

Ayurvedic Pharmacodynamics - Critical Analysis and Contemporary Understanding

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Abstract

Pharmacodynamics in Ayurveda encompass the examination of how various substances, including herbs, minerals, and other natural compounds, interact with the human body to yield therapeutic effects. Ayurveda adopts its own function-oriented approach through its alternative theories of Panchamahabhuta, Tridosha, Saptadhatu, Agni, Ojas and Srotas which cannot be fully explained in terms of scientific parameters of present era. Hence, to cope up these lacunae up to some extents, a critical literary and conceptual study of Rasapanchakaie, Rasa, Guna, Veerya, Vipaka and Prabhava are done. Ayurveda uses Panchamahabhuta theory as the fundamental basis of drug action. Dravyas are of three categories, some alleviate doshas, some vitiate dhatus, and some are good for the maintenance of positive health. Apparently, it also means that the drugs have potentialities to prevent the diseases. Drug action in ayurveda is explained in terms of Actions or effects of drugs (yatkurvanti tat karma), Potency of drugs (yen kurvanti tat veeryam), Site of action (yatra kurvanti tat adhikaranam), Time of administration of drugs and the period of their optimum concentration in the blood or the organ (yada kurvantisakalah), Mode of action (yathakurvantisaupayah), Specific therapeutic action (yatkurvanti tat karma). Ayurveda advocates that drug should be used as a whole as Agni which is responsible for the health as well as disease, also to improve the condition of agni at all level. Ayurveda medicines can be used for long term treatment as bacteria are unable to develop resistance against these drugs. The effectiveness of the drug may be wholesome or unwholesome, but the reason behind is the potency of the drug.

Key words

Ayurveda pharmacodynamics, Critical analysis, Rasapanchaka,

Introduction

Pharmacodynamics is the field of study that explores the intricate interactions between drugs and the human body,

ultimately leading to the manifestation of their effects. This discipline delves on to the biochemical and physiological impacts that drugs exert on the body, while also examining the correlation between these effects and the concentration of the drug at its specific site of action. By comprehending the intricate mechanisms underlying drug actions, pharmacodynamics plays a pivotal role in unravelling the mysterious of drug efficacy and safety.

Pharmacodynamics in Ayurveda encompass the examination of how various substances, including herbs, minerals, and other natural compounds, interact with the human body to yield therapeutic effects. In Ayurveda, it is believed that natural drugs exert their effect through the qualities of Guna, Rasa, Virya, Vipaka and Prabhava. The principles governing pharmacodynamics in Ayurveda are rooted in the comprehension of the three doshas (Vata, Pitta, Kapha) and the concept of Prakriti which denotes an individual's constitution. Understanding the interplay between these doshas and the substance employed in Ayurvedic treatments is crucial for achieving optimal therapeutic effects. This knowledge, rooted in the intricate dynamics of the doshas and the concept of Prakriti, empowers Ayurvedic practitioners to provide personalized and effective treatments, promoting holistic health and wellness and also for the development of new and improved medications.

It also helps healthcare professionals make

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informed decisions regarding drug administration and patient care. Hence, to cope up these lacunae up to some extents, a critical literary and conceptual study of Rasapanchaka, ie Rasa, Guna, Veerya, Vipaka and Prabhava is done here.¹

Methodology

Pharmacological basis of drug action revolves around the universal pharmacological principle that similar structures have similar pharmacological activity. Conversely, if the structure of a substance is known, then its pharmacological behaviour can be inferred. Conventional pharmacology uses chemical structure as the basis for pharmacological basis of drug action. Ayurveda uses Panchamahabhuta theory as the fundamental basis of drug action. Each and every substance in the universe is considered to be made of panchamahabhuta. Although, bhuta has been translated as basic elements, elementary particles, etc, but vedic knowledge conceptualized the bhuta, not entirely on material basis².

It is very clear that pharmacodynamics represents pharmacological action of drug while transportation process and onset of action merely depends upon pharmacokinetic profile of drug molecule. The Ayurvedic pharmacology of drug action can be explained using principles of Guna, Virya, Rasa, Prabhava and Vipaka.³

Every substance in the world can prove to be a drug. Purposiveness and rationality are the two parameters to judge and use any substance as medicine. The drug (dravya) performs certain actions (karma) in the body by virtue of its properties (guna), which exist in a state of co- inherence (samavaya). The uniformity or otherwise of the proto-elements of the drug on the one hand form the basis of the principles of similar (Samanya) and dissimilar (Visesha). These principles imply that the predominant proto elements of the drug will increase similar proto element in the body and the dissimilars will decrease the dissimilars. Thus the 6 padarthas, viz, Dravya, Guna, Karma, Samanya, Visesha and Samavaya get practical application in Dravyaguna. Exploring the intricate workings of Ayurvedic drugs, both in their singular and compound forms, proves to be a challenging endeavour when attempting to align them with the principles of modern pharmacology. Unlike allopathic medications, which rely on a single chemical entity to serve as a receptor and trigger a response, Ayurvedic drugs defy such straight forward categorization. Instead, their selectivity is governed by a multitude of factors, including the fascinating concept of panchabhautika compatibility, which delves into the intricate harmony between the drug and the individual.

The drug in Ayurveda act on dosha, dhatu, mala of body act towards bringing samavastha or original healthy state of them. The disease is actually caused by the derangement of these dosha, dhatus, malas. Classification of drugs into Mrdu, Madhyama and Teekshana is an eye – opener to modern therapeutics on the rationale of selection of drugs for the treatment of various diseases. The Panchamahabhuta theory is important as medicinal chemistry is for modern medicine. Panchamahabhutas related to H, O, N, P, S, C, etc. Panchatanmatras means the physical properties of matter

while panchabhutas are indicators of chemical properties of atom along with physical properties. Therefore panchatanmatras have horizontal expansion in periodic table while panchamahabhutas have linear/ vertical expansions like group in periodic table⁴.

The drug (dravya) performs certain actions (karma) in the body by virtue of its properties (guna), which exist in it in a state of co –inherence (Samvaya). The uniformity or otherwise of the panchamahabhuta of the drug on the one hand and the proto-elemental constituents of the body on the other hand form the basis of the principles of Similar (Samanya) and Dissimilar (Visesha). These principles imply that the predominant proto-elements of the drug will increase similar proto-elements in the body and the dissimilars will decrease the dissimilars⁵.

In Ayurveda, Pharmacodynamics is the subject dealing with pharmacodynamics is Dravyaguna. According to the concepts of Ayurveda a drug may act over the body by virtue of its rasa, guna, veerya, vipaka or prabhava. These virtues are known as the basic principles or rasapanchaka of Dravyaguna. Whenever a drug is taken it is acted upon by all of these virtues, but the virtue (rasapanchaka) which is more dominant causes the particular action of the drug. In Ayurveda the pharmacodynamic factor responsible for its action is quite difficult to decide. In modern pharmacology, the drug action is attributed to its chemical structure or active principle and in Ayurvedic pharmacology the drug action is attributed to the principles namely rasa, guna, veerya, vipaka and prabhava of the drug. Every dravya is panchabhaboutika, that is, composed of the 5 elements, it has Prithwibhuta as its mass, support. It takes origin from jala (apbhuta), Agni (tejabhuta), pavana (vayubhuta) and nabahas (akasabhuta), with their inseparable combination resulting in formation and specification of each substance. Its identification is by the predominance of bhuta present in it. Origin of substance takes place by combination of Pritvi, Ap, Teja, Vayu, Akasa. Only predominance of one of them creates distinctions such as the particular dravya is Parthiva, Apya, Vayavya, Taijasa, Akaseeya.

Panchamahabhutas act as contributing factors for the formation of a dravya as well as

doshas, dhatu, mala. Rasa, guna, veerya, vipaka and prabhava of the substance which arise out of the permutations and combinations of the 5 elementary substances in various modes and patterns are responsible for the alleviation or vitiation of the particular dosha, dhatu or mala which is having the same pattern and combination of the panchmahabhuta. This results in the subsidation of the disease caused by that particular dosha.

A drug may act

1. Due to Nipata (at the point of application)-Action of Rasa
2. Due to Adhivasa(during transportation in the body)-Action of vipaka.
3. Due to Nipata and Adhivasa both (by reaching a definite concentration in a particular tissue-action of virya)¹

Assessment of Rasapanchaka and Drug Action

In the modern pharmacology, the drug action is quite often correlated with its chemical or active principle. However, in Ayurvedic pharmacology the drug action is attributed to certain principles/doctrines namely Rasa, Guna, Virya, Vipaka and Prabhava of the active principles of the drug. These five basics are known as Rasapanchaka. The substance like food or drug (dravyas), acts by its innate quality of Rasapanchaka. A review of the scientific implications of these principles (rasapanchaka) of drug action is mandatory to understand the rationality of modus operandi of Ayurvedic drugs. Dravyas are of three categories, some alleviate doshas, some vitiate dhatus, and some are good for the maintenance of positive health. Apparently, it also means that the drugs have potentialities to prevent the diseases. The rasa of a dravya is felt at the commencement only, ie, when the dravya is exposed to tongue (Nipata). Vipaka is inferred only after perceiving the final effects of digestion and metabolism is produced (karma nishta) while virya is identified throughout the stay of the substance in the body (adhivasa) and at the beginning through the contact with the tongue. The properties that exist in the causative factors (panchamahabhuta) are present in the resultant factors (karyadravyas). Modern pharmacology being interested in studying the actions of the drug on different systems or parts of the body describes all drugs based on Karma; they perform.

In Ayurveda, in relation to pharmacodynamics, the properties of drugs have been described in terms of Rasapanchaka. Virya and vipaka are directly related to biophysical and biochemical events of food substance and drugs. There is no action, which is not due to virya. Gunas or physical properties of substance are mode (or different manifestations) of virya or energy. Charaka defined that virya as the power that performs work. There is no action, which is not due to Virya, gunas or physical properties of substances are mode (or different manifestations) of Virya or energy. Charaka has tried to explain regarding the identification or recognition of these gunas at various contact points in the body during the journey of the drug such as gunas identification at tongue level with the help of rasa (nipata) by direct perception and through inference at dhatu (tissue) level; with the terms such as vipaka (nishtapaka) and virya

(adhivasa). Prabhava has been defined as the special property of a substance that produces actions different from and contrary to those ascribed to Rasa, Guna, Virya and vipaka.⁶

Critical analysis and contemporary understanding

According to Charaka, "It is not exclusively by virtue of their qualities that substances are active. Whatever, therefore, substances do, whether by virtue of their nature as substances do, whether by virtue of their nature as substance (Dravya prabhavat) or by virtue of their qualities (Guna prabhavat) or by virtue of both their substantive and qualitative nature (Dravya gunaprabavat), in any given time, in any given place (system or organ), having been administered in a given mode, with a given result in view- All that is their action whereby they act is the potency, wherein they act is the place, when they act is the time, how the act is the mode, what they achieve is the result."⁸

Drug action in ayurveda:

- Actions or effects of drugs (yatkurvanti tat karma)
- Potency of drugs (yen kurvanti tat veeryam)
- Site of action (yatra kurvanti tat adhikaranam)
- Time of administration of drugs and the period of their optimum concentration in the blood or the organ (yada kurvantisakalah)
- Mode of action (yathakurvantisaupayah)
- Specific therapeutic action (yatkurvanti tat karma)

Actions or effects of drugs (yatkurvanti tat karma)

While defining Karma, Charaka has observed: Action, which is the cause of conjunction (Samyoga) and disjunction (Vibhaga) resides in the substance. Dravyas perform certain actions (karma) in the body by virtue of their qualities (guna). The actions of a drug are intimately related to its chemical structure in the form of preponderance of one or two proto-elements in them. Not only the weight and number but also the configuration of mahabhutas determine the actions of a drug. During digestion and metabolism, there is always a chemical reaction leading to conjunction or disjunction of molecules or atoms in a drug showing different actions in

different stages. This structure – function relationship of the drug has to do much with the structure function relationship of the cells in the body. On the basis of similar (Samanya) and dissimilars (Visesha), drugs decrease or increase the doshas , dhatus and malas , and influence the srotamsi. This is accomplished in many ways. The Vamana, Virechana, Snehana, Rukshana etc, are Karmas of dravyas. In simpler words, the treatment of disease is based on karmas of drugs or other therapeutic measures. The ultimate object of treatment is to correct the pathological lesion in the dosha – dushya – srotmasi and it is accomplished through the karmas of drugs. Eg: Jwaraghna (Anti-pyretic)-Kiratatikta;Kandughna (Anti-pruritic)-Nimba; Krimighna (Antihelmintic)-Vidang.

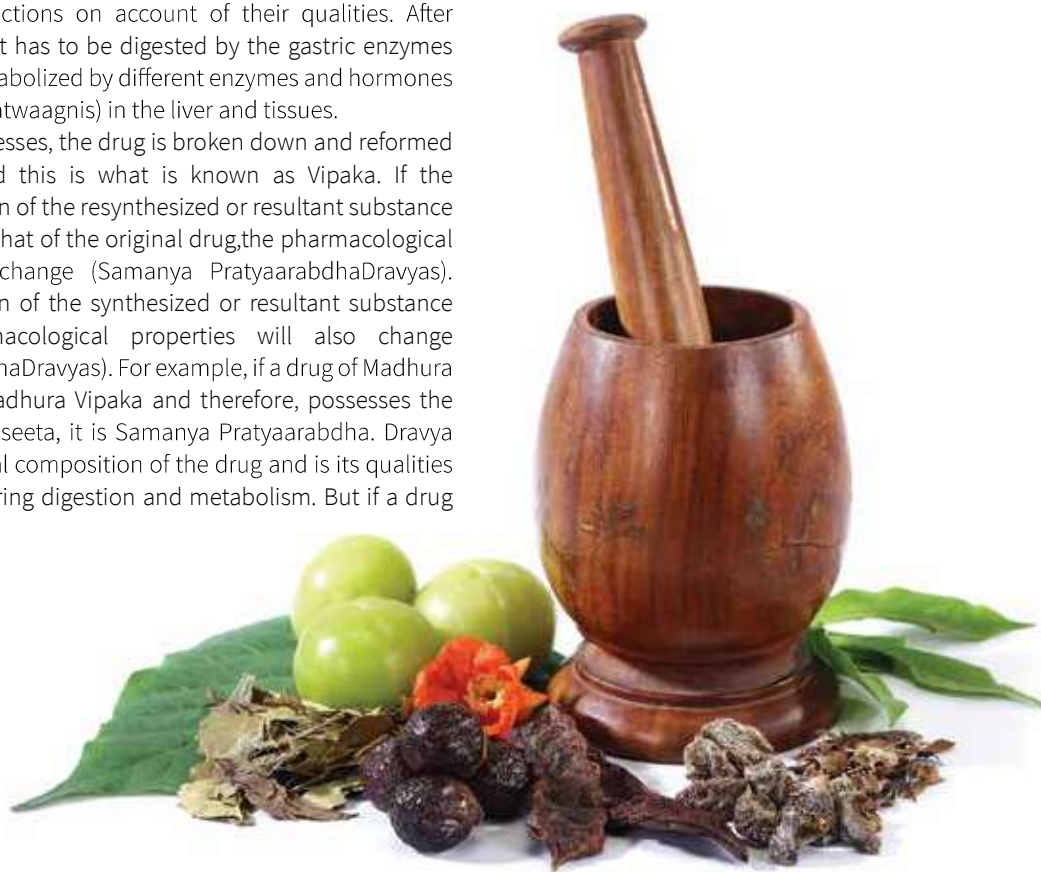
Potency of drugs (yatkurvanti tat veeryam)

A drug acts by its potency. Potency of drugs implies all the qualities of drugs by which they act, viz, Rasa, vipaka,Guna, Veerya and Prabhava. Rasa and Vipaka indicate the chemical structure of drugs, guna and veerya indicate the physico pharmacological properties of drug. Different drugs have got different arrangements of the 5 proto-elements in terms of weight, number and configuration in their composition. The specific arrangement of any two of the proto-elements give rise to a particular taste of drug. Therefore, the predominant proto- elements in a drug are inferred from its taste. The specific taste inherits the specific qualities from its predominant proto-elemental constituents. Rasas have got certain local and systemic actions on account of their qualities. After the drug is ingested, it has to be digested by the gastric enzymes (pachakagni) and metabolized by different enzymes and hormones (bhautikagnis and dhatwaagnis) in the liver and tissues.

During these processes, the drug is broken down and reformed or resynthesized, and this is what is known as Vipaka. If the elemental composition of the resynthesized or resultant substance remains the same as that of the original drug, the pharmacological properties will not change (Samanya Pratyaaarabdhadravyas). But if the composition of the synthesized or resultant substance changes, it's pharmacological properties will also change (VichitraPratayaarabdhadravyas). For example, if a drug of Madhura Rasa changes into Madhura Vipaka and therefore, possesses the qualities of guru and seeta, it is Samanya Pratyaaarabdhadravya as the proto-elemental composition of the drug and its qualities have not changed during digestion and metabolism. But if a drug

of Madhura Rasa changes into katu vipaka and, thereby, acquires the qualities of laghu and ushna, it is VichitraPratyaaarabdhadravya. Such changes may take place at the level of Pachakagni, bhautikagni and Dhatwagnis corresponding to digestion, intermediary metabolism and cellular metabolism.

The actions of a drug is intimately related to its chemical structure (rasa and vipaka). For an easy understanding, it can be said that, what gunas are to rasa, veeryas are to vipakas. A drug performs certain local and general actions by its Rasa and Guna and certain specific therapeutic actions by its Vipaka and Veerya. Prabhava is a term, which corresponds to isomerism and isomerides. Substances similar in composition in terms of weight and number of the proto-elements may differ in some actions if the proto-elemental configuration is different. Charaka says “where there exists a similarity in taste, Potency and post digestive changes and yet a difference in



action is observed, such special difference in action is called the specific action (prabhava) of the substance. When taste and the rest are evenly balanced in their strength, the following is the normal order of their relative influence, post –digestive effects(vipaka) are stronger and more powerful than those of tastes(rasa); the influence of potency (veerya) is more powerful than the preceding two, while specific action(prabhava) is the most powerful of all.

Site of action (yatra kurvanti tat adhikaranam)

The main site of disease should be the main site of action of the drug used to remedy of that disease. The doshas are said to cause different Naanatmajavikara by affecting specific structures and organs (tam tamshariravayavmavisatah), and therefore, the selection of drugs, among many other factors, depends on the predictable site of action of drugs, as for instance, Arjuna acts on Hridaya, Sarapunkha acts on Pleea, Deepana and Pachana drugs act in the Koshta, Punaranava acts on the Mutravahasrotamsi and Ashoka acts on the ArthavahaSrotamsi.

The site of action also involves actions of drugs on a particular stage of Samprapti. The pathogenic stages (samprapti) occur at different places and this chain of events causes disease. The Chaya and Prakopa stages of Samprapthi occur in the koshta (G.I Tract), the Prasara stage occurs in general circulation while the Sthanasamsraya and Vyakthi stages occur in a particular Srotas involving a particular Dushya. The actions of drugs on the doshas in the Chaya and prakopa stages of Samprapthi take place in the Koshta –rasa acts on Chayavastha and Vipaka on prakopaavastha. Drugs acts on Prasaraavastha by their gunas. In the stages of Sthanasamsraya and Vyakthi, the drugs act on a particular Dushya and Srotas respectively. Thus the doshas, dushyas and srotamsi and the places where in they are located are also the sites of drug action.

Thus the Doshas, Dushyas, Srotamsi and their locations are also the sites of actions of drugs. To illustrate it: Atisara is a disease in which Vata is the main Dosha, Purisha is the main Dushya and Purishavahasrotamsi (mainly pakwasya) are involved. Sunti acts on Vata, Bhanga acts on Purisha and Ahiphena acts on PurishavahaSrotamsi. Thus different drugs may act on different constituents of Samprapthi. The Nagakesara, Mocharasa and Lodra are good Raktastambhakadravyas, Raktarsha, Raktapradara and Raktatisara are the disease, where the dosha (pitta) and dushya (rakta) are common, but the Samprapti is different and this difference is due to different Srotamsi involved. Researchers at Jamnagar have proved that Mocharasa acts best in Raktatisara, Lodhra in Raktapradara and Nagakesara in Raktarsha. This shows the maximum action of a drug on a particular srotamsi.

Time of administration (yada kurvantisakaala)

Most of the drugs for most of the diseases are taken in empty stomach. When the stomach is empty, the ingested drug can be easily digested and absorbed, and exert its utmost action. But the drugs, which may cause irritation in empty stomach, should be administered after meals. In cases of dyspnoea, cough, hiccup,

thirst, vomiting and diarrhoea, the drug should be administered off and on to achieve quicker and better results. The time of drug administration has been regulated by the following considerations.

1. Digestion and absorption of drugs
2. The time of the production of doshas from ahara in the koshta
3. Diseases in relation to the doshas involved.
4. Conditions of the disease: Mild or Severe
5. Avoidance of irritation in the G.I tract
6. Maintenance of maximum concentration of drugs required for quicker therapeutic effects.

Mode of action (yathakurvantisauapaaya)

The two modes of action (Vridhi and Kshaya) are governed by the principles of Samanya and Vissha (similar and Dissimilar).

Vridhi and kshaya

Drug act in the following 2 ways:

1. By increasing the body elements, their qualities and functions
2. By decreasing the body elements, their qualities and function.

The acceleration or diminution of all the functions of a Dosha indicates its complete vitiation and in that case, such drugs, which may have completely similar, or completely antagonistic, qualities to those of the vitiated dosha should be administered, as the case maybe. For example, the complete vitiation of Vata will revolve around its three qualities, viz, Ruksha, Seeta, Laghu. If vata is increased, the drugs like Eranda and Guggulu (both possessing snigdha, seeta, guru qualities) maybe employed. If one or two qualities, and their functions of a particular doshas are increased or decreased, drugs having qualities antagonistic to those of the vitiated qualities of dosha should be employed. For example, Saireyaka subsides the ruksha and seeta qualities of Vayu and Gokshura subsides ruksha and laghu qualities of vayu. Thus doshavridhi and dhatuskshaya are the most common features of diseases.

Obviously, therefore, the doshas require to be decreased and brought to the normal level while the dhatus require to be increased and brought to the normal level. Drugs decrease the doshas wholly or partially on the principles of dissimilar and the Ahara increases the dhatus

on the principles of Similars. Thus Samanya Sidhanta is practically more applicable to the Aharadravyas and Vishesha Sidhanta is practically more applicable to Aushadadravyas. The Aharadravyas are mostly Rasapradhana and the Aushadadravyas are mostly veeryapradhana. The effect of Ahara on Dhatus can, therefore, be predicted on the basis of Rasa and Vipaka. The effect of drugs on doshas can be predicted on the basis of Guna and Veerya. But these are general and relative observations and do not constitute any hard and fast rule, because the drugs, which are Balya, Jeevaneeya, Rasayana, Vajeeekarana and Brihmana contribute to increase the dhatus by their guna and veerya while the dietetic substance like Ajaksheera, Taila, Madhu, Yava and Kulatha contribute to decrease the doshas by their Rasa and Vipaka. The study of individual drugs in respect of their mode of action should be carried out.

Results of drug therapy (yatsaadhayati tat phalam)

Incompatibility

The calculated proportion of ingredients in different formulations has a scientific meaning behind it. Disturbance in that proportion causes incompatibility. The word "Synergism" indicates increase in the effect of drugs by adding to them another drug of similar quality. Godanti, Mishrana, PravalPanchamrita, Trinapanchamoola Kwatha etc. are examples of synergism. Madhu and Kajjali are the best synergists. The word "antagonism" indicates the decrease of action of drugs by adding to them some another drugs of drug of dru of dissimilar quality.⁷

Anupana is a factor which helps in absorption, assimilation as well as efficacy of drug. The potency of the drug gets enhanced and brings about the desired effect when given the suitable anupana. It should be decided according to the prakriti of an individual as well as the condition of doshas. Anupana has multidimensional effects, it acts as nutritive, stimulant, preventive and curative. The concept of Anupana plays a very significant role in treating the disease and also helps the drug to act⁸.

Discussion

Ayurveda introduces the concepts, karma of Rasa, Vipaka, Guna and Prabhava. These concepts explain the different aspects of drug action. In this context, Rasa, Vipaka and Veerya play a crucial roles, with each one superseding the other in a specific disorder. It is important to note that Vipaka is not considered an active ingredient, but rather a process. The combined actions of drugs have a synergistic effect, enhancing their potency. Conversely, opposing effects can reduce the potency of the pharmacological action. In modern terms, Rasa, Guna and Veerya karmas are responsible for the pharmacodynamic effects of drugs. On the other hand, Vipaka, as a metabolite, can be correlated with the pharmacokinetics of the drug. By understanding these concepts, we can gain a deeper insight into the mechanisms of drug action in Ayurveda.

Even though drugs have got some active principles with which they work, they have some other fractions to which counteract their bad effects, if any. Therefore Ayurveda advocates that drug

should be used as whole so that the desired effects may be had without any side effects. Ayurveda while propounding the principles of Rasapanchaka, the concept of description of Veerya shows beyond doubt that the ancient Acharyas. The second implication of giving the drug as a whole is that it is the 'agni,' which is responsible for the health as well as disease and, therefore, drugs should be so selected and used as to improve the condition of agni at all levels. The third implication is that drugs possess not only the therapeutically active fraction but also some other fractions, which help the patient restore his health. By isolating the active principle and throwing out the rest of the drug, we throw out very essential and useful things, which may, otherwise, prove very useful for health. Therefore, use the drug as a whole.

Some of the Ayurvedic drugs showing therapeutic action are Shankupushpi which reduces hypertension but does not cause hypotension in healthy volunteers. GodantiMishrana brings down the high temperature, but never causes subnormal temperature even after using it in large doses for a longer period. Punaranava, Gokshura and Pashanabedha cause diuresis in cases of Shotha and Jalodara but their diuretic action is not seen much in healthy volunteers. Kutaja and Jatiphala stop diarrhoea but their prolonged use in healthy volunteers does not cause constipation. But when the active fractions of drug is isolated and used, they show pharmacodynamics action as well as pharmacotherapeutic actions. Such isolated fraction render quicker relief but also cause side effects. Giving the drug as a whole reduces the side effects.

Majority of the Ayurvedic drugs show only the pharmacotherapeutic actions and never cause any complication. For instance, Saptarangi was critically analysed and it was found to have one fraction possessing hypoglycemic action and another fraction possessing hyperglycemic actions. Recent experiments with Bhallataka in cases of malignancy showed that Bhallataka as a whole should be administered to achieve better results with no complications.

The chemical composition of certain drugs bears a striking resemblance to that of glucose, leading bacteria to mistake them for

glucose and ingest them. These drugs, among their various effects, render the bacteria's cell wall permeable, ultimately resulting in the bacteria's demise. Sulphonamides can be effectively compared to para amino benzoic acid. Bacteria acquire para amino benzoic acid from the surrounding fluid and utilize it to synthesise folic acid, a vital component for the metabolism of nuclear proteins within the bacterial organism. These nucleoproteins play a crucial role in mutation. Upon administration of sulphonamides, they become present in the body fluid, and bacteria mistakenly take them for para amino benzoic acid. However the bacteria are unable to synthesise folic acid from the sulphonamides, leading to improper formation of nucleoproteins and halting the mutation process. Consequently, the bacteria gradually perish. Remarkably, bacteria, being biological creatures driven by survival instincts, possess the ability to convert sulphur drugs into glucose and consume them without any harm. This phenomenon is known as bacterial resistance to sulphur drugs. In the case of other drugs, bacteria develop defensive mechanisms to protect themselves from potential drug attacks. Ayurvedic medicines can be used for long term treatment as bacteria are unable to develop resistance against these drugs. This makes Ayurveda an effective and reliable option for prolonged use.

The rasa of dravya offer various physiochemical properties and contributes significantly towards the specific action of dravya. Vipaka involves uses of dhatus, tissues along with biochemical process such as: oxidation and reduction. Guna acts as a medium for understanding the peculiarities of dravyas. The concept and description of Veerya shows beyond doubt that had a clear idea about the mode of drug action. Veerya is shakti which means of action. Shakti is nature of veerya and means action of its purpose. That is why Acharya Charaka said- veerya is that which acts as instrument. Acharya Susruta also opines that veerya is chief as drug action depends thereon. But the Shakti which inherently in the active drug, there also it is concentrated in a particular portion having essence of panchabhuta and known as Veerya. Acharya Sivadas Sen opined that veerya is Shakti in the form of the concentrated essence of panchabhutas. Thus it can be concluded that whatever the substances do, Whether by dravyaprabhava (virtue of their nature) or gunaprabhava (by virtue of their qualities) or by dravya-gunaprabhava (by virtue of their substantive and

qualitative nature) in any given time, in any given place (system or organ), having administered in a given mode, with a given result in view is their action, whereby they act is the potency, wherein they act is the place, where they act is the time, how they act is the mode, what they achieve is the result. There cannot be any action in the body in absence of veerya in drug. The effectiveness of the drug may be wholesome or unwholesome, but the reason behind is the potency of the drug.¹⁰

Conclusion

Ayurveda mentioned various theories related to the diseases pathogenesis and their treatment. The drugs help to correct vitiation or aggravation of tridoshas, dhatus, mala, srotas and agni. The pharmacological action of drugs facilitate by their properties like; Rasa, guna, Virya, Vipaka, and prabhava. Here it can be stated Rasa, Guna, Veerya, Prabhava contributes towards pharmacodynamics profile of drug while Vipaka resembles metabolic pharmacokinetic of Ayurveda drugs. However it still require exploring pharmacodynamics and pharmacokinetic concepts as per Ayurveda theories in details so that modern and classical sciences come together for bridging gap amongst medical fraternities. Ayurveda believes in a broad spectrum approach, where all the major and minor ingredients present in the drug are expected to play a role in the drug action. The concept and description of veerya shows beyond doubt that had a clear idea about the mode of drug action. The effectiveness of the drug may be wholesome or unwholesome, but the reason behind it could be the potency of the drug.

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