IMPORTANCE OF *GUNA* AMONGST *RASAPANCHAKA*

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ABSTRACT

In *Ayurvedic* pharmacology, physiological and bio-chemical effects of drugs and their mechanism of action in the body are explained with the help of pharmacodynamic principles namely *rasa, guna, virya, vipaka* and *prabhava* in terms of bodily components like *tridosha* (*vatta, pitta* and *kapha*), *dhatu* (different tissues), *mala* (morbid factors including urine, feces etc.) *srotas* (channels both macro-micro vessels) and *agni* (enzymes & hormones). *Ayurvedic* classics identified that every substance (diet/drug) is constituted by *panchamahabhutas* (penta-elements). Every *mahabhuta*'s molecule is ascribed with certain attributes (*guna*). The conglomeration of *bhuta* molecules forms certain *rasa* (taste), which helps not only to identify the predominance of *mahabhuta* of a particular substance, but also to predict its activity when administered. The aim of the present paper is to identify and emphasize the role of *gurvadi gunas* which are the only contributing factors for the drug activity. Information deposited in *Ayurvedic* classics with regards to principles of drug action (*pancha gunas* of *dravya*) were compiled, reviewed and analyzed. A critical review of the principles of drug action promulgated by *Acharyas* of *Ayurveda* indicates that *guna* (attribute) of *panchabhautic* drug molecule otherwise also named as *virya* initiates drug action and biotransformation (*vipaka*) may modify such attributes. The taste (*rasa*) serves as a tool for identification of drug's structural arrangement of *panchmahabhuta* and need not be considered as the principle which initiates the drug activity. Any drug activity should be explained by *Gurvadigunas* of the *Dravya.*

Keywords: *Rasa, Guna, Virya, Vipaka, Dravya, Ayurvedic* Pharmacology

INTRODUCTION

All the *Dravyas* are composed of five *Panchamahabhutas* (elementary substances) which are considered as the causative factors (*karana*) for the formation of all *dravyas*.[1] *Charaka* defines *dravya* as the substrate of *guna* (quality), *karma* (action) and *samavayi karma* (inherent cause).[1] Drugs perform actions with their respective properties namely *Rasa, Guna, Virya, Vipaka* and *Prabhava* which may be reffered either as *Panchapadarthas* or *Pachagunas*.[2]

Charaka explain that drugs act either by *guna prabhava* (by the influence of attributes) or *dravya prabhava* (inexplicable nature of *dravya*) or by both.[1] While explaining the drug activity, *Charaka* refers about the salient aspects of drug action like *Karma* (action), *Virya* (factor responsible for the manifestation for activity), *Adhishtana* (site of action), *Kala* (time of action), *Upaya* (Mode of action) and *Phala* (therapeutic effect).[1]

In this context, *guna* should be interpreted as "*Sabdadinam gurvadayo dravan-*

tah". *Dravya's* attributes are *sabda* (sound), *sparsha* (touch), *rupa* (vision), *rasa* (taste) and *gandha* (smell) and also the twenty qualities beginning with heaviness etc., and ending with liquidity.[3] Basing on this reference it can be concluded that different activities of *dravya* are either by *guna* or by *dravya* (*prabhavaja*). Stable *gunas* are referred by another synonym '*Virya*' while explaining drug activity. Every *dravya* is formed by *panchamahabhutas* and every *mahabhuta* is attributed with certain *gunas*.[1,4]

The phases of ingestion, digestion, metabolism, egestion and excretion are common for both diet and drugs which are orally administered. According to *Ayurvedic* classics a substance (diet or drug) has to pass through all these phases by performing the activities with the help of inherent principle namely *rasa, guna, virya, vipaka* and *prabhava* (*rasapanchaka*).[4]

MATERIALS AND METHODS

The conceptual part about *rasapanchaka* delineated in *Ayurvedic* classics like *Charaka Samhita*, *Sushruta Samhita*, *Astanga Sangraha* and *Astanga Hridaya* along with authentic commentaries made by *Chakrapani Dutta, Dalhana, Hemadri, Arundutta, Indu, Shivdas Sen* etc. have been thoroughly reviewed for analyzing the principles of drug action.

DISCUSSION

A. *Rasa* (Taste):

Charaka quotes that physician who is well equipped with the knowledge about *rasa* and *dosha* can be successful in treating diseases.[1]

The enumeration of permutations and combinations of *rasa* and *dosha* helps to prefer the type of drug with a particular

panchbhautic combination/ configuration for the therapeutic application of *dravya* in the management of diseases. In fact this enumeration should be considered as the classification of *dravya* based on *rasa*. The references mentioned about *rasavarga*[5] and *rasa skandha*[6] appear to be based on *vipaka* and *rasaprabhava* instead of *rasa* alone. Since the *panchbhautic* combination is not directly perceived by *pratyaksha pramana*, *Acharyas* preferred *rasa* as a tool which is directly perceivable.

Sushruta quotes that *dravyas* (substances) are inferred by *rasa*.[5] He further observes that *rasa* also helps in identification of *panchbhautic* combination viz. *madhura rasa* containing *dravya*, if possessing *guru guna* it is presumed that *parthiva* dominance is more in it and similarly *snigdha guna* of *madhura rasa* indicates dominance of *Jalamahabhuta*.[5]

The measurable parameters like taste-threshold[7] may help to assess the ratio of *panchbhautic* composition of a particular substance.

Madhura: *ap+ pruthvi – snigdha- sheeta-guru*. The actions like *jivaniya, tarpana, brimhana, balya, keshya, kanthya* are exhibited through *gunas* of individual *dravyas* only.

Amla: pruthvi + agni – snigdha- ushna-laghu- ushna and *laghugunas* are contributed by dominance of *agnimahabhuta*. The action of *deepana, pahana, hridya* etc. of *amla rasa* are due to *dravya* predominant of *pruthvi* and *agnimahabhuta* and they initiate these activities irrespective of its *rasa* i.e. *amla* or otherwise. *Dravya* dominant of *ushna* and *laghuguna* acts as *deepaniya* even if it possesses any *rasa* other than *amla rasa*. This peculiar behavior is documented

with the concept of *vichitrapratyarabdhata*. In this concept the explanation of drug action is elaborated with the help of *guna* of the *dravya* when the drug's activity cannot be explained by *rasa*. *Acharya Charaka* has attributed certain *gunas* with their relative degree of variations in different *rasas*. [1]

Avyaktarasa

Sushruta[5] quotes that the water is considered to be of good quality which is odourless, tasteless which quenches thirst, is pure, cool (*sheeta*), transparent, light (*laghu*) and pleasant. Here, the action of water is explained by its *shita* and *laghugunas* though it is tasteless.

B. *Guna* (Properties):

Charaka enumerates 41 *gunas* namely *Indriya guna* (5), *Gurvadi guna* (20), *Paradi guna* (10) and *Atmaguna* (6).

How to assess *guna*?

Acharya Sushruta candidly admits that identification of these *panchbhautic gunas* of *dravya* is through their action by inference.[5] *Gunas* are susceptible for changes when subjected to different *samskaras*.

Charaka furnished that identification of *rasa*, *virya* and *vipaka* by *nipata* (contact) and *adhivasa* (inherent residing) and *nishtakarma*.[1] All these parameter clearly reflect the concept of ingestion/ application (*nipata*), metabolism (*vipaka*) and concentration of the drug in bodily tissues (*virya*) till excretion of the drug from the body. The observation made by *Charaka* and Sushruta if taken together forms assessment of *guna* i.e. by *nipata*, *adhivasa* and *nishtakarma* (*kriyaparisamapti*). *Gunas* refer to *dravya* (substance) the characteristic physico-chemical qualities of each *bhuta* group.[4]

Certain *gunas* on contact with tongue subjected to initial digestion and exert cer-

tain actions. These activities are attributed to *rasa*. A drug when applied externally either on the skin or on mucous membrane also undergoes *paka* by locally available *pitta/ agni* moieties and initiates its activity. This phase is attributed to *virya* (*nipatat cha upalabhyate*).

Gunas when further subjected to *paka* and *vipaka* (digestion and metabolism) induce certain activities by virtue of their concentration in different bodily structures (*Dosha-Dhatu-Mala,srotas,agni* etc.).This phase is identified as *adhivasa*. In last phase the drug molecules are synthesized which can initiate important activities before their excretion from body. At this stage *dravya* completely gets metabolized and activity thus produced by release of potent *gunas* named as *virya* is attributed to *vipaka*. These actions should be attributed to *guna/virya* and *vipaka* should be given a status of modifying principle of drug activity.

Shadupakrama

Sushruta imparts more importance to *rasa* among other principles of drug actions (*virya*, *vipaka* and *prabhava*) with an analogy of relationship *atma* and *deha* and describes *rasa* as *atma* (soul) of the *dravya*.[5] In fact *guna* is soul of the *dravya* which alone is capable of initiating drug action. *Dravya* is of greater importance than to several qualities, such as *rasa, guna, virya*, *vipaka* and *prabhava*, for the latter depends (or arise) exclusively out of composition and properties of the former i.e. Because the *dravyas* are composed of five *mahabhuta*. The drug action is initiated by energized molecules of *panchmahabhootas* and the energy is labeled by term *virya* (potential *guna*). Any drug action should be explained by these molecules viz. *pruthvi* molecule,

Apya molecule etc. by the principle of *Samanya- vishesha siddhanta*. All the treatment modalities fall under *Shadupkramas* i.e. *Langhana- Brimhana- Snehana- Rukshana- Swedana* and *Stambhana* and mode of action employed in these therapeutic procedures are explained by *gunas* of *panchmahabhootas* only but not by *rasa* or *vipaka*.[3,5]

C. *Vipaka* (Transformation):

Rasa indicates the constituent *panchbhautic* of the *dravya* and *vipaka* modifies these constituents by transformation into potential forms. *Avasthapaka* (gastrointestinal digestion) involves a more breakdown of complex substances into their simpler components, while *vipaka* is takes place in *dhatu*/ tissues initiating bio-chemical reaction (oxidative and non-oxidative) which ultimately helps in the synthesis of molecule capable of producing different actions.[3] The activity of *nisthapaka* is interpreted in terms of the effects seen on *dosha*, *dhatu* and *mala*. All these effects (*nisthaphala*) perceived are explained with help of paired *gunas* namely *snigdha-ruksha* and *guru-laghu* (*Sushruta*).

In *vipaka*, transformation of *dravya* and its *guna* takes place but not that of *rasa*. Sushruta advocates the classification of *vipaka* by *panchbhauitic* constitution of *dravya* and named after *guna* such as *guru* and *laghuvipakas*. In the light of this observation *vipaka* can be redefined as "the process in which drug/ *dravya* metabolises leading to transformation of *guna* of *panchmahabhutas*. Nobody so far confirmed the taste of *amalaki, guduchi* etc. after their completion of metabolism. The drug activity of metabolized molecules may behave like *dravyas* dominant of *madhura, amla* and *katurasas*.

It appears that these schools of *Charaka* and *Sushruta* have adopted different nomenclature for the process of transformation (*vipaka*). *Charaka* also explained the activity of *madhuravipak*a, *amlavipaka* and *katuvipaka* by *snigdha* and rukshagunas. *Guna* when potentiated gets the status of *virya*. Neither *Charaka* nor *S*ushruta have furnished the definition of *vipaka*, but Vagbhata defined *rasa parinamatmaka* in the process of *vipaka*. *Sushruta* is very explicit about *vipaka paribhasha* and explained that *dravyaparinamana* in *vipaka* and declined the role of *rasa* in *vipaka*.

Thus, while *madhura vipaka* is invariably associated with *shita virya*, *amla* and *katu vipakas* are, associated with *ushna virya*. By the same token, the end-products of *kayagnipaka* characterized as *madhura vipaka* are to be expected to exhibit *guru, snigdha, mridu* and *shita gunas*. Similarly, the end products of *kayagnipaka* characterized as *amlavipaka*, are to be expected to exhibit *laghu, ruksha, tikshna* and *ushna gunas*. Of the intermediate metabolites that are *amla* and *katu*, the latter is considered to be relatively more powerful than the former. The *snigdhaguna* of the former i.e. *amla* kind of metabolites, is obviously responsible for the difference.[4]

D. *Virya* (Potency):

Virya (potential *guna*) restricts the role of *rasa* and *vipaka* while explaining the drug action. *Arundutta* has noted that *rasa* is not stable because it undergoes changes under the influence of *jatharanala* (*agni*). Such is not the case with *gunas* viz *guru* and the rest. The inter-relationship that is stated to exist among *virya, guna* and *rasa* and of them, the uniqueness of *virya* has been stressed by Shivadassen. He observes: *shakti*

is *virya*. It alone is capable of performing powerful actions. These actions do not suffer from any limitation due to non attachment of *viryas* to *rasa*. *Virya* is intimately correlated to *gunas* viz; *ushna, sheeta* etc. Since *virya* inheres inseparably (*samavya in dravya*), it is considered to be complimentary to *rasas*. Prof C. Dwarakanath has interpreted *Shita* and *Ushnavirya* as potential and kinetic energies respectively and categorized twenty *gunas*[4] into these two groups.

E. *Prabhava*

If the actions of *rasa* and *vipaka* in terms of *guna* are not explained, they should be categorized under *prabhavajanyakarma* (*rasaprabhava* and *vipakaprabhava*). It is also referred as *Achintyashakti* (inexplicable energy). Chakrapani quotes that *Danti* root soaked in water loses its purgative principle. The analysis of this observation clearly identifies the principle responsible for purgative property which is water soluble and the drug administered without that may fail to initiate such activity.[9] Once the drug action is explained basing on active molecule (*Utkrishta dravyamsha*) the concept of *Prabhava* loses its existence from the list of principles of drug action.

F. Assessment of activities of *rasapanchaka* of equal strength

Where *rasa, virya, vipaka* and *prabhava* of a substance are of equal power and strength (*balasamyata*), in such case, the *vipaka* may supersede actions ascribed to *rasa, virya* supersede the actions of both *rasa* and *vipaka*; and *prabhava* may supersede the actions ascribed to *virya*. *Arundutta* explains this concept with the following examples.[8]E.g. (a) *Vata prakopa* by Honey which is *madhura rasa* is explained by *katuvipaka* and resultant *vataprakopa*. *Snigdha-*

guna and *shitagunas* of honey are modified into *ruksha, laghu* and *ushnagunas* during metabolism resulting in the outcome of diametrically opposite *gunas* to translate their activity on *vata*. So in this case *vipaka* acts as modifying principle for alteration of activity. (b) Action of *Anupamamsa*'s *rasa* and *vipaka* (*madhura*) are superseded by *ushnavirya*. In this context also *ushnaguna* is produced by *vipaka* and *sheetaguna* gets modified and transformed into *ushnaguna*. (c) *Sura* which is *amla rasa*, *amlavipaka* and *ushnavirya* in attributes promotes the secretion of milk (galactogogue) and this activity is attributed to *prabhava*. In this case *snigdhaguna* may be contributing for this activity by dominating *laghu* and *ushnagunas*. Energized in intensity and contributes to *dhatu* and *updhatuposhana* due to *vipaka* (a *samskara*) by increasing the power of *snigdhaguna*. One's we explain the drug action in the light of *guna* and its energized forms the concept of *prabhava* loses its identity. The *achintyasakti* becomes *chintyasakti*. Substances in which mutually conflicting and incompatible *gunas* (*rasa, virya, vipaka*) co exist, in such case the numerically homologues among them combine to counter act the action or power of less active qualities. This concept is explained with example of milk which is *sitavirya* instead of increasing *vata*, it alleviates by domination of *snigdha* and *guru gunas*. In this context also activity of milk against *vata* is explained in terms of its *guna*. In case of *Amalaki* and *Guduchi* the activity on *tridosha* is explained by their *rasa, virya* and *vipaka* but the activity can be explained by their *gunas* only.

G) Mutual relationship of *rasapanchaka*

Acharya Sushruta initiated discussion on relative importance of *rasa, virya* and *vi-*

paka while mentioning that *vipaka* is not possible without *virya*. *Virya* is not possible without *rasa, rasa* is not possible without *dravya*, and finally established that *dravya* is the most important component of drug action.[5]A careful analysis of this chapter clearly indicates that *Sushruta* has not furnished *gunapradhanyahetu*. It can be well explained that *rasa, virya* and *vipaka* concepts reflect the indices or transformation of *guna* in the body.

He further states the origin of drug and tastes is simultaneous and interdependent, just as the origin of body and soul is simultaneous and interdependent. Even those eight *guna* named as *virya* belong to the drugs and not to the *rasa* because *gunas* themselves are without any *guna*, drugs only can be metabolized in the body and not the six *rasas*. Hence *dravya* should be regarded as the most important; the rest (*rasa, virya, vipaka*) are dependent upon the drug.[5]

Observations made by *Sushruta* require elaboration to understand the relative importance of these principles. According to him "*virya* engenders *vipaka*. *Sushruta* conceptualized *vipaka* basing on *guna* like *guru* and *laghu,* unlike *Charaka* who preferred rasa oriented *vipaka* theory. He further opines that rasa is the factor for formation of *virya*. *Sushruta*'s view is not clear about this concept. *Charaka* and *Sushruta* have mentioned that each *rasa* is possessing three *gunas* viz. *Madhura rasa* possessing *snigdhashita* and *guru gunas* etc. At the same time it is declared that the *gunas* cannot act as substratum for another *guna* and included the *gunas* attributed to *rasa* are in fact *gunas* of *dravya* only. In the light of this no possible explanation can be given to substantiate that

rasa acts as the source for *virya*. It would be quite apt to quote '*viryam nasti vina gunat'*.

Significant clarification offered by *Hemadri* related to *rasa-guna-vipakaand virya* "That evokes tastes perception is *rasa* and all the rest are *gunas*. Particular taste (*vishista rasa*) that occurs as the result of *kayagnipaka* is *vipaka* and produced *guna* at this stage is *virya*.[4]The concept of *Hemadri* appears to be in agreement with *Acharyas* of *Ayurveda* and religiously interpreted that *rasa* is undergoing *paka*. It is more appropriate to replace *rasarupantara* (transformation of *rasa*) with *guna rupantara* (transformation of *guna*) and *rasaparinamana* with *dravya parinamana*.

CONCLUSION

Rasa (taste) of substances reflects specific modes of *panchabhautic* structure of the elemental units of substances. *Rasa* which is devoid of any *guna* has to act through its *prabhava*. Ultimately *rasajanya karma* should be categorized under *prabhavajanya karma* only. Drugs with *avyakta rasa* (unmanifested taste) also include certain activities in body by their inherent *gunas*.

The drugs that are administered other than oral route viz. Suppositories, enema, nasal administration, external applications do act by their inherent *gunas* but not by *rasa*, a principle which is devoid of any *guna*. The specific configuration of *mahabhuta* molecules are contributing for the formation of *rasa* and *rasa* as such is not participating in the formation of molecules.

Guna represents *panchbhutic* mode of substances. *Gunas* which contribute for drug action are also referred by the term *virya*. These *gunas* can be assessed by *nipata* (at tongue level or site of application) or by

their concentration in the tissues/cells (*adhivas*). Assessment of *gunaprabhava* can be made by *nipata, adhivasa* and *nistakarma* and *Acharyas* conveniently used the terms like *rasa, vipaka* and *virya* for identification of *guna* only. *Charaka* advocates for administering *dravyas* possessing *gunas* (*gurvadi*) which are antagonistic to the *gunas* of vitiated *doshas* that are involved in the pathogenesis of any disease.

Kayagnipaka/*vipaka* helps to synthesize the potent *dravyansha* (energized drug molecule), the sole factor for the activity of the drug. So, *vipaka* should be considered as the modifying factor of drug action (pharmacokinetic principle) and need not be given a status of causative principle of drug action.

In the final analysis one fact emerges that *panchmahabhutas* which are in abstract form may be identified by *rasas* and synthesis of their active *gunas* in the body by *vipaka*. Keeping in view the role of *rasa* and *vipaka* in the different phases of drug activity, *Acharyas* might have concluded that certain drugs act by *Rasa*; some by *gunas*; some by *vipaka*; some by *virya* and some by *prabhava.* But the concepts namely *shadupkrama*, *rasa* and *vipaka* are well discussed in terms of *guna* only and it may be concluded that *guna* (*virya*-a synonym) is the only principle which helps to explain the drug activity in a most rational way and it is to be assessed objectively through *dravyakarma* (drug action). It appears to be quite apt to say *"Ena Kurvanti Tat Gunam"* The word *guna*, in this context refers to *sabdadi* and *gurvadi gunas* only.

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