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Concept of *Veerya* (Active Principle/Potency/Bio Active Compounds of the Drug): A Review

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Abstract

Dravyaguna Vijnana is considered as the first branch of *Ayurveda* by *Pandit Narahari* in his lexicon named *Raja Nighantu*. The pursuit of health and mitigates the disease is prime importance in *Ayurveda Shastra*. While this can only be achieved through the proper administration of the *Dravyas* (Drugs). The action of these drugs depends upon the potency or biochemical compounds. These active principles of the drugs are called as *Veerya*. The *Veerya* is derived from the *Sanskrit* word *Veer* ie potency or powerful. According to *Acharya P.V. Sharma* the word *Veerya* is the factor which is responsible for the drug action. In modern pharmacology it is the active potency or bio molecule active compounds of the drug. The *Veerya* may be physical energy or may be biochemical energy in the drug. The knowledge of *Rasa*, *Guna*, *Veerya*, *Vipaka*, *Prabhava* were found during *Vedic* period. *Acharya Charaka* and *Rasa Vaisheshika* enumerated the types of *Veeryas* Viz; *Guna Veerya Vada, Karma Veerya Vada, Dravya Veerya Vada.* The Guna *Veerya Vada* is further classified into *Shakti Matra Veerya Vada* by *Acharya Charaka*, and *Paribhashika Veerya Vada* by *Acharya Sushruta* and *Acharya Vagbhata*. Whereas *Dravya Veerya Vada* is again classified in to *Chintya Veerya* (*Veerya*), and *Achintya Veerya* (*Prabhava*). In general the UN metabolized pharmacological active molecule of the known drug is known as *Veerya*. The exothermic and endothermic reactions can be co related with *Ushna Veerya* and *Sheeta Veerya*. The active principles of the drug are the constituents of the drugs include alkaloids, glycosides, saponins, fixed oils, volatile oils, fats, waxes, gums, resins, oleoresins, gum resins, balsams, tannins, neutral principles on which the characteristic therapeutic actions take place. These active principles are the chemical constituents present in crude raw materials and are responsible for biological activities. The present work is reviewed the concept of *Veerya*, influencing factors and the pharmacological active compounds with the help of classical as well as digital data.

Keywords: *Veerya, dwividha veerya, astha visha veerya, ushna veerya, sheeta veera, bio active compounds, active principles*

Introduction

Dravyaguna Vijnana is considered as the first branch of *Ayurveda* by *Pandit Narahari* in his lexicon named *Raja Nighantu*. To pursuit of health and mitigating the disease is prime importance in *Ayurveda*. While this can only be achieved through the proper administration of the *Dravyas* (Drugs). The action of these drugs depends upon the potency or biochemical compounds. These active principles of the drugs are called as *Veerya*. The therapeutic actions can be seen by these *Veeryas*. Mainly two types of *Veeryas* are considered Viz; *Ushna Veera* (Hot in potency), *Sheeta Veerya* (Cold in potency). In general the UN metabolized pharmacological active molecule of the known drug is known as *Veerya*. The knowledge of *Rasa*, *Guna*, *Veerya*, *Vipaka*, *Prabhava* were found during *Vedic* period. It is mentioned in the Vedas that the drug acts because of *Shakti* (Inherent power) [1].

AIMS and Objectives

- The aim of the present work is highlighted concept of *Veerya* (Active principles or bio active compounds).
- The objective is to elaborate the concept of *Veerya* (Active principles or bio active compounds) and *Veerya* classification according to different *Ayurvedic* texts.

Material and Methods

- The different concepts and classifications, assessment were highlighted on the basis of various *Ayurvedic* texts and digital data.
- Literary survey was done strictly through various *Ayurvedic* classical texts.

Discussion

The concept of *Veerya* is elaborated systematically as follows;

Veerya Swabhava

The *Veerya* is characterized by the drug action [2] *Acharya Vagbhata* mentioned the potent qualities of a drug is considered as *Veerya* [3]. (Ast. Sangr.sutr 17). *Acharya Charaka* quoted that *Veerya* is the pharmacological action of the drug [4]. (Char Sutr 26). The potency of a drug which performs its actions right from its ingestion to till its excretion causing breaking the pattern of *Dosha Dushya Sammurchana* (Pathogenesis). The chemical structure of the substance when it is ingested it first comes in contact with the tongue and shows local actions. These actions were explained on the basis of *Rasas* (Tastes) and the *Gunas* (Qualities). The same substance when undergoes for digestion and metabolism there will be certain chemical changes. These chemical changes are capable of producing certain actions on the body tissues like *Doshas, Dhatus, Malas, Strotas.* The active principles or

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potent qualities are survived during the process of digestion and metabolism. These potent qualities termed as *Veerya*. The other qualities which under go changes during digestion and metabolism called as *Vipaka* (Post digestive effect) which is the bi-product of the *Doshas*, *Dhatus* and *Malas*.

Types of Veeryas

Acharya P.V Sharma enumerated the types of *Veeryas* according to various ancestors *Acharya Charaka* and *Rasa Vaisheshika* viz; *Guna Veerya Vada, Karma Veerya Vada, Dravya Veerya Vada*. The *Guna Veerya Vada* is further classified into *Shakti Matra Veerya Vada* by *Acharya Charaka,* and *Paribhashika Veerya Vada* by *Acharya Sushruta and Vagbhata.* Where as *Dravya Veerya Vada* is again classified in to *Chintya Veerya (Veerya),* and *Achintya Veerya (Prabhava).*

1. Shakti Veerya Vada [5]

The action itself believed to be *Shakti* (Power and potency). *Acharya Charaka* accepted the *Shakti* as *Veerya*. All the constituents of the drug like configuration of *Rasa, Guna, Vipaka, Prabhava* exhibit the pharmacological actions by means of *Shakti* only. The factors responsible for the *Shakti* are five proto elements viz *Akasha, Vayu, Agni, Aap and Pritwi Mahabhutas*

2. Paribhashika Veerya Vada [6]

This school thought that the active principles or potent qualities of *Gurvadi Gunas* (*Guru, Laghu, Sheeta, Ushna, Snigdha, Rooksha, Mrudu, Teekshna)* might be considered as *Veeryas*. This also called as *Guna Veerya Vada.* The *Guna Veerya Vada* again subdivided in to *Dwividha Veerya Vada* and *Asthavidha Veerya Vada*.

Dwividha Veerya Vada [7]

Among the five proto elements viz; *Akasha, Vayu, Agni, Aap, Prithwi*, are categorized into two types; *Agni* (Heat producing) and *Soma* (Cold producing). So the heat producing *Agni* is termed as *Ushna Veerya* (Hot potency) and cold producing is *Sheeta Virya* (Cold Potency).

Astha Vidha Veerya Vada [8, 9, 10]

Acharyas enumerated 8 types of *Veerya* Viz; *Guru, Laghu, Sheeta, Ushna, Snigdha, Rooksha, Mrudu, Teekshna. Acharya Sushruta* accepted the *Vishada* and *Picchila* in place of *Guru* and *Laghu*.

3. Karma Veerya Vada

Acharya Badanta Nagarjuna was the proprietary of this theory. Later this theory was supported by *Acharya Bhavamishra, Acharya Nimi.* This school thought that the drug cannot perform its action without *Veerya* even though the *Rasas* and *Gunas* are present. *Acharya Bhavamishra* quoted that the drug of special action is called *Veerya*. This concept is also called as *Achintya Veerya*. For example, the *Yasthimadhu* (*Glycyrrhiza glabra* Linn) is *Madhura Rasa* (Sweet in taste), *Snigdha Guna* (Demulcent) and *Sheeta Guna* (Cold in potency) which acts as *Sandhanakara* (Heals fractures) whereas the *Dugdha* (Milk) with similar properties acts as *Sramsana* (Laxative). This indicates the *Achintya Veerya* of the drug.

Panhabhautikata of Veerya [11]

Composition of five proto elements in the *Veerya* [SUS SUTR 41]

This concept is denoted by Acharya Sushruta-

1. *Teekshna* and *Ushna Veerya* predominant of *Agni Mahabhuta*
2. *Guru* and *Sheeta Veerya* predominant of *Jala Mahabhuta*
3. *Snigdha Veerya* predominant of *Jala Mahabhuta*
4. *Mridu Veerya* predominant of *Jala* and *Akasha Mahabhuta*
5. *Rooksha Veerya* predominant of *Vayu Mahabhuta*
6. *Laghu Veerya* predominant of *Agni*, *Akasha* and *Vayu Mahabhuta*
7. *Picchila Veerya* predominant of *Jala Mahabhuta*
8. *Vishada Veerya* predominant of *Prithwi* and *Vayu Mahabhuta*

Veerya and its Actions [12]

1. **Ushna Veerya:** It is Vata-Kaphahara, Pittavardhaka, Deepana, Pachana, Dahajanana, Murchana, Swedana, Vamana, Virechana, Vilayana, Bhrama, Trishnajanana, Ashupaaka, Avrishya.
2. **Sheeta Veerya:** It is Pittahara, Vata-Kaphavardhaka, Prahladana, Vishyandana, Sthirikarana, Prasadana, Kledana, Jeevaniya, Sthambhana, Raktaprasadana, Balya.
3. **Snigdha Veerya:** Vatahara, Kapha Vardhaka, Snehana, Bramhana, Santarpana, Vajikarana, Vayasthapana.
4. **Rooksha Veerya:** Vatavardhaka, Kapha-Pittahara, Sangrahana, Peedana, Virukshna, Ropana.
5. **Guru Veerya:** Kapha Vardhaka, Vatahara, Upalepana, Bramhana, Balya
6. **Laghu Veerya:** Kaphahara, Vata Vardhaka, Lekhana, Langhana, Dhatu Kshaya.
7. **Mrudu Veerya:** Pittahara, Raktaprasadana, Mamsaprasadana
8. **Teekshna Veerya:** Kaphahara, Sangrahi, Achushana, Avadarana, Sravana.
9. **Vishada Veerya:** Kaphahara, Kledachushana, Virukshana, Uparohana
10. **Picchila Veerya:** Kapha Vardhaka, Upalepana, Poorana, Brimhana, Vajikarana.

Veerya Perception [13]

The *Veerya* can be perceived either by *Nipata* means external contact with the body or *Adhivasa* means internal contact with the body where the drug acts (Site of the action).

Ex: *Sheeta Veerya of Saindhava Lavana* and *Ushna Veerya of Anupa Mamsa* perceived indirectly through *Anumana Pramana* (Inference). The *Teekshna Veerya* of *Rajika* (Mustard seeds) are directly perceived through *Ghranendriya* (Nose). The *Picchila, Vishada, Snigdha, Ruksha Veeryas* are perceived through visual and sensory organs.

Veerya perception According to Sushruta Samhita [14]

- *Mrudu*, *Sheeta* and *Ushna Veerya* perceived through *Sparshanendriya* (By touch)
- *Picchila* and *Vishada Veerya* perceived through *Chakshu* (Visual) and *Sparsha* (Touch)
- *Snigdha* and *Ruksha Veeryas* perceived through *Chakshu* (Visual).
- *Teekshna Veerya* perceived through *Mukha* (Mouth) by irritating the mucous.

The general principal is *Madhura Rasa* (Sweet taste) and *Madhura Vipaka* (Sweet at post digestive effect) are expected to be *Sheeta Veerya*, whereas the *Amla Rasa* (Sour taste) and *Amla Vipaka* are to be *Ushna Veeryas*. Ex: *Shatavari* is *Madhura Rasa*, *Madhura Vipaka*, and *Sheeta Veerya.* The

Chitraka is *Katu Rasa*, *Katu Vipaka* and *Ushna Veerya*. The *Kanjika* is *Amla Rasa, Amla Vipaka* and *Ushna Veerya.* These drugs are called as *Samana Pratyayarabdha Dravyas* also called as *Prakriti Sama Samaveta Dravyas*.

Exceptions in relation with *Veeryas* [15]

Anupa Mamsa is *Madhura Rasa,* but *Ushna Veerya, Amalaki* is *Amla* but *Sheeta Veera, Saindhava Lavana* is *Lavana Rasa* but *Anushna Veerya. Guduchi* is *Tikta Rasa* but *Ushna Veerya, Maha Panchamula* is *Kashaya* and *Tikta Rasa* but *Ushna Veerya. Haritaki* is *Kashaya Rasa* but *Ushna Veerya.*

Veerya Pradhanyata* [16]-Importance of *Veerya

Because of *Urdhwabhagahara*, *Adhobhagahara*, *Samshodhana*, *Sanshamana*, *Sangrahi, Agnideepana, Peedana, Lekhana, Brimhana, Rasayana, Vajikara, Swayathukara, Vilayana, Dahana, Darana, Maadana, Pranaghna, Vishaprashamana* are qualities of *Veerya*. Hence *Veerya* is *Pradhana*. According to *Rasa Vaisheshika Veerya* is considered as the most important factor among the *Dravya*. Different types of drug actions are mainly dependant on *Veerya* only. The *Rasabhibhava* of *Veerya* is, *Veerya* supersedes the *Rasa*, *Guna*, etc and produces its own effects. This effect of *Veerya* is due to potent quality called *Balotkarsha*. The *Veerya* was dealt and propounded by *Ayurvedic* classical texts by our ancestors known as *Aptopadesha*. Hence *Veerya* is important.

Assessment of *Veerya*

The exothermic and endothermic reactions *in vitro* with *Ushna Veerya* and *Sheeta Veerya* drugs have been reported. (Shukla D.K *et al* 1979). According to Dwarakanath (1954) *Ushna Veerya* represents kinetic energy from food substances to biochemical reactions, while the *Sheeta Veerya* represents potential energy stored in different tissues as reserve fuel depot. The drug subsides aggravated *Dosha* and cures the disease and balances the *Dosha, Dhatu, Mala* in the body. This aggravation and mitigation is known as *Santarpana* and *Apatarpana*. The *Santarpana* can be correlated to *Sheeta Veerya* whereas *Apatarpana* can be to *Ushna Veerya*. The *Santarpana* is of three types viz; *Snehana*, *Sthamhana*, *Brimhana*. These help to increase *Snigdhata* in *Doshas*, *Guru Guna* in *Dhatus* and *Sheetata* in *Strotas*. The *Apatarpana* is of three types viz; *Rukshana*, *Swedana* and *Langhana*. These help to *Rukshata* in *Doshas*, *Laghu Guna* in *Dhatus* and *Ushnata* in *Strotas*.

The 8 Factors Affecting to the *Ushna Veerya* and *Sheeta Veerya*

Shri. Devendra Shukla (1978) has prepared general proforma related to the Ushna Veerya and Sheeta Veeryas. Viz;

1. **Reaction to the distilled water:** Exothermic for *Ushna Veerya*, Endothermic (*Sheeta Veerya*).
2. **Reaction to the artificial gastric juice:** Exothermic (*Ushna Veerya*), Endothermic (*Sheeta Veerya*).
3. **Appetite:** Increased (*Ushna Veerya*), Decreased (*Sheeta Veeya*).
4. **Sleep:** Decreased (*Ushna Veerya*), Increased (*Sheeta Veerya*)
5. **Blood Pressure:** Increased (*Ushna Veerya*), Decreased (*Sheeta Veerya*).
6. **Urine:** Decreased (*Ushna Veerya*), Increased (*Sheeta Veerya*)
7. **Stool:** Hard/Constipation (*Ushna Veerya*), Smooth (*Sheeta Veerya*)
8. **B.M.R:** Increased (*Ushna Veerya*), Decreased (*Sheeta Veerya*).

The Bio active principles [17]

The active principles of the drug are the constituents of of the drugs include alkaloids, glycosides, saponins, fixed oils, volatile oils, fats, waxes, gums, resins, oleoresins, gum resins, balsams, tannins, neutral principles on which the characteristic therapeutic actions take place. These active principles are the chemical constituents present in crude raw materials and are responsible for biological activities.

Alkaloids

The alkaloids are the nitrogenous compounds of the complex structure, found in plants. These are derived from the amino acids. They are bitter in taste, insoluble in water but soluble in alcohol. The alkaloids are biologically very active, toxic, and alkaline in nature. The solid alkaloids are morphine, papavarin, atropine, hyoscine, quinine, ephedrine, strychnine. The liquid alkaloids are nicotine, pilocarpine, lobeline. Alkaloids are used as insect repellents, biofertilizers, psychoacive substance. Some examples are, caffeine is stimulant, digoxin is cardiac stimulant, and ephedrine is used in blood pressure, morphine as analgesic, quinine as antimalarial, theobromine in the treatment of asthma, vincristine as anti-tumour. Alkaloids are poisonous agents which protect plants from insects and herbivores. They act as regulatory growth factors and considered a reserve substances which are capable of supplying nitrogen.

Gycosides

The glycosides are non-nitrogenous carbon, hydrogen and oxygen containing compounds. These are complex and biologically active compounds. Mostly found in the plants. These are hydrolysed by acids or enzymes. When the sugar component is glucose, it is called as glucoside. The sugar part is known as glycone (monosaccharides or oligosaccharides) whereas non sugar part is known as aglycone. It helps to increasing the bio availability of the drug. This aglycone part is responsible for pharmacological activity. Ex: gigoxin, digitoxin, gitoxin, strophanthin. The gycosides are believed to facilitate growth and protection of the plant. On the basis of chemical nature the glycosides 6 types are derived. Viz; Alcoholic gycosides-Ex: salicin which found in the genus salix. Salicin is converted in the body into salicylic acid which closely related to aspirin and has analgesic, antipyretic and anti-inflammatory actions.

Anthraquinone Glycosides

These gycosides contain an aglycone group that is derivative of anthraquinone. They have laxative effect in the body. They are mainly found in dicot plants except the liliaceae family which are monocots. They are present in senna leaves, rhubarb, aloe species.

Coumarin Glycosides

The aglycone is coumarin or a derivative. Ex: apterin which is reported to dilate the coronary arteries as well as block calcium channels. Other coumarin glycosides are obtained from dried leaves of psoralea corylifolia.

Cyanogenic Glycosides

The aglucone contains a cyanide group. Ex: Amygdalin from bitter almonds (Not sweet almonds). Cynagenic glycosides

can also be found in the fruit seeds like berries, apples, plums, bitter almonds, peaches, apricots, sap berries and crab apples.

Phenolic Glycosides The aglycone is a simple phenolic structure. Ex: arbutin found in the common bear berry. It has urinary antiseptic effect.

Steroidal Glycosides or Cardiac Glycosides
The aglycone part is steroidal nucleus. These glycosides are found in the plant genera digitalis, scilia and strophanthus. They are used in the treatment of heart diseases Ex: Congestive heart failure, and arrhythmia.

Saponins
The saponins resemble glycosides, neutral in reaction, found in plants. These act as emulsifying agents. While shaking with water forms froths. These may cause haemolysis of RBCs. Ex: Senegin, Quillia sapotoxin.

Fixed oils
The fixed oils are higher fatty acids insoluble in water, soluble in ether, chloroform, alcohol. Ex: Oleic, palmitic, stearic acids. These are non-irritating, greasy and produces marks on paper. They decompose on distillation and form soaps with alkalies. Ex: Caster oil, cod liver oil, olive oil.

Volatile Oils
The volatile oils are essential oils obtained from various plants by distillation process and are highly aromatic. These contain liquid hydrocarbons mostly oxidized hydrocarbons. Volatile oils are mixture of hydrocarbon terpenes, sesquiterpenes and polyterpenes and other oxygenated derivatives obtained from various parts of the plant. They are usually crystalline solids called stearoptenes. These are highly aromatic and slightly soluble in water. These are used as carminatives, diuretic, antiseptics. Ex: Cardamom oil, sandalwood oil, clove oil.

Types of volatile oils
Hydrocarbon volatile oils: Bitter orange, turpentine, juniper
Alcohol volatile oils: Mentha, coriander, rose
Aldehyde volatile oils: Cinnamon bark, cassia bark, lemon
Ketone volatile oils: Caraway, dill, spearmint
Phenol volatile oils: Cinnamon leaf, clove, horsemint
Ester volatile oils: Lavender, rosemary, sweet orange
Phenolic ether volatile oils: Fennel, anise, myristica
Oxide volatile oils: Eucalyptus, chenopodium

Plants with Volatile Oils
Basil: Linolol, cineol, eugenol acts as appetizer, digestive, carminative, analgesic, antiseptic, healing actions.

Calendula: Gamma terpene, sequiterpenes, triterpenes acts as antiseptic and anti-parasitic.

Onion: Sulphur compounds acts as Hypoglycemic, expectorant, hypocholesterolemic

Clove: Eugenol, caryophyllene, pinene, caryophyllin acts as antibacterial, appetizer, anti-inflammatory.

Turmeric: Terpene, hydrocarbons abd sesquiterpene ketones acts as choleretic, lipid lowering, antispasmodic, bactericidal.

Ginger: Monoterpenes, sesquiterpenes acts as carminative, anti-ulcer.

Fats: When the fixed oils solidified at room temperature known as fats. These are natural ester of glycerol and fatty acids. The fats are also called as Triglycerides. Ex: Coco butter.

Waxes: The esters of fatty acids with monohydric alcohols. These are the complex mixtures and used in ointments, topical applications on skin. Ex: Bees wax.

Gums: These are the plant exudate and carbohydrate in nature, are amorphous, transparent. They Form viscous solution with water and produce mucilage. These are used as suspending, emulsifying agents in the preparation of suspension and emulsions. Ex: Gum acacia, Gum tragacanth.

Resins: The resins are solid and bitter substances, produced by oxidation of volatile oils. These form soap with alkali. These are soluble in alcohol. Ex: Oleo Resins dissolved in volatile oils Ex: Copaiba.

Gum Resins: Combination of gum and resin. Ex: Myrrh, asafetida.

Balsams: The balsams are combination of resins with benzoic acid or cinnamic acid. Ex: Benzoin. The benzoin is used as tincture benzoin which is applied on small superficial wounds and abrasions.

Tannins: The tannins are non-nitrogenous compounds, precipitated by metallic salts or alkaloids. These are astringent in action on mucosa. It produce blue ink colour with iron. Tannins are hydrolyzed to tannic acids.

Neutral principles: These are commonly known as santonin, bitter principles

Phenols: The phenolic compounds are responsible for chemo preventive properties. Ex: Antioxidant, anticarcinogenic or antimutagenic and anti-inflammatory, analgesic actions.

Conclusion
From the above discussion it is conclude that *Veerya* of the drug is to be determined from the actions produced in the body right from it is contacted with the tongue till its elimination from the body. Thus all the pharmacological actions are explained by *Veerya*. The *Veerya* may be physical energy or may be biochemical energy in the drug. The active principles of the drug are the constituents of of the drugs include alkaloids, glycosides, saponins, fixed oils, volatile oils, fats, waxes, gums, resins, oleoresins, gum resins, balsams, tannins, neutral principles on which the characteristic therapeutic actions take place. These active principles are the chemical constituents present in crude raw materials and are responsible for biological activities. The exothermic and endothermic reactions can be co related with *Ushna Veerya* and *Sheeta Veerya*.

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