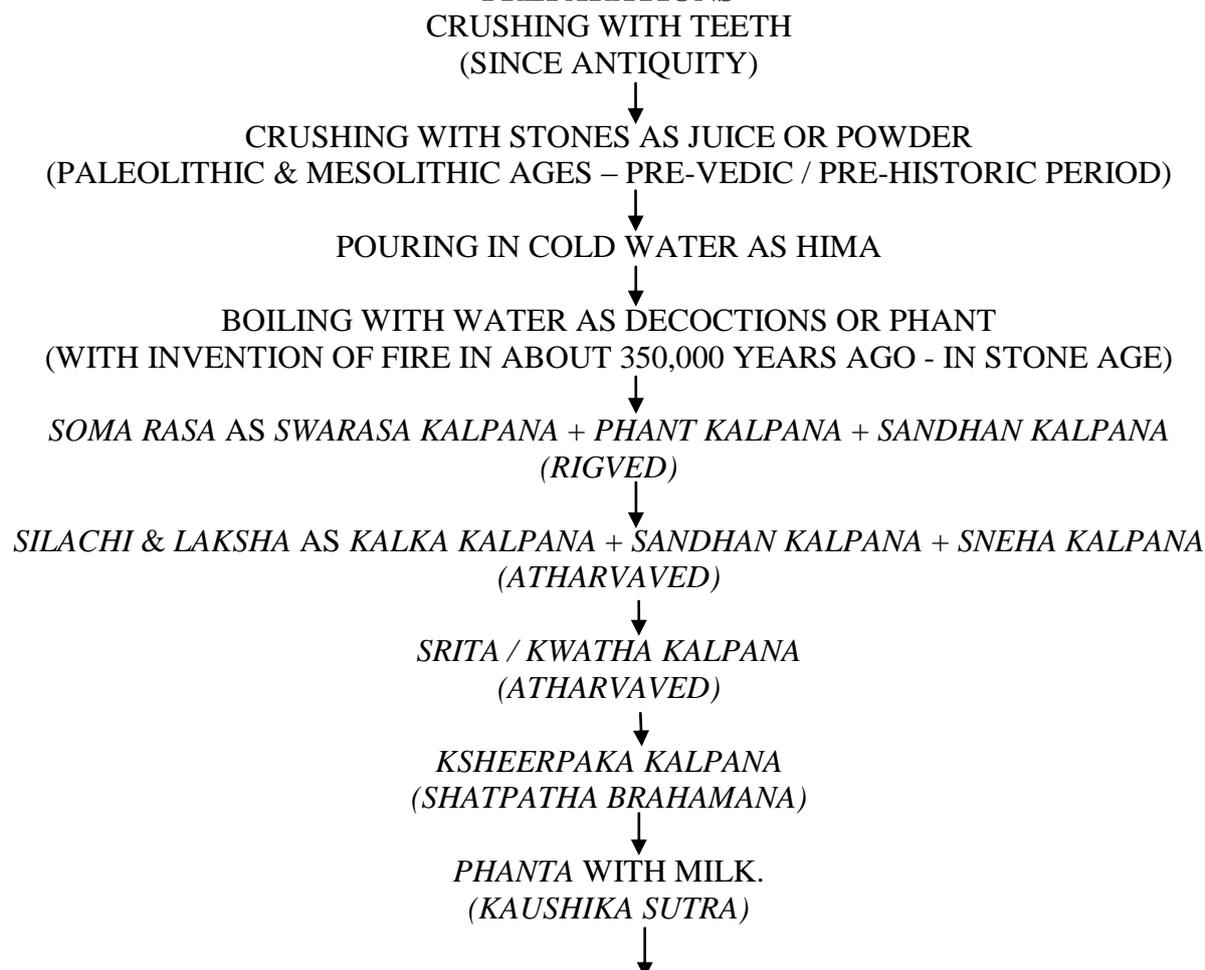
Kupi-pakwa Rasayana are the mercurial preparations prepared by heating Mercury or *Kajjali* in *Kupi* (Glass bottle). *Kupi-pakwa Rasayana* are of two types – *Sagandh* & *Nirgandh*. *Sagandha Kupi-pakwa Rasayana* preparation (as *Rasa Sindura* by the name *Uday Bhaskar Rasa*) & *Nirgandh Kupi-pakwa Rasayana* (as *Rasa Karpura* by the name *Ghan Sara*) is found first described in the text of *Shri Yashodhara Bhatta* known as *Rasa Prakash Sudhakar* (12th – 13th century).^[32] Mercury until & unless is not heated with *Gandhaka* (Sulphur) in a device, is neither fully therapeutically active nor possessing the *Rasayana* (Rejuvenating) property. This process of treatment of Mercury with Sulphur to enhance its capacity to engulf

the other metals like Gold, Silver etc. in it is called *Gandhaka Jarana* (burning of sulphur with mercury). This process was first mentioned in *Rasa Hridaya Tantra* of *Bhikshu Govind* in tenth century.^[33] This *Gandhaka Jarana* later developed into *Kupi-pakwa Rasa*. *Pottali* preparation of *Parada* was described first in *Rasa Ratnakar* of *Nityanath* in fifteenth century.^[34]

CONCLUSION

The review of historical data infers that use of herbs, metal & minerals for the maintenance of health & curing the disease starts with the natural instinct with primitive way of crushing with tooth to reached to the height of more scientific & systematic methods & forms of preparations. The basic preparations of medicines (*Aushadha Kalpana*) & diet (*Ahara Kalpana*) from both herbs & metals-minerals are only five- *Swarasa*, *Kalka*, *Kwatha*, *Hima* & *Phanta*. The other preparations like – *Vati*, *Gutika*, *Varti*, *Snehapaka*, *Ksheerapaka*, *Asava*, *Arishta*, *Pishti*, *Kajjali*, *Parpati*, *Bhasma*, *Kupi-pakwa Rasayana* etc. are based on five basic *Kalpanas* (Preparations) & can be called as derived Preparations.

CHRONOLOGICAL DEVELOPMENT OF AYURVEDIC PHARMACEUTICAL PREPARATIONS



PANCHA KASHAYA KALPANA - SWARAS (EXPRESSED JUICE), *KALKA* (POWDER & PASTE), *KWATHA* (DECOCTION), *HIMA* (COLD INFUSION) & *PHANTA* (HOT INFUSION).

(*CHARAK SAMHITA* 2500 BC- 400AD)

SHAD KASHAYA KALPANA - LATEX (*KSHEERA*), JUICE, PASTE/POWDER, DECOCTION, COLD & HOT INFUSION.

(*SUSHRUT SAMHITA* 1500 BC – 900 AD)

MASI KALPANA
(*SUSHRUT SAMHITA*)

METALS AS CHURNA / *AYASKRITI*
(*CHARAK & SUSHRUT SAMHITA*)

RATNA & UPARATNA AS CHURNA
(*CHARAK & SUSHRUT SAMHITA*)

METALS AS *BHASMA*
(*ASHTANG SAMGRAHA* - 550 AD)

SATTVA / SATTVAPATAN
(*RASA RATNAKARA & RASENDRA MANGAL*, 7-8 CENTURY)

PARPATI KALPANA
(*CHAKRADUTTA* - 1075 AD)

ARKA KALPANA
(*GADA NIGRAHA* - 1175-1215 AD)

SAGANDHA KUPIPAKWA RASAYAN AS *RASA SINDURA* BY THE NAME *UDAYBHASKAR RASA & NIRGANDHA KUPIPAKWA RASAYAN* (AS *RASA KARPURA* BY THE NAME *GHANSARA*)

(*RASA PRAKASH SUDHAKARA* OF TWELFTH-THIRTEENTH CENTURY)

POTTALI RASAYAN KALPANA

(*RASA RATNAKAR* - FIFTEENTH CENTURY)

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