

## ECOLOGICAL CONCEPT IN ĀYURVEDA: NATURE-MAN RELATIONS

MIRA ROY\*

(Received 4 February 2008; revised 2 June 2008)

The role of ecological perspective of the five elements in Āyurvedic thoughts is the subject of discussion of the present paper. Five elements, the five forces of nature consisting of *ākāśa*, *vāyu*, *teja*, *ap* and *pṛthivī* permeate everything of the phenomenal world. Its closeness with human body is highlighted from different angles. These include: i) Five elements and Man relationship, ii) Five elements and Plants inclusive of soil: Relationship with Man, and iii) Eco-systems and Man.

**Key words:** Āyurveda, Constitutional elements-*ākāśa*, *vāyu*, *teja*, *ap*, & *pṛthivī*, Ecological concept, Ecosystem, Nature-Man relation, *Rasa* - variants, Physical features, Plants, *Rasa* linkages, Soil.

### INTRODUCTION

Harmonious relations between man and nature constitute a prime aspect of Āyurvedic thoughts on man. Nature is represented here by its five forces consisting of *ākāśa*, *vāyu*, *teja*, *ap* and *pṛthivī*. These are commonly known as five elements. In Āyurvedic ideas these five elements function alike in both natural phenomena and human system. *Āyurveda* in its minute observational discourses highlights some aspects of correlation between elements and man. In restricted sense this can be termed as medical ecology pervading the Āyurvedic pursuance of life. Main theme of the paper is thus element based ecological conception which is extended to the ideas of ecosystems. In both the cases man is the principal focal object because *Āyurveda* aims at man.

### Ecology of Five Elements

Five elements are essentially evolutes of *Prakṛti*, the cosmic or primordial matter endowed with three *guṇas*. These are the three forces of cosmic nature,

---

\*BK 365 Salt Lake, Sector 2, Kolkata - 700091

positive, negative and neutral on the basis of their interaction as patent, latent and sub- latent in particular phenomenon.<sup>1</sup> In the evolution series involving creation Suśruta describes *pañcatanmātras* (individual matter stuff or subtle material potencies) evolved from *bhūtādi (tāmasika) ahaṅkāra* under the influence of *taijasika (rājasika) ahaṅkāra*. From the *tanmātras* evolved five *mahābhūtas* (determinate matter stuff- atomic or molecular constituents of gross matter)<sup>2</sup>. Five elements are thus constituted of subtle and gross *bhūtas* evolved from the *guṇas*. The five great elements are the five manifestations of nature. They are made distinct by their respective *tanmātras* and receptive in the five sense organs. The five *tanmātras* — sound, touch, form, taste and odour correspond to five gross elements — sky, air, fire, water and earth respectively. The sense- organs receptive of the subtler forms are ear, skin, eye, tongue and nose. These aggregates of five are termed as *pañca-pañcakam*<sup>3</sup>.

### Structure of Elements

The five gross elements have no specific locations in the body as they are the materials of the body .They seem to have molecular constitution which is very clear in the statement *bhūtānām sānnidhyamasti aṅunā viśeṣataḥ* ( i.e. “the *bhūtas* are close to each other from the presence of atoms of one into another”)<sup>4</sup>. Each of the five elements shares the molecules of other elements but with preponderance of one by which the elements are separated from one another. This is very explicit in the statement of Suśruta, *anyonyanupraviṣṭāni sarvānyetāni nirdiśet* (i.e. “the particles of all the *bhūtas* enter into one another according to their nature”). Dallaṅācārya explains it this way: *ākāśa* is the receptacle of air, heat and water. Water is water- vapour according to B.N.Seal. *Vāyu* holds heat, water and fire- particles of earth, and *teja* contains earth particles in form of smoke and also water or water- vapour. *Anyonyanupraveśaḥ* suggests all specific characteristics of *bhūtas* are commonly seen in all the five elements. Suśruta has thus made the observation that all the five elements, though separated by their own entities, are inter- related for inter- penetration.<sup>5</sup> Further Suśruta states more clearly “all material elements are inseparably connected with one another and there is a sort of interdependence among them. Each one contributes to the continuance of the other and jointly entering, to a more or less extent, into the composition of all material substances.”<sup>6</sup> The Āyurvedic view of *anyonyanupraveśaḥ* seems identical with the *pañcakaraṇa* idea of Vedānta regarding the interdependence of the five elements<sup>7</sup>.

### Elements and *Guṇas* (forces of *Prakṛti*)

The three *guṇas* — *sattva* (essence), *rajas* (energy) and *tamas* (mass, inertia) from which the elements evolved are obviously inter-related with the five gross elements. Either singly or in combination they are present in the elements. The scheme of the *guṇas*' presence in five elements is enumerated thus: *ākāśa* is predominated by *sattva*, *vāyu* by *rajas*, *agni* by two *guṇas* — *sattva* and *rajas*, water by *sattva* and *tamas* and earth by *tamas*<sup>8</sup>.

Each *guṇa* is attributed with its own characteristic feature. Excellency of one or two *guṇas* is thus indicative of manifestation of its special attribute to particular element. Thus *ākāśa* possesses the quality of manifestation of any phenomenon from *sattva-guṇa*. *Vāyu* is endowed with its quality of motion from *raja-guṇa*. *Agni* receives the qualities of manifestation and motion from predomination of two *guṇas* — *sattva* and *rajas*. Water is attributed with the characteristics of opacity from *sattva*, and gravity & density from *tama*-predomination. Earth has extreme density due to predomination of *tama-guṇa*. Predomination does not mean complete absence of other *guṇas* in particular element but in lesser degree<sup>9</sup>.

The characteristic features of the *guṇas* have their respective reflections on human character. Predomination of particular *guṇa* determines the type of an individual. Āyurvedic authorities have categorically mentioned the *sāttvika*, *rājasika* and *tāmasika* types as determinant factors of nature of the patients<sup>10</sup>.

### Elements and their Care

*Āyurveda* emphasizes on proper sustenance of the bodily elements for the preservation of the constitution of human body. It recommends selection of food article of similar elemental constitution for the nourishment of particular body element of human body. Thus a natural process of transmission of the elemental parts of food after digestion to corresponding parts of body elements is implied. Suśruta states: *pañcabhūtātmaka dehe hyāhārah pañcabhautikaḥ || vipakvaḥ pañcadhā samyagguṇān svānobhivardhayet (Śārīra 46.526)*. It means “the food, which consists of five fundamental material principles (elements), is digested, in its turn, by the five elemental heat or fire (*pañcadhā*), and each of its own constituent principles goes to augment its own kindred in the human organism”<sup>11</sup> Vāgbhaṭa also admitted this principle of sustenance of five bodily elements<sup>12</sup>

These inter-relations between five elements constituting human body and those of food objects, consisting of plant and other living organism based on kindred relationship highlights nature-man relations.

All worldly matters in view of medical celebrities are made up of five elements. Caraka defines them as *dravya*, which united with consciousness or *ātmā* is *sacetana*, animate and inanimate, or *acetana* when devoid of this<sup>13</sup>. The element *bhūta* as a part of *Prakṛti*, alias *guṇas* is thought to be eternal and having no destruction. The entire movable and immovable material objects are created from various modes and patterns of combination and permutation of five elementary substances of *bhūtas*. Āyurveda has brought out some fundamental relations between man, plant and soil. Five elements are presented as basic material of human body. They form *rasa* (taste), the primary material in plant, and contribute all the elemental properties to soil from which these are transmitted to plant and from plant impart sustenance to elements in man's body. *Āyurveda* has thus brought these three into a bond of relationship for correct diagnosis, correct drug selection and proper regimen of food. The nature-man relationships: i) five elements and man, ii) five elements and plants inclusive of soil and relationship with man, and iii) eco-systems and man are now systematically examined.

## I

### FIVE ELEMENTS AND MAN RELATIONSHIP

Elements of two opposite properties are given prime importance behind creation. *Agni* (fire) and *Soma* (water) of two opposite properties, like, hot and cold, light and heavy, dry and viscous are held responsible for creation. The opposite qualities cause linking of atoms or molecules. The Jaina thinker Umāsvāti in first century AD held the view that in any production one particle of matter must be negative and the other positive<sup>14</sup>. Āyurveda has also the same feeling. The statement in the *Suśruta Saṃhita*, *agnisomīyatvājjagataḥ* meaning “*agni* and *soma* are two temperaments of the world”, implies predomination of these two elements in the creation of the world<sup>15</sup>. Reflection of the same is found in the idea of birth of foetus from the same two materials in forms of semen and ovarian blood distinguished as *saumya* and *āgneya*.<sup>16</sup>

#### Constitutional Material and Formation of Foetus

The two medical celebrities Caraka and Suśruta hold two different views in this matter. In the proposition on elements and human body Caraka starts with

the elemental composition of semen, the male procreative material. Four elements constitute it. These are *vāyu* (air), *agni* (fire), *ap* (water) and *pṛthivī* (earth). *Ākāśa* or ‘ether’ is not a part of it, but becomes mixed with the other in ovary. *Ākāśa* itself is omnipresent and has no movement of its own. The foetus thus formed, is developed with all its bodily parts and organs.

According to Suśruta two main constituents of foetus-body, semen and blood are made up of water (*saumya* is however water element of the moon) and fiery element (*āgneya*) respectively. The other elements in atomic particles are also associated with them. All these mutually help one another and co-operate together for the formation of body<sup>17</sup>. This is *Puruṣa* or man of elemental constitution.

This *Puruṣa* in Āyurvedic thought is equal to the Universe, exhibiting similarity in constituent parts. The aggregate of six constituents, such as, *pṛthivī*, *ap*, *teja*, *vāyu*, *ākāśa* and unmanifested Brahman (principle of consciousness) is Universe. These very six constituents’ aggregation is termed as *Puruṣa*. In the person *pṛthivī*, *ap*, *teja*, *vāyu*, *ākāśa* and Brahman are represented by form, moisture, heat, vital breath, pores and inner self in the person<sup>18</sup>. Elements in Āyurvedic thought are also determinant factors of essential bodily features and even body –complexion of the child. Caraka<sup>19</sup> enumerates sixteen gross elements resulted from four for each of the four causes of birth. These are i) mother’s part—the menstrual blood; ii) father’s part—the semen; iii) the *karma* or past deeds of each individual; iv) *āhāraja*— the assimilated food juice of the mother. All the four contribute to the general features of the child on the basis of greater or lesser proportions of five gross elements pertaining to father or mother or of self-deeds. This is implied in the expression preponderance of elements constituting the father’s part, mother’s part and *karma*. Caraka’s fourth cause the “assimilated food juice of mother’s body” has a direct bearing on idea of unification of elements of food substances in the outer world and those belonging to mother’s body. Five elements imported to the mother’s body through food substances were thought as important factors behind child’s complexion. Suśruta observes at the time of conception if the mother eats food with excellency of particular element, the child born is affected by colour-producing properties inherent in that particular element. Element of fire is the base of all types of body complexion. On the base of fiery element, Suśruta enunciates, element of water in greater proportion in food makes bright complexion; element of earth, the complexion dark; earth and ether combined, semi-dark (*kr̥ṣṇa-syāma*, literally means dark

combined with faint dark); element of water combined with ether, the complexion semi-fair<sup>20</sup> .

The colour-producing properties in elements and its transmission to another elemental body through the medium of food articles having preponderance of particular element further strengthens “nature-man relationship”, an important aspect of ecology and element.

Keeping in harmony with physical features of five elements their corporeal manifestations are enumerated by Caraka. He narrates this in course of describing different material elements in the formation of body. Elements as stated earlier are the constitutional elements in the formation of foetus. Their individual contributions are pointed out in this way: from *ākāśa* — sound, the organ of hearing, lightness, subtleness of structure, porosity; from *vāyu* — sensation of touch, the organ of touch, roughness, power of movement, the disposition of the (molecules of) constituent elements and bodily efforts; from *agni* — vision, the organ of vision, digestion, heat, etc; from *ap* — the sensation of taste and the taste organ, coldness, softness, smoothness and watery characteristics; from *prthivī* — smell, organ of smell and heaviness. S.N. Dasgupta observes “The parts of the body which are thus formed from different material elements grow and develop with the accession of those elements from which they have grown.”<sup>21</sup> Āyurveda analyses five elements in various ways in context of their roles in creation of the material world and correspondingly human body. Caraka declares “Thus the *Puruṣa* is equal to the Universe. Whatever formed entities are found in the Universe, they are also found in *Puruṣa* (Person) and vice versa.”<sup>22</sup>

### *Vāyu, Pitta and Kapha*

While five elements build the body, *vāyu, pitta and kapha*, the three modifications of the penta *bhautic* compound, uphold it. These three modified forms known as three humours act in two ways: as *dhātu*, basic elements, when the three are in proper proportions in body (*saṃyogavāhin*); as *doṣa*, i.e. disease bearing elements when they are in disproportion state. These two states are two pillars in Āyurvedic thought about *āyus* or life.<sup>23</sup> All changes in the body processes were treated as variations in the three humours as well as their manifestations in different ways

*Vāyu, pitta* and *kapha* are the three cosmic manifestations of *vāyu, agni* and *ap*. In Suśruta’s scheme of the cosmic bodies in this matter there occurs a

slight difference. *Soma* (water or more precisely moon- water), *Sūrya* (sun) and *Anila* (air) with corresponding somatic elements *kapha*, *pitta* and *vāyu* are presented with identical functional activities. These include: *visarga* (liberal pouring of water- content for vitalization) in case of *Soma*. Its corporeal counterpart is *kapha*, carrying out the same activity in human organism. *Ādāna* (assimilation) is absorption of water- content poured from moon-rays by the sun and the *pitta*-residing *agni* or fire, i.e. heat doing the like- function in human body. *Vikṣepa* or diffusion of cold and hot is generated from the moon and the sun by air in the entire nature-body and performing the same function in the whole human system.<sup>24</sup> A bridge is thus found formed between nature and man.

*Vāyu* among the three humours is given the supreme place in matter of general functions of body. The locomotive and activating distinguishing properties of this nature- element are revealed in its manifold actions on nature and on human body (Table 1).

The second humour *pitta* is essentially the element, fire. *Suśruta* states *pitta* has all the qualities of fire. So when it diminishes, articles of food with fiery qualities serve to increase it, and when it increases, articles of food with cooling properties serve to diminish it.<sup>25</sup> A correlated phenomenon between two opposite states of *pitta* or inner *agni* and articles of food of two opposite qualities for

**Table 1: Functional similarities of Cosmic and Somatic *vāyu* in normal and vitiated conditions**

Cosmic <i>vāyu</i>	Somatic <i>vāyu</i>
<p><i>In normal condition</i></p> <p>a) Holding up the earth (<i>Caraka, Sūtra.12.8</i>)</p> <p>b) Activating fire, disposing continuous movement to the sun, moon and other heavenly bodies (<i>Caraka, ibid</i>)</p> <p>c) Controlling all natural functions inclusive of shaping of flowers and fruits (<i>Caraka, ibid</i>)</p>	<p><i>In normal condition</i></p> <p>a) Holding up the system (<i>Caraka, Sūtra.12.8</i>)</p> <p>b) Stimulating <i>agni</i> (digestive fire); controlling and motivating all bodily activities (<i>Caraka ibid</i>)</p> <p>c) i) Giving shape to the foetus (<i>Caraka, Ibid</i>) ii) Causing formation of the body (<i>Suśruta Sūtra. 21.3</i>)</p>
<p><i>In vitiated condition</i></p> <p>Agitating the natural condition of all phenomena (<i>Caraka, ibid</i>)</p>	<p><i>In vitiated condition</i></p> <p>Disturbing all normal condition of body; affecting even appearance (<i>Caraka, ibid</i>)</p>

balancing the *pitta* humour is indicated here. A subtle tune of harmony between man and nature pervades the entire idea.

The third humour *kapha* is a manifestation of the cosmic principle *ap* (water) of placid and cooling characteristics. Its function is to transport the body fluids to their proper places and thus to cause the growth of the body.<sup>26</sup>

**Table 2: Nature-Man relationship**

<b>Five Elements: Principal Role</b>	
<b>Direct Linkages</b>	<b>Indirect Linkages</b>
<b>Direct Linkages</b>	
Worldly: Production of 5 Elements World's Creation: Predominance of Two Opposite properties: <i>agni</i> and <i>soma</i> (Hot and Cold Principles)	Bodily: 5 Elements of Bodily Manifestation Creation of man's body: Two opposite elemental pre-dominance: <i>agni</i> and <i>soma</i>
Creation of Man's body: Two opposite elemental pre-dominance: <i>agni</i> and <i>soma</i> <i>Agni</i> = Female matter, menstrual blood. composed of four elements, excluding <i>ākāśa</i>	<i>Soma</i> = Male matter, Semen Composed of four elements, including <i>ākāśa</i>
<b>Indirect Linkages</b>	
<i>Rasa</i> , the Elemental Production	Intermediaries Plant, the container of <i>rasa</i>

The functionary roles of *vāyu*, *pitta* and *kapha* as estimated above, correspond respectively to three major functions of three cosmic bodies comprising locomotion, preservation and transportation. Human body is thus a replica of the world with three major nature-powers in forms of *vāyu*, *pitta* and *kapha*.

These *vāyu*, *pitta* and *kapha* are given highest importance in Āyurveda on account of their determinant factors of body constituents or body type from the very birth of child having preponderance of one of the three basic elements in constitution. The entire Ayurvedic treatment depends on the Nature- Man Relation (Table 2).

## II

### FIVE ELEMENTS AND PLANTS INCLUSIVE OF SOIL: RELATIONSHIP WITH MAN

Plants especially herbals are classified into three groups on the basis of particular element: *āgneya* (having preponderance of element fire), *saumya* (having preponderance of water element) and *vāyaviya* (having preponderance of element

*vāyu*).<sup>27</sup> This type of grouping of plant was made to simplify the treatment-process by correct administration of drugs in conformity with the constitution of the patient.

*Rasa*, taste was thought to have an inseparable relation with plant as its prime matter like soul to human body.<sup>28</sup> It is in the base of classification of plants into different groups like, *madhura* (sweet), *amla* (acid), *tikta* (bitter), *kaṣāya* (astringent) and *kaṭu* (pungent). *Rasa* is given the primary position in the enumeration of five properties of drugs comprising *rasa* (taste), *guṇa* (specific properties), *vīrya* (potency), *vipāka* (assimilability), and *prabhāva* (inherent nature) because it reveals the nature of drug.

#### **Origin of *Rasa*:**

Water is the origin of all *rasas*. All *rasas* exist in an unmanifested state in water.<sup>29</sup> The essences of elements mixed with water make the *rasas* manifest in their different forms. *Rasas* are therefore a combined product of water and elements. Caraka states atmospheric water while dropping down gets mixed with elements, nourishes the entire terrestrial bodies, i.e. animals and plants and manifests there in forms of six *rasas*.<sup>30</sup> *Rasa* has no material form. It is inherent in substance and is in its properties.<sup>31</sup>

#### **Physical features of *Rasa*:**

*Rasa* is sensory perceptible object. Tongue is the organ for that perception. Water and earth are its two material substances. In manifestation and differentiation of *rasa*, the other elements, *ākāśa*, *vāyu* and *teja* are causative factors.<sup>32</sup> All the five elements are present in *rasa*, but ratio of proportion differs for which one element becomes predominant. This leads to the formation of *rasa*-type. Thus there occur slight compositional differences in matter of taste- variants. Their physical characters are revealed in their respective properties. The six specific properties of *rasa* are heavy, light, cold, hot, smooth and dry. Obviously these are not attributions of all the six *rasas* but are present as per their nature specified in Āyurveda.<sup>33</sup>

#### **Division of *Rasa*:**

*Rasas* are broadly divided into two groups, based on two elements of opposite characters. These are *saumya* (water) and *āgneya* (fire) described by

Suśruta as *sita* (cold) and *uṣṇa* (hot). All the six *rasas* are distributed under these two divisions. Sweet, bitter and astringent come under *saumya* and pungent, sour and salt are included under *āgneya*.<sup>34</sup> Grouping of *rasas* on the preponderance of particular element was made by Kumārasira, a contemporary of Ātreya Punarvasu. These are *audaka* (water-related), *āgneya* (fire-related), *vāyaviya* (air-related) and *antarikṣa* (space-related).<sup>35</sup> This preponderance of particular element primarily depends on region, substance (*dravya*) and season.

Besides compositional variations *rasas* are also grouped according to their functional values. These comprise *chedanīya* (elimination), *upaśama* (pacification) and *sādhāraṇa*. (neutral)<sup>36</sup> i.e. “a basis of equilibrium of the *rasas* is reached when the other two of opposite actions are mixed together” (S.N. Dasgupta, *History of Indian Philosophy*, vol.2, p.358).

#### **Rasa variants:**

The number and forms of *rasa* vary from one to sixty- three. Six are principal *rasas* and the others are their ramifications. According to Caraka the primordial source of six *rasas* is water. The five elements are actually the substratum of the six *rasas*<sup>37</sup>. The formation of the six *rasas* is due to preponderance of generally two but one in case of sweet. Intermixture of generally two elements causes formation of particular *rasa* (Dallanācārya’s commentary on *Suśruta, Sūtra* 45.6). A change in proportional ratio in five elements is subject to cause from regional differences, variations in substances and seasonal influences.<sup>38</sup> Āyurveda gives more stress on those factors which affect excess and lack in elemental proportions, and establishes a correlation between *rasas* and seasons. The six *rasas* according to their physical properties are distributed to the two halves of the year related to the sun’s northern and southern declinations. Thus increase of bitter, astringent and pungent tastes are noticed during winter, spring and summer when atmosphere becomes dry on account of the sun’s drying up of earth’s moisture. The reverse happens with the gradual increase of acid, saline and sweet tastes in three seasons — rain, autumn and cool when atmosphere is cool due to the sun’s release of moisture.<sup>39</sup>

The varieties of *rasa* centering the six *rasas* are caused from their different combinations. In the series of six *rasas* — *madhura* (sweet) *rasa* is produced

by the preponderance of *soma* (water); *amla* (acid) by that of *pṛthivī* and *agni*; *lavana* (saline) by that of *toya* (water) and *agni*; *kaṭu* (pungent) by that of *vāyu* and *agni*; *tikta* (bitter) by that of *vāyu* and *ākāśa*; *kaṣāya* (astringent) by that of *vāyu* and *pṛthivī*.<sup>40</sup> Cakrapāṇi, the commentator of Caraka, observes elements as the instrumental cause (*nimitta karaṇa*) in the formation of *rasas* (on *Caraka, Sūtra*, 26.38). The general cause is however *adr̥ṣṭa* (destiny) which combines element with water.<sup>41</sup>

The six *rasas* in turn from their different combinational forms give rise to sixty-three *rasas*. Suśruta has given an outline of the scheme of combinations. This enumerates fifteen types from binary, twenty types from tri-combined formula, fifteen types from quaternary combination, six from penta combination, six *rasas* from unitary form and one six-in-one combination. Thus all total sixty-three are resulted.<sup>42</sup> Caraka gives details of this combination-scheme<sup>43</sup>. The division of *rasas* was made in compliance with various types of bodily *doṣas* (humours) originated from different combinations of *vāyu*, *pitta* and *kapha* enumerated as sixty-three.<sup>44</sup> This principle of correlation established between *rasas* and bodily *doṣas* is nothing but reflection of the idea of human body as moulded by nature and form the basis of Āyurvedic principle of nature-therapy.

#### **Plant and Rasa:**

Soil and water both contribute to the formation of *rasa* in plant. Suśruta estimates their physical characters in connection with formation of *rasa* in plant. The two fold contributions behind production of *rasa* are narrated thus:

**Soil:** It is a composition of five elements which are divided into six types on the basis of six *rasas* present therein. These *rasas* are stated to have been formed from the preponderance of one or two elements present in soil. Suśruta clearly states comparative preponderance of one or two elements in the elemental composition makes soil endowed with particular *rasa*. Water contained in soil gets absorbed with that particular *rasa*.<sup>45</sup> Six colours of soil, in Āyurvedic thought, represent six *rasas* predominate there. Thus a correlation is made between red and sweet, brown and acid, grey and saline, yellow and pungent, blue and bitter and white and astringent tastes.<sup>46</sup>

**Water:** Atmospheric water causing formation of *rasa* is stated as *avyakta* or having latent taste. In Āyurvedic thought this gets manifested when it comes in

**Table 3: Elements of soil and their effect on water**

Predominant element of soil	Effect on water
Earth principle	Acid and saline
Water principle	Sweet
Fire principle	Bitter and astringent
Air principle	Astringent
Sky principle	No taste as sky is devoid of such quality

(*Suśruta. Sūtra, 45.6*)

contact with soil and is endowed with the properties of particular *rasa* predominated therein. Preponderance of particular element in soil and its effects on water may be arranged in Table 3.

Plants having growth on the soils of above types extract *rasa* from the soil and water contained therein. The plants thus germinated are endowed with *rasas* (*Suśruta, Sūtra, 36. 12: gandha- varṇa- rasopeta ṣaḍvidha bhūmiriṣyate tasmādbhūmisvabhāvena bījinaḥ ṣaḍrasayutaḥ*). Soil having the constitution of five elements implied by smell, colour, water, etc. is of six types. Endowed with nature of soil the plants are endowed with six *rasas*). The herbo-medical experts categorized the plants into different *vargas* and specified their major medicinal values and applications. Interestingly all the six *rasas*, though not in major portion but as smaller part are mixed with the principal *rasa* in the plant. Caraka thus divides astringent group of plants into five divisions, like, *madhura- kaṣāya* (sweet- astringent), *amla- kaṣāya*(acid-astringent), *kaṭu-kaṣāya* (pungent-astringent), *tikta-kaṣāya* (bitter-astringent) and *kaṣāya-kaṣāya* ( astringent-astringent)<sup>47</sup>. This classification seems to have been made on the principle of identifying plants having principal *rasa* other than *kaṣāya*.

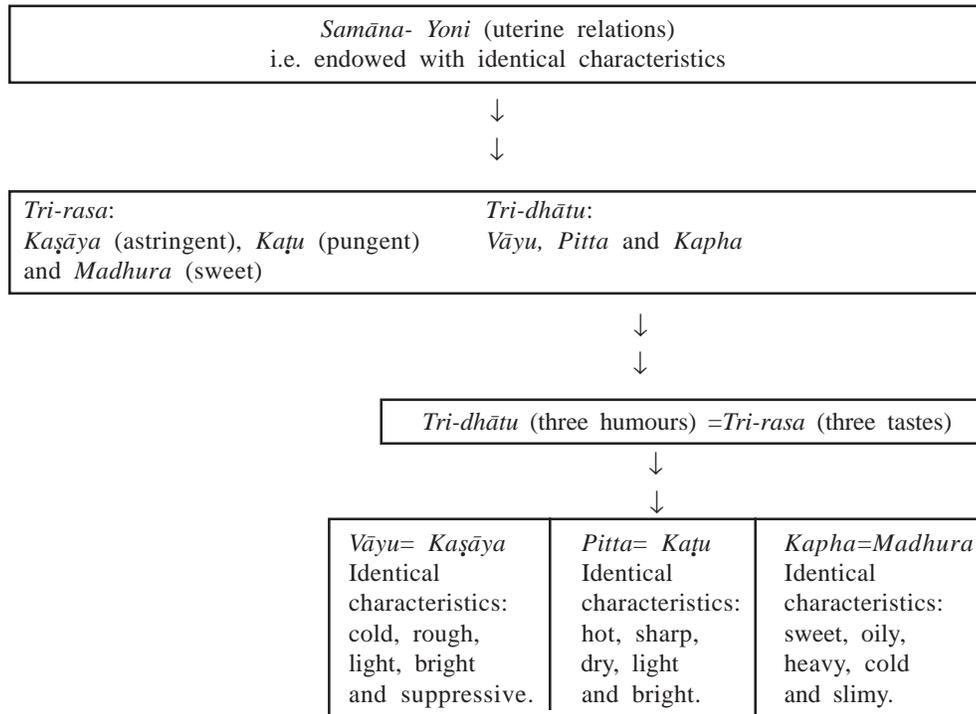
#### **Rasa-Man relationship:**

*Rasa-man* relationship is the culminating point of two preceding correlation schemes between world and *rasa* connected by the two same principles, *agni* (fire representing heat) and *soma* (water representing cold). World is constituted by these two principles. These two are combined with *rasas* as their two-fold temperaments, *āgneya* and *saumya*, indicative of hot and cold temperaments.

*Rasas*’ inner relationships with man are focused through their correlations with three humours (Table 4). The base of affinity lies in their similar physical properties. In Āyurvedic idea three *rasas* — astringent, pungent and sweet correspond to three humours *vāyu*, *pitta* and *kapha* respectively. The properties of coldness, dryness, lightness, brightness and restraint are attributed to *vāyu*. These are in consonance with those of *kaṣāya* or astringent. Heat, sharpness, dryness, lightness and brightness are the specific properties of *pitta* and also of the *rasa*, *kaṭu* (pungent). Sweetness, oiliness, heaviness, coldness and sliminess pertain to *kapha*. The same properties are found in *madhura* (sweet).<sup>48</sup>

The agreeability and non-agreeability of the *rasas* to the humours depend on their proper applications. According to Suśruta, aggravation of humours is strengthened by identical properties between particular *rasa* and humour, but the reverse lessens it.<sup>49</sup>

**Table 4: Nature-Man Relationship: Rasa linkage**



### III

#### ECO-SYSTEMS AND MAN

Man, according to Āyurveda, is naturalized to his surroundings and to several habits of life. These do not produce any injurious effect on his health, though naturally unwholesome to others.<sup>50</sup> *Deśa* or geographical zone is given premier position as it particularizes the land characters, climatic conditions, floras and faunas, etc. to which an individual is grown and inherits particular body constitution. In Āyurvedic tradition knowledge about patient's birth place, place where he had grown up, place of diseased condition, was essential for correct diagnosis and cure of disease.<sup>51</sup> Regarding body constitution primary importance is given to bodily humours which mark the body type. Humours we have discussed before are the bodily transformations of three cosmic bodies, *Vāyu*, *Agni* and *Ap*. Obviously soil composition predominated by one single element or more than one element affects man's bodily humours (*vāta*, *pitta* and *kapha*). Territorial division with *Agni*-predominating feature of land makes man *pitta*-type. Likewise water predomination in soil character makes man *kapha*-type. *Vāyu* is common element, so its equal predomination is recognized in all the three eco- systems.

Not only human constitution, animal groups are also found having similar body type with identical humoral preponderance. In *jāṅgala* eco- system man is *vāta* – *pitta* type. The same constitution is shown among the three animal groups in the same *jāṅgala* category. Obviously flesh of these animal groups was thought compatible to man inhabiting that geographical zone.<sup>52</sup>

The three eco- systems, *jāṅgala*, *ānūpa* and *sādhāraṇa* are the three divisions made on land character. Āyurvedic naturalists-cum-physicians were silent about their locations. Dallanācārya in his commentary on the *Suśruta Saṃhitā* referred them as three big geographical divisions, western, eastern and central India.<sup>53</sup> *Jāṅgala*, in modern interpretation indicates “a semi-arid savana of grasses and intermittent low trees that was considered the ideal terrain for pastoralism and light agriculture, human settlement, ritual activity and indeed somatic health.”<sup>54</sup> To some extent this interpretation especially somatic health is identical with the statement of Vāgbhaṭa in the *Aṣṭāṅga-Hṛdaya*.<sup>55</sup> Regarding physical character a more or less identical idea is found in the Caraka on *jāṅgala* as grassy and having young trees.<sup>56</sup> The essential land characters of the three eco-systems laid down in the Āyurvedic texts are uniform. But in matter of bio- diversities both Caraka and Suśruta held different views on some aspects. This might be due to non- uniformity



	ii) Climate: gentle, humid and airy	
	iii) Soil: water element predominant; white coloured.	<i>Vāta</i> and <i>kapha</i> body type.
	Plants:- Mixed vegetation: water-side trees, fresh looking, green, glossy; forestry.	Effect on human body: compatible as food article for identical human constitution.
	Animal:- <i>Ānūpa-prāṇi</i> : mostly aquatic and few of land character. Predominated by <i>kapha</i> humour.	
<b>C. Sādhāraṇa (Ordinary terrain): Large Divisional Zone: Central India</b>		
Central part of India.	Land characters- Mixed character of both <i>Jāṅgala</i> and <i>Ānūpa</i> .	Straight and graceful; display also mixed appearance.
	i) Soil: endowed with the attributes of five elements.	Balanced body-humours ( <i>vāyu</i> , <i>pitta</i> and <i>kapha</i> ).
	ii) Climate: moderate in all climatic conditions.	

\*Sources: *Caraka, Kalpa* 1.8-9; *Suśruta, Sūtra* 35.42, 36.4, 45.21; *Aṣṭāṅga Hṛdayam Sūtra* 1.23, 6.54; *Śārīra* 3.79

In all the three eco-systems nature-man relations are very explicit.

### CONCLUDING REMARKS

Natural harmonies between nature and man are reflected variously in Āyurveda. These are pointed out in the above discussion. The principal findings are: i) five elements, the five forces of nature, consisting of *ākāśa*, *vāyu*, *teja*, *ap* and *pṛthivī* are the base of this harmony; ii) elements of opposite properties, like, *agni* (hot) and *soma* (cold) are conceived as the womb of creation of the world as well as of human body in forms of female ovarian blood and male sperm respectively. Their predominance permeates even to vegetable kingdom with particular reference to *rasa*, the soul of plant and the principal agent of harmony between nature and man. In the entire discussion two types of relationship are shown, direct where five elements are directly involved and indirect where it is through intermediaries. In this matter there occurs tri- relationship revealed in soil-*rasa*- man correlations. Āyurveda however is not stopped here but has made also a correlation scheme between the land physique of the three eco- systems and human body types i.e. humoral predominance. Territorial influence on human

constitution was counted much for correct diagnosis of disease and proper treatment of the patient.

#### REFERENCES AND NOTES

1. Rao, K.L. Sheshagiri, "The five great element (*Pañcamahābhūta*) : An ecological perspective" in : *Hinduism and Ecology*, (Edited) by Christopher Key Chapple and Mary Evelyn Tucker, Oxford University Press New Delhi, 2001, p. 281
2. *Suśruta Saṃhitā*, Edited with the commentary of Dallanācārya by Jadavji Tricumji Acharya, Chowkhamba Orientalia, Delhi, 1980 ( Fourth Edition Reprinted), *Śārīra* 1.4
3. *Caraka Saṃhitā* Edited with English Translation by P. V. Sharma, Chowkhamba Orientalia, Delhi, 1981 *Sūtra* 8.2.
4. *Suśruta Saṃhitā*, *Śārīra* 3.1.
5. *Ibid* I. 21; B. N. Seal, *.Positive Sciences of Ancient Hindus*, (Reprinted) Motilal Banarasidass, Delhi, 1991, p. 56.
6. *Suśruta*, *Sūtra* 42.3
7. D. S. Gaur and L. P. Gupta "Pañcabhūta with special reference to Āyurveda", *IJHS* 5.1 (1970) 51-67, 65-66 .
8. *Suśruta*, *Śārīra*, 1.20
9. Dallanācārya on *Suśruta*, *Śārīra* 1.20
10. *Caraka*, *Śārīra* 4. 36- 41; *Suśruta*, *Śārīra*, 11.18-19
11. *Suśruta*, *Śārīra* 46.526; Kunjalal Bhisagratna, Translation of *Suśruta Saṃhitā* vol.I p. 569. " Five elemental heat" implies on all probability the " fire" elemental molecules present in all the four in addition to fire element-:
12. *Aṣṭāṅga- Hṛdaya* of Vāgbhaṭa, Edited by A.Kunte with commentary of *Sarvāṅgasundarī*, Bombay,1891, *Śārīra*, 3.59-60
13. *Caraka*, *Sūtra* 1.48
14. B.N. Seal, *Positive Sciences of Ancient Hindus*, (Reprinted) Motilal Banarasidass, Delhi, 1991, pp. 96-97
15. *Suśruta*, *Sūtra* 42.7
16. *Ibid*, *Śārīra* 3.3
17. *Ibid*
18. *Caraka*, *Śārīra*, 5.3-5
19. *Ibid*, 4. 23-27

20. *Suśruta, Śārīra*, 2.35
21. S.N. Dasgupta, *A History of Indian Philosophy*, Vol.2. Motilal Banarasidass, New Delhi, 1975 ( Reprinted) p.315
22. *Caraka, Sūtra Śārīra*, 4.13
23. *Suśruta, Sūtra*, 21.3
24. *Ibid*, 21.8
25. *Ibid*, 21.9
26. *Ibid*, 15.4
27. *Caraka, Vimāna*, 8.94
28. *Suśruta, Sūtra*, 40.16
29. *Caraka, Sūtra*, 26.13; *Suśruta, Sūtra*, 36.13
30. *Caraka, Sūtra*, 26.39
31. *Suśruta, Sūtra*, 40.3
32. *Caraka, Sūtra*, 1.64
33. *Ibid*, 26.43
34. *Suśruta, Sūtra*, 42.7
35. *Caraka, Sūtra*, 26.8
36. *Ibid*
37. *Ibid*, 26.9
38. *Ibid*, 26.14, 40
39. *Ibid*, 6.5-7
40. *Ibid*, 26.42
41. S.N. Dasgupta, p. 360
42. *Suśruta, Sūtra*, 42.12
43. *Caraka, Sūtra*, 26.14- 22
44. *Suśruta, Uttarantra*, 62.3-4
45. *Ibid, Sūtra*, 45.6
46. *Ibid*, 45.5
47. *Caraka, Sūtra*, 4.6
48. *Suśruta, Sūtra*, 42.7-8

49. *Ibid*, 42.6
50. *Suśruta, Sūtra*, 35.39
51. *Caraka, Vimāna*, 8.92-93
52. *Aṣṭāṅga- Hṛdaya*, 6.54
53. Dallanācārya on *Sūtra*, 45.21
54. Lutgenderf, Philip “City, Forest, and Cosmos: Ecological perspectives from the Sanskrit Epics” in *Hinduism and Ecology* (Edited) by Christopher Key Chapple and Mary Evelyn Tucker. Oxford University Press, New Delhi, 2001, p. 282
55. *Aṣṭāṅga- Hṛdaya, Śārīra*, 3.79
56. *Caraka, Kalpa* 1.8-9