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Identification of drugs of *Madhuraskandha* of *Charakasamhita*

Review article

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Abstract

In the classical text, *Rasa* oriented group of drugs were mentioned called as *Rasaskandha.* Acharya Sushruta, Vagbhata have mentioned these groups in the context of description of *Rasa* (Taste). But Acharya Charaka quoted these groups in *Vimanasthana* while describing drugs for *Asthapana Basti* (Corrective enema). Drugs having predominantly of *Madhura rasa* (sweet taste) and *Vipaka* (Final transformation of drug) or that can produce effect similar to that of *Madhura Rasa* or *Vipaka* (*Prabhava*- specific action) are included under *Madhuraskandha*. In total 85 drugs are mentioned. In this group 68 are identified, 14 are unidentified and 3 are found to be controversial drugs. Among them 56 drugs are *Madhura rasa* (sweet taste) dominant, 53 are *Madhura vipaka* (final transformation into sweet) dominant and 18 are categorized under *Madhura prabhava* (specific action). The drugs included in *Madhuraskandha* (group of the drugs having Sweet taste or potential), irrespective of *Madhura Rasa* or *Vipaka*, are capable of attributed to functions *Madhura Rasa* or *Vipaka* like *Jeevaniya* (invigorating), *Preenana* (soothing), *Balya* (promotes strength), *Brihmana* (nourishing), *Rasayana* (anti-ageing), *Vrishya* (aphrodisiac), *Shukrala* (promotes semen) etc.

Key words: *Madhuraskandha*, *Madhura rasa*, *Madhura vipaka* and *Madhura prabhava*

Introduction:

Acharya Charaka had described *Shadarasa skandha* (Group of drugs having six different tastes) in the context of *Asthapana Basti* (Corrective enema) drugs. The main purpose of these *skandhas* was to describe the text neither to be long nor too brief but at the same time should clearly explain the entire scientific truth.

Substances are mostly composed of many tastes. Therefore drugs that are of *Madhura rasa* or predominantly of *Madhura* rasa or *Vipaka* or those which produce the effects similar to *Madhura rasa* (*Prabhava*) are included under *Madhuraskandha* (group of the drugs having Sweet taste or potential) (1).

Madhura rasa drugs and diets are wholesome to the body and as such they add to the growth of *rasa* (body fluid), *rakta* (blood), *mamsa* (muscle), *meda* (fat), *asthi* (bone), *majja* (bone marrow), *shukra* (semen), *ojas* and longevity. They are soothing to the six sense organs. They promote strength and complexion; alleviate *Pitta*, *Vata*, and effects of poison. They relieve thirst and burning sensation, promote healthy skin, hair, voice and strength. They have *Preenana* (soothing),

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Jeevaniya (invigorating) and *Brihmaniya* (nourishing) properties. They bring about stability and heal up emaciation and consumption. They are soothing to the nose, mouth, throat, lips and tongue and relieve *Daha* (burning sensation) and *Murchha* (fainting). They possess *Snigdha* (unctuous), *Guru* (heavy to digest), *Sheeta* (cold) properties (2). And *Madhura vipaka* aggravates *Kapha*, *Shukrala* (promotes semen) and helps in the proper elimination of stool and urine (3). The present study was aimed to identify the drugs botanically and to find out its *Rasapanchaka* along with recent research studies carried out w.r.s. to *Madhura* rasa, *vipaka* karma so as to reconfirm its inclusion in the *Madhuraskandha*.

Material and methods:

The commentaries on Charakasamhita like *Ayurvedadipika*, *Jalpakalpataru* and *Charakopaskara* were consulted to interpret the meaning of drugs of *Madhuraskandha*. For the identification of appropriate botanical source of the drugs, a "Glossary of Vegetable drug in Bruhattrayi" by Thakur Balawant Singh was referred. The properties of the drugs were compiled from *Bhavaprakasha nighantu, Rajanighantu, Kaiyadevanighantu* and *Priyanighatu* and for recent activities Database of Medicinal Plant used in Ayurveda by CCRAS publication and Ayurvedic pharmacopeia of India was referred.

Observation and result:

An analysis about the drugs of *Madhuraskandha* was carried out initially to establish botanical identity of drugs and data was analysed from *Rasapanchaka* [*Rasa* (taste), *Guna* (properties), *Veerya* (potency), *Vipaka* (final transformation), *Prabhava* (specific action)] perspectives along scientific validation reported.

Table no.1: Showing list of identified drugs of *Madhuraskandha* drugs in *Charakasamhita*

No	Drugs	Commentary of Ck (4), Gr (5), Ys (6)	Botanical source	Activity (7)
1.	*Jivanti*	-	*Leptadenia reticulata* W &A	Lactogenic, anabolic cum androgen like activity
2.	*Vira*	*Jalandhara shaka* (Ck) *Kshirakakoli* (Gr) *Amalakibheda* (Ys)	*Lasia spinosa* Thwaites	Anti-oxidant activity
3.	*Tamalaki*	*Bhumyamalaki* (Ys)	*Phyllanthus niruri* Linn. *P.urinaria* Linn	Hepatoprotective, anti-cancer
4.	*Mudgaparni*	-	*Phaseolus trilobus* Ait	*Chakshushya* (eyetonic), *Shukrala*
5.	*Mashaparni*	-	*Teramnus labialis* Spreng	*Shukrala*
6.	*Shalaparni*	-	*Desmodium gangeticum* DC	*Brihmana*, *Rasayana*, *Vishahari* (alleviate poison), anti-oxidant acivity
7.	*Prishniparni*	-	*Uraria picta* Desv	*Vrishya*

8.	*Asanaparni/ Shanaparni*	*Aparajita* (Ck)	*Clitoria ternatea* Linn	*Medhya* (brain tonic), *Kanthya*, *Smriti-budhhida* (memory booster)
9.	*Madhuparni*	*Vikankata* (Ck)	*Flacourtia indica* Merr *Gymnosporia spinosa* (Forsk) Fiori	Anti-inflammatory, Anti-microbial, Anti-oxidant (8), Hepatoprotective, Antimalarial, Anti -diabetic, Anti asthmatic and Antibacterial Activity (9).
10.	*Karkatashringi*	-	*Pistacia integerrima* Stew. ex.Brandis	Anti-allergic, carminative
11.	*Shringatika*	-	*Trapa bispinosa* Roxb.	Vrishyas
12.	*Chhinnaruha*	-	*Tinospora cordifolia* (Willd.) Miers ex Hook. f. &Thoms.	Hepatoprotective, immunosuppressive, stimulant, adaptogenic, anti-oxidant
13.	*Chhatra*	*Kokilaksha* (Ck,Ys) *Shatavha Madhurika* (Gr)	*Asteracantha longifolia* Nees	*Vrishya*
14.	*Shravani*	*Shvetamunderi* (Gr) Raktamunderi (Ys)	*Sphaeranthus indicus* Linn	*Medhya* (brain tonic)
15.	*Mahashravani*	*Alambusha Raktamunderi* (Gr) *Shvetamunderi* (Ys)	*Sphaeranthus africanus* Linn	*Medhya* (brain tonic)
16.	*Sahadeva*	*Atibala*(Ck) *Pitapushpa-dandotpala* (Gr, Ys)	*Abutilon indicum* Linn	Analgesic, anti-cancer, hypothermic, Anti-oxidant and free radical scavenging activity immunomodulatory (10),
17.	*Vishwadeva*	*Nagabala Arunpushpa-dandotpala* (Gr, Ys)	*Grewia hirsuta* Vahl.	Anti-oxidant, Anti-proliferative activity (11)
18.	*Shukla*	*Sharkara* (Ck,Ys) *Shuklavarna nikshira vidari*	-	*Ruchya*, *Shukrakarini*

		(Gr)		
19.	*Bala*	*Shvetabala* (Gr)	*Sida cordifolia* Linn	*Bala-kantikrit* (promotes strength and skin tone)
20.	*Atibala*	*Gorakshatandula* (Gr)	*Abutilon indicum* Linn	Analgesic, Anti-cancer, hypothermic, Immunomodulatory, Anti-oxidant
21.	*Vidari*	*Nikshira bhumikushmanda* (Gr)	*Pueraria tuberosa* DC	*Brimhani, Stanyakara* (galactogogoue) *shukrada, Mootrala, Jivaniya, Balavarnakara, Rasayani*
22.	*Kshiravidari*	*Bahukshira bhumikushmanda* (Gr)	*Ipomoea digitata* Linn	*Brimhani, Stanyashukrada, Mootrala* (diuretic), *Jivaniya, Balavarnakara, Rasayani,* Anti-oxidant and lipid peroxidation (12)
23.	*Kshudrasaha*	*Kumari* (Ck) *Shweta kurubuka* (Ys, Gr)	*Aloe vera* Tourn. ex Linn. *Phaseolus trilobus* Ait	*Brihmana, Balya, Vrishya*, Fertility, hepatoprotective
24.	*Mahasaha*	*Rakta kurubuka* (Ys, Gr)	*Teramnus labialis* Spreng (*Mashaparni*) *Barleria cristata* Linn. (*Sahachara*)	Anti-oxidant activity (13)
25.	*Ashwagandha*	-	*Withania somnifera* Dunal	Immunomodulatory, adaptogenic, anti-oxidant, cardioprotective, anti-ageing, cytoprotective
26.	*Payasya*	Not mentioned in charakasamhita chakrapani commentary Arkapushpi (Gr) Vidaribhed (Ys)	*Holostemma annulare* (Roxb.) K. Schum.	*Brimhani, Stanyashukrada, Mootrala, Jivaniya, Balavarnakara, Rasayani*
27.	*Vrischira*	*Shweta punarnava* (Gr)	*Trianthema portulacastrum* Linn	*Balya, Shukrala, Varnya*
28.	*Punarnava*	*Rakta punarnava* (Gr)	*Boerhavia diffusa* Linn Syn *B. repens* Linn.	Anti-fibrinolytic, cardiotonic, hepatoprotective

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29.	*Brihati*	-	*Solanum indicum* Linn	*Deepani* (increases appetite), *Pachani* (digestive), *Ruchya, Hridya* (cardiotonic)
30.	*Kantakarika*	-	*Solanum xanthocarpum* Schrad &Wendle	*Deepana, Pachana*
31.	*Urubuka*	-	*Ricinus communis* Linn	Antioxidant, anti implantation, anti inflammatory, anti-diabetic, central analgesic, anti-tumour, larvicidal & adult emergence inhibition, Anti-nociceptive and anti-asthmatic activity (14).
32.	*Shvadranshta*	*Gokshuraka* (Ys)	*Tribulus terrestris* Linn	Cardio tonic, Hepatoprotecctive, cytoprotective
33.	*Samharsha*	*Bandaka* (Ck,Gr,Ys)	*Loranthus longiflorus* Desr *(Dendrophthoe falcata* (Linn.f) Etting	*Rasayana*, *Vrishya*
34.	*Shatavari*	-	*Asparagus racemosus* Willd.	Anti-cancer, anti-abortificient, anti-oxytocic
35.	*Shatapushpa*	-	*Peucedanum graveolens* Linn *Foeniculum vulgare* Mill	*Deepana*
36.	*Madhooka-pushpi*	*Madhooka Bheda* (Ck,Gr,Ys)	*Madhuca latifolia* (Roxb.)Macbride	Anti-oxidant, oxytocic, uterotonic, anti-bacterial, anti-implantation, anti-tumour, anti-progestational, anti-estrogenic activity against menorrhagia and anti-cancer (15)
37.	*Yashtimadhu*	-	*Glycyrrhiza glabra* Linn	Hepatoprotective, anti-oxidant
38.	*Madhulika*	*Markata-hastatrina* (Ck,Gr,Ys)	*Eleusine indica* Gaertn. *Eleusine coracana* Geartn	*Shukrala, Brihmana, Pathya*
39.	*Mridvika*	-	*Vitis vinifera* Linn	*Chakshushya, Brimhani, Vrishya,Svarya*
40.	*Kharjura*	-	*Phoenix dactylifera* Linn.	*Ruchya, Tarpana, Balya*

	Kharjura-mastaka			*Brihmana*
41.	*Parooshaka*	-	*Grewia asiatica* Linn	*Vishtambhi, Brihmana*
42.	*Aatmagupta*	*Shookashimbi* (Ys)	*Mucuna pruriens* DC	Aphrodisiac, nervine tonic, anti-parkinsonism
43.	*Pushkarabeeja*	*Padmabeeja* (Ys)	*Nelemubo nucifera* Hook.f.	*Vrishya*, *Garbhada* (help in conception)
44.	*Kasheruka*	*Chinchodaka* (Ck,Gr)	*Scirpus kysoor* Roxb	-
45.	*Rajakasheruka*	*Kasherubheda* (Ck,Gr,Ys)	*Scirpus grossus* Linn	-
46.	*Rajadana*	*Venchulika* Priyala (Gr,Ys)	*Buchanania lanzan* Spreng *Mimusops hexandra* Roxb.	*Vrishya*,, *Balya*
47.	*Kataka*	*Nirmali* (Ys)	*Strychnos potatorum* Linn.f.	Anti –oxidant activity (16)
48.	*Kashmari*	-	*Gmelina arborea* Linn	Fruit-anabolic effect, gain in body weight
49.	*Odanapaki*	*Nilajhinti* (Ck,Gr,Ys)	*Barleria strigosa* Willd.	-
50.	*Taala-mastaka*	-	*Borassus flabellifer* Linn	Immunosuppressive, stimulant
51.	*Ikshu*	-	*Sachharum officinarum* Linn	*Balya, Vrishya, Mootrala*
52.	*Ikshuvalika*	-	*Synonym of Ikshuraka Asteracantha longifolia* Nees	*Vrishya*
53.	*Darbha*	-	*Imperata cylindrica* (Linn) Raeusch	Anti-hypertensive activity, anti-bacterial, anticoagulant activity
54.	*Kusha*	-	*Desmostachya bipinnata* Stapf	Calcium channel blocking activity
55.	*Kasha*	-	*Saccharum spontaneum* Linn	Anti-oxidant activity (17)
56.	*Shaali*	*Hemantika dhanyamoola* (Gr)	*Oryza sativa* Linn	*Hridya, Brihmana, Ruchya, Balya, Svarya*
57.	*Gundra*	*Guduchi* (Gr) *Sharabheda* (Ys)	*Typha elephantina* Roxb.	-
58.	*Itkata*	-	*Sesbania bispinosa* W. f. Wight.	-
59.	*Sharamula*		*Saccharum munja* Roxb	*Vrishya*
60.	*Rajakshavka*	*Dugdhika* (Ck) *Kshavavriksha*	*Euphorbia hirta* Linn	*Hridya, Shukrala*

		(Gr) *Rajasarshapa* (Ys)		
61.	*Rushyaprokta*	*Balabheda*(Ck) *Peetabala* (Ys,Gr)	*Abutilon indicum* Linn	
62.	*Dvarada*	*Shakataru*(Ck,Ys) *Palankya*(Gr)	*Tectona grandis* Linn. f.	*Ruchya, Sara,* Hepatoprotective (18)
63.	*Bhaaradvaji*	*Vanakarpasi* (Ck,Gr,Ys)	*Thespesia lampas* Dalz &Gibs	Seed- stanyada, Vrishya
64.	*Hansapadi*	*Thulakudi* (Gr) *Hansapadakara lata* (Ys)	*Adiantum lunulatum* Burn	Alexiteric, *Rasayani*, anti-oxidant activity (19)
65.	*Kulingakshi*	*Petika/ Uchhata* (Ck,Gr, Ys)	*Abutilon indicum* Linn	Analgesic, anti-cancer, hypothermic, Immunomodularty, Anti-oxidant
66.	*Kshirvalli*	*Kshiralata* (Ck,Gr, Ys)	*Ipomoea digitata* Linn	Same as above
67.	*Kapotavalli*	*Sukshmaila* (Ck,Gr)	*Elettaria cardamomum* Maton	Anti-oxidant, anti - microbial activity (20)
68.	*Gopavalli*	*Anantamoola* (Ck,Gr, Ys)	*Hemidesmus indicus*	Bacteriostatic, anti-cancer

Ck- Chakrapani commentary, Gr- Gangadhar commentary, Ys- Yogindranath Sen commentary

Table no.2: Showing list of unidentified drugs of *Madhuraskandha* drugs in *Charakasamhita*

No	**Drugs**	**Commentary of Ck (4), Gr (5), Ys (6)**	**Botanical source**	**Activity**(7)
1.	*Kakoli*		*Roscoea procera* Wall	*Shukrala, Brihmana*
2.	*Kshirakakoli*	-	*Roscoea procera* Wall	*Shukrala, Brihmana*
3.	*Jivaka*	-	*Microstylis wallichii* Lindl	*Balya, Shukraprada*
4.	*Rushabhaka*	-	*Microstylis muscifera* Lindl	*Balya, Shukraprada*
5.	*Meda*	-	*Polygonatum verticillatum*	*Vrishya, Brihmana*
6.	*Mahameda*	-	*Polygonatum verticillatum*	*Vrishya, Brihmana*
7.	*Atichhatra*	*Arun kokilaksha* (Ck,Ys)	-	-
8.	*Kshirashukla*	*Brihat-shringatika* (Ck) *Swalpa-kshiravidari (Gr)* *Trivrut* (Ys)	-	-
9.	*Rushyagandha*	*Rushya-jangalaka/*	*Sida* species	-

		Balabheda (Ck,Gr,Ys)		
10.	*Sheetapaki*	*Shitala* (Ck,Ys) *Kakolibheda* (Gr)	-	-
11.	*Vanatrapushi*	*Brihatphala godumba* (Ck,Ys) *Vanya swalpatrapusha* (Gr)	-	-
12.	*Abhirupatri*	*Shatavaribheda* (Ck,Ys) *Swalpa shatavari* (Gr)	*Asparagus* species	
13.	*Kapolavalli*	*Kavadavenduaa* (Ck)	-	
14.	*Madhuvalli*	*Yashtimadhubheda* (Ck,Gr,Ys)	-	

Ck- Chakrapani commentary, Gr- Gangadhar commentary, Ys- Yogindranath Sen commentary

Table no. 3: Showing list of controversial drug of *Madhuraskandha* drugs in *Charakasamhita*

No	Drugs	Commentary of Ck(4), Gr(5), Ys(6)	Botanical source	Activity(7)
1.	*Kakanasika*	*Kedathudi* (Gr)	*Pentatropis microphylla* W &A *Trichosanthes cucumerina* Linn *Clitoria ternatea* Linn *Martynia annua* Linn	*Vamini*
2.	*Somavalli*	*Somalata* (Ck,Gr, Ys)	*Ephedra gerardiana* *Sarcostemma brevistigma*	*Rasayana*
3.	*Morata*	*Moorva* (Ck,Ys) *Karnamorata* (Gr)	*Maerua arenaria* Hook f and Th. *Marsdenia tenacissima* W &A	-

Ck- Chakrapani commentary, Gr- Gangadhar commentary, Ys- Yogindranath Sen commentary

There are total 85 drugs are listed in the *Madhuraskandha* of Charakasamhita. Other Brihatatrayi Samhitas viz. Sushrutasamhita, Ashantagsamgraha and Ashtangahridaya have mentioned different *Rasavargas* (group of drugs having different 6 tastes) in the context of Rasa. They have mentioned in total 55, 71, 58 drugs respectively. In these Rasa oriented groups along with herbal drugs certain *Jangama* (Animal origin), *Parthiva* (mineral origin) and *Aharadravyas* (dietary item) are also incorporated viz. *Ghrita* (clarified butter), *Vasaa* (Muscle fat), *Majja* (Bone marrow); *Hema* (gold), *Guda* (jaggery), *Sharkara* (sugar); *Yava* (Barley), *Shashtika* (Rice), *Godhuma* (wheat) and *Madhulika* (finger millet); *Akshoda* (Almond), *Draksha* (Dry grapes), *Ikshu* (Sugarcane), *Kharjura* (Dates), *Madhuradadima* (Pomgranate), *Mocha* (Banana), *Narikela* (Coconut), *Panasa* (Jackfruit), *Sinchitika* (Apple), *Taala* (Ice apple), *Taala-mastaka* etc.

It appears that in the manuscript of Charakasamhita commentated by Chakrapani has not mentioned the "*Payasya*" while it was incorporated in the manuscripts commented by Gangadhar Roy and Vd Yogindranath Sen. Similarly "*Madhuparni*" is included under *Madhuraskandha* of Chakrapani charakasamhita and this drug was not mentioned by the text commented by Gangadhar and Yogindranath Sen.

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Kapolavalli described by Charaka is interpreted as '*Kavadavendua'* by Chakrapani, the identification of which is not established. Gangadhar Roy has not accepted this drug opining it as an interpolation.

In total 68 drugs are identified and 14 are unidentified and 3 are found to be controversial drugs. Unidentified drugs are *Ashtavarga drugs (Jivaka, Rishabhaka, Meda, Mahameda, Kakoli, Kshirakakoli except Ridhhi, Vridhhi), Atichhatra, Kapolavalli, Abhirupatri, Madhuvalli, Somavalli, Kakanasika, Rushyagandha, Vanatrapushi, Morata, Sheetapaki, Kshirashukla.*

Discussion:

The drugs included in *Madhuraskandha* possess other *Rasas* as well as different *Vipakas*. Certain drugs included in this group though not possessing either *Madhura* rasa or *Madhura vipaka* produce the effects similar to *Madhurarasa* or *Madhuravipaka* which is interpreted under *Madhuraprabhava*. The activities or affects ascribed to either *Madhura rasa* or *Madhura vipaka* produced in the body by the drug which is devoid of these attributes should be considered as specific activities or effects and can be interpreted as *Madhura prabhava*. According to Ayurvedic pharmacology, *Prabhava* is inexplicable attribute (*Achintya shakti*). It may be possible to explain specific activities ascribed to *Prabhava* by certain phytochemical constituents.

E.g. Ashwagandha possess *Tikta*, *Kashaya rasa* and *Katu vipaka.* But still attributes the *Atishukrala*, *Rasayana* karmas of *Madhura rasa* and *Madhura vipaka*. It can be explained by its phytochemical constituents. Chemical analysis of *Ashwagandha* shows its main constituents as alkaloids and steroidal lactones. Among the various alkaloids, Withanine is the main constituent. Certain withanolides constituents have been demonstrated to possess significant anti-oxidant and immunomodulatory activity, some of the simple withanolides have immunosuppressive activity and some glycowithanolides display immunostimulation. (21)

Table no. 4: Showing *Madhura rasa* dominant drugs of *Madhuraskandha*

No	Rasa	No. of drugs	%
1.	Madhura	29	34.11
2.	Madhura, Tikta	11	12.94
3.	Madhura, Kashaya	12	14.11
4.	Madhura, Tikta, Kashaya	3	3.52
5.	Madhura, Amla, Tikta	1	1.17
6.	Kashaya (Dvarada)	1	1.17
7.	Katu (Shatapushpa)	2	2.35
8.	Katu, Tikta, Kashaya	2	2.35
9.	Katu, Tikta	3	3.52
10.	Tikta, Kashaya	2	2.35
11.	Katu, Kashaya	2	2.35

Table no. 5: Showing *Madhura* and *Katu vipaka* drugs of *Madhuraskandhas*.

No.	Vipaka	No. of drugs	%
1.	Madhura	53	61.17
2.	Katu	20	24.70

The number of *Madhura Rasa* containing drugs are 56 (65.88%), drugs having *Madhura vipaka* are 53(61.17%) and 18 (21.17%) are categorized under *Madhura prabhava* drugs.

Ashtavarga is a group of eight drugs, about which definite identity is not established. Bhavamishra described that drugs of this group are difficult to procure even by the King; hence physician should make use of substitutes of the drugs of same properties. In the absence of the two *Meda*, two *Jivaka*, two *Kakoli* and two *Riddhi*, *Shatavari*, *Vidarikanda*, *Ashvagandha* and *Varahakanda* respectively are suggested as substituted. (22)

According to Chakrapani, *Veera* is known as *Jalandhar shaka*. Thakur Balawant Singh commented as it is hydrophytic plant with spines like *Lasia spinosa* Thwaites. It is a thick rhizome used as medicine and its thick spinous leaves used by tribal people in vegetables as *Kantasaru* and *Bamalashaka*. In Sushrutasamhita, *Veera* is taken as *Indivara kanda.* Some people take it as spinous variety of Asparagus also. But recent research study showed the anti-oxidant activity of leaves of *Lasia spinosa* and also its leaves are edible, used in intestinal colic, rheumatoid arthritis, constipation and as blood purifier. (23)

Chhatra and *Atichhatra* invariably together are taken as *Kokilaksha* and *Arun Kokilaksha* by commentator Chakrapani. In Sushrutsamhita, besides their *Rakshoghna* (anti-septic) karma, they have been included in one of the variety of *Soma*. Tuber considered as anti-septic, preventive for old age and death (24). On the perusal of the above contexts it appears to be of *Madhura* rasa, possess as *Rasayana*, *Rakshoghna* (anti-septic) properties and useful in mental ailments.

But Thakur Balawant Singh opines that it is very likely that plants belonging to Umbelliferae (Apiaceae) family having umbel shaped inflorescence (*Chhatrakara*). Therefore *Peucedanum nagpurens* and *P.dhana* known as *Kamraja* and *Tejaraja* in Vindhya forest and *Heracleum canescens* Lindl and *Trichyspermum falconeri* Walff both known as *Chhatrya* in Garhwal should be examined. But now a days *P.dhana* is considered as threatened species (25). Still other species are not yet validated for Rasayana Karma. Therefore, *Chhatra* should be considered as *Kokilaksha* as it has *Madhura rasa*,*vipaka* and *Sheeta veerya* and possess *Balya*, *Santarpana* properties. For *Atichhatra*, Chakrapani had quoted it as one of the varieties of *Kokilaksha* such as *Arun kokilaksha* and so far it is neither mentioned by any nighantu nor botanically identified. *Atichhatra* can be interpreted as *Shatapushpa*, *Madhurika* or *Avakpushpi* (*Trichodesma indica*) instead of *Arun kokilaksha*.

Two varieties of *Saha* are mentioned namely *Kshudrasaha* and *Mahasaha*. They are believed to be synonyms of *Mudgaparni* and *Mashaparni* or two different varieties of *Sahachara*. But Chakrapani interpreted *Kshudrasaha* as *Kumari* which possess Rasayana Karma in spite of its *Katu* and *Tikta rasa*. For *Mahasaha*, *Mashaparni* and *Sahachara* (*B.prionitis, B.cristata*) can be taken according to availability of species, as both possess *Shukrala* (promotes semen) and *Balya* (promotes strength) properties respectively.

Shitapaki is differently identified with *Sitala* or *Gandadurva* by Chakrapani; Gangadhar interpreted as *Kakolibheda*; *Shveta gunja* by Bopadev and Dalhana considered it as variety of *Bala* or *Sahachara*. *Kakolibheda, Bala* and *Sahachara* cannot be taken as *Shitala* to avoid repetition. Therefor this plant remains botanically unidentified.

Madhuvalli taken as *Yashtibheda* by all the three commentators but according to Balwant Thakur it is supposed to be *Draksha*. *Abhirupatri* is taken as one of the varieties of *Shatavari*. These are botanically unidentified.

Somavalli is taken as *Somalata* by all the three commentators while Dalhana considers it to be *Guduchi.* Since Guduchi is already incorporated, *Somalata* should be interpreted as a different species.

Kakanasika like other drugs which have been named after Kaka (crow) Viz. *Kakamachi*, *Kakajangha*, *Kakanasa*, have not been satisfactorily identified and the commentators have not arrived at common consensus. Nighantus like Dhanvatari, Raja and Bhavaprakasha nighantu differ in their opinion about its *Rasa* and *Virya*. On the perusal of the contexts in which it has been used in the texts it appears to match with the description of Dhanvantari who

calls it *Madhura, Shishira, Pittahari* and *Rasayana* like *Jivaniyadravyas* comparable to *Jivanti*. The descriptive names like *Kakatundaphala* and *Taskarasnayu* indicate it to be fibre yielding plant of Asclepiadaceae, more or less similar to *Leptadania reticulata*. *Pentatropis microphylla* W. &A. has been suggested and it may have potentiality to answer the test for this drug. API suggested source plant of *Kakanasa* as *Martynia annua* Linn. (26)

Rushyagandha has been equated with *Vidhara* (*Argyreia speciosa*) or *Bala* (*Sida cordifolia*). But Chakrapani commented it as *Rushyajangalaka.* It can be taken as *Vridhhadaru* as *Bala* was interpreted for many drugs and In Ashtangasangraha, *Vidhara* is suggested for Rasayana therapy. (27)

Vanatrapushi is considered as a variety of *Godumba* having big fruit. It is also considered as synonym of *Chirbhata* (*Curcumis momordica*). Its bitter variety is called as *Hastiparni* or *Karkati*. It has been also considered as bigger variety of *Indravaruni* called as *Trichosanthes bracteata* (Lam) Voigt or (synonym *T.palmata* and *T. tricuspidata*). *Trichosanthes tricuspidata* is experimentally validated for its anti-oxidative in sildenafil induced migraine in albino mice in the form of root extract. So it can be considered as *Vanatrapushi*. (28)

According to Dalhana, Moihara is the country name of *Moorva* or *Morata*. Murahari was found to be the name of *Maerua arenaria* Hook f and Th. in Chitrakuta. Its long, elongated old fleshy roots are found to be sweet in taste and leaves can be compared with leaves of Pilu. Therefore synonym were coined as *Madhurasa, Piluparni, Madhusrava* for *Moorva* which appropriately applicable to the plant species namely *Maerua arenaria* not to the real *moorva* which has been identified as *Marsedenia tenacissima* W &A. (29)

Kshiravalli and *Kshirashukla* have been mentioned together with *Kshiravidari* as different drugs though they appear to be synonyms. Chakrapani interpreted *Kshirashukla* as *Brihatshringataka*; Gangadhar Roy opine it as *Shuklavarna nikshira vidari* while Yogendra Sen equated it with *Trivrit*. *Brihatshringataka* as a variety of *Shringataka* is not explained in any of the classical text. And it cannot be taken as *Vidari* to avoid repetition. Therefore one can consider *Trivrit* for it. It possess *Madhura* (sweet), *Katu* (astringent), *Tikta* (bitter) *rasa*, *Katu* (astringent) *vipaka* and has anti-inflammatory, ulcer protective activity, hepatoprotective activity, Anti- microbial activity, Cytotoxic activity, Anti-cancer, Anti-oxidant activity. (30)

Gundra interpreted by Gangadhar Roy as *Guduchi* which appears to be incorrect as it is already incorporated as separate drug. Similarly Chakrapani interpreted *Chhatra* as *Kokilaksha* appears to be improper as it is already mentioned as *Ikshuvalika*.

In this group variety of *Bala, Vidari, Yashtimadhu, Shatavari, Kasheruka and Shringataka* are mentioned i.e.

1. *Bala*, *Atibala*, *Sahadeva* (*Atibala*/ *Peetapushpadandotpala*), *Vishwadeva* (Nagabala/ *Arunpushpadandotpala*), *Rushyaprokta*, *Rushyagandha* (*Balabheda*), *Kulingakshi* (*Petika*).
2. *Vidari*, *Kshiravidari*, *Payasya* (*Vidaribheda*), *Kshirashukla* (*Swalpakshiravidari*)
3. *Madhuvalli* had been mentioned as one of the variety of *Yashtimadhu*
4. *Abhirupatri* as one of the variety of *Shatavari*
5. *Kasheruka* and *Rajakasheruka*
6. *Shringataka* and *Brihat-shringataka* (*Kshirashukla*)

Conclusion:

The enumeration of number of drugs of *Madhuraskandha* of Charakasamhita indicate that in total 85 drugs described basing on predominant *Madhura Rasa*, *Vipaka* and *Prabhava.* Among them 56 drugs are *Madhura rasa* dominant, 53 are possessing *Madhura vipaka* and 18 drugs possess *Madhura prabhava*. Out of 85 drugs only 12 drugs are not possessing *Madhura rasa* and 20 drugs are possessing *Katu vipaka*, it appears that 32 drugs in total which are not belonging to *Madhura rasa* and *vipaka* exerts their activity by their *Prabhava* like *Jeevaniya, Preenana, Balya, Bruhmaniya, Saptadhatuposhana, Rasayana, Vrishya, Shukrala Karma* may be considered to be belonging to *Madhura prabhava*. Recent researches show that they have anti-oxidant, hepatoprotective, immunomodulatary, cytoprotective, cardioprotective activities which can be analogues with *Madhura rasa karma.* Among the group 68 drugs are botanically identified and 14 are unidentified and 3 appear to be controversial drugs. The botanical identification was not established for *Ashtavarga, Kshirashukla (Brihat-shringataka), Rushyagandha, Sheetapaki, Vanatrapushi, Abhirupatri, Kapolavalli, Madhuvalli* drugs. This category requires a thorough scientific evaluation of assessment of *Rasapanchaka* after establishing identity.

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