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## **Sushruta Contribution for Environmental Purification with Special Reference to Cumulative Poison and Epidemics**

*Sejal Gadhavi<sup>1\*</sup>, Vidhi Bapna Kumath<sup>2</sup>*

*<sup>1</sup>Final year PG Scholar, <sup>2</sup>Professor and Head of the Department,  
PG Dept.of Dravyaguna, J.S.Ayurveda Mahavidhyalaya, Nadiad, (Gujarat) India*

**\*Corresponding Author**

Email Id: sejalgadhvi101@gmail.com

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### **ABSTRACT**

*Ayurveda is a holistic science of life that focuses on disease prevention and health promotion, by following the proper regimen. Dincharya, Ritucharya, and Janpadodhvansa are terms used by our Acharyas to describe environmental health in Ayurveda. Environmental pollution is a major problem these days. Pollution degrades the natural elements that sustain life on Earth, such as land, air and water. Animals and plants, including humans, cannot survive in the absence of unfavourable environment. Pollution in the country has reached to such an alarming level that every substance what we consume, use in our day-to-day life has proven to show its cumulative toxic effect in our future lives. Pollutants such as dust, gases, metals, and chemicals accumulate in our bodies and act similarly to Dushi visha. Ayurveda treasure of divine plants that combat against environmental pollutants and sanitization methods that are adopted in using rationally proven on scientific grounds. Herbs like Tulsi (*Ocimum tenuiflorum* L.), a common and sacred plant, absorbs pollutants. Similarly, the smoke produced by the combustion of drugs such as Laksha (*Laccifer lacca*), Haridra (*Curcma longa* L.), and Ativisha (*Aconitum heterophyllum* Wall), and Haritaki (*Terminalia chebula* Retz.) has also been shown to clean toxic air. Shobhanjan mooladi agad can be used to treat people who have been exposed to this type of pollution. Acharya Sushruta also mentioned the various purification method of Jala, Desha, Vayu. Sushruta indicating Aushadhi dravyas of Aaragvadhadi, Rodhradi, Arkadi, etc ganas have anti-poisoning effect.*

**Keywords:** *Environmental pollution, Janpadodhvansa, Dushi visha, Jala, Vayu, Desha, Kala.*

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### **INTRODUCTION**

Health is defined as a dynamic state of equilibrium between man and his environment, whereas disease is defined as an antagonized of human organisms to their environment. Hippocrates was the first to link disease to environmental factors such as climate, water, and air quality. It is a well-known fact that the environment has a direct impact on the physical, mental, and social well-being of those who live in it. Environmental factors include housing, water supply, psychosocial stress, and family structure, as well as the organization of health and social welfare services in the community. Natural disasters, such as epidemics and pandemic diseases, are described in *Ayurveda* as *Janapadodhvansa*. Such diseases, which have similar signs and symptoms shall affect many people in a town or state at the same time, are known as *Janapadodhvansa*. The concept of *Dushi visha* is Pollutants that we are exposed to on a regular basis accumulate in our bodies and cause pathogenic conditions such as allergic skin disorders, asthma, hair loss, oligospermia, cardiac problems, neurological disorders, and so on, which are similar to *Dushi visha* complications. *Dushi visha* is a poison whether it be animal, vegetable, or chemical, not completely expelled from the system and partially inherent there in, weakened by anti-poisonous medicines. *Acharya Sushruta* also mentioned the various purification methods of *Jala, Desha, Vayu*. indicating the use of

*Aushadha ganas* like *Aaragvadhadi*, *Rodhradi*, *Arkadi*, *Eladi*, *Shyamadi*, *Patoladi*, *Anjanadi*, *Utpaladi*, *Trapvadi* in poisoning condition [1].

## MATERIALS AND METHODS

### Review of Literature

- *Acharya Sushruta* has termed *Janapadodhvansa* as *Maraka* (destroying condition) and emphasised the utilisation of *Aushadha* (herbs) and *Jala* (water) that are to be collected before the onset of *Maraka* [2].
- *Pragyaparadha* is said to be the root cause of *Adharma* (delinquency of wisdom), *Asatmyendriyarthasamyoga*, *Pragyaparadha*, and *Parinama* have been identified as the primary causes of disease development. According to *Acharya Sushruta*, the reason for the change in *Maraka* is *Adrishta* (invisible or idiopathic). *Dalhana* goes on to explain that these are caused by the *Adharma* (immorality) of the local population [3].
- *RituVyapad* (seasonal variations) can also be caused by *Abhishaap* (curse), *Rakshkrodh* (demon resentment), and other factors [4].
- *Acharya Shusruta* (The Father of Surgery) has explained *Aupasargik Rogas*. *Aupasargika diseases* are communicable diseases that spread through direct contact or contaminated objects of patient.  
“प्रसंगाद्वात्रसंस्पर्शानिनश्चासात्सहभोजनात् |  
सहशर्य्यासनाच्चापिवस्त्रमाल्यानुलेपनात्||”
- By direct contact, expired air, eating with others by sharing plates, sharing bed, clothes and cosmetics results in spread of communicable diseases from one person to other [5].
- Here according to *Acharya Dalhana Prasangaat* means excessively and frequently if the above said acts if done and if all four vitiated factors are present viz; *Desha*, *Kaala*, *Vayu*, *Jala* people suffer from these diseases and if provided with appropriate medications that have already been collected and processed.

### 1. Characteristics of polluted Water

Poisoned or polluted water becomes *picchila* with *ugragandhi*, *fenavat* and *rajibhiravritta*. frogs and fishes (living therein) die while the coastal (*Aanup*) birds roam about intoxicated. Those men, horses and elephants who dip into it suffer from *chardi*, *moha*, *jwara*, *daha* and *sopha* [6].

### Purification of Water

*Dhava*, *asvakarna*, *asana paribhadra*, *patala siddhaka*, *moksaka aragvadh* and *somavalka* (*katphala*)-these should be burnt and prepared ash should be sprayed in the lake. Drinking water kept in a pitcher may also be purified by putting the ash in quantity of one *anjali* (160 gm) [7].

### 2. Characteristics of polluted soil

Land surface of the stony platform, river bank, or desert if are polluted or poisoned cows, horses, elephants, camels, asses or men who come in their contact shows oedema, burning sensation and falling of hairs and nails [8].

### Purification of Soil

For this, *Ananta* mixed with all aromatics should be pounded with wine and the passage should be irrigated therewith. Similarly, irrigation may be performed with milk mixed with black soil or decoction of *vidanga*, *patha* and *katabhi* [9].

### 3. Characteristics of polluted Air

If smoke or air is polluted or poisoned, birds get exhausted and fall on the ground resulting in cough, coryza, headache, and acute eye diseases [10].

#### Purification of Air

*Laksha, haridra, ativisha, ushira, musta, harenuka, ela, patra, tagara, kustha and priyangu*-these should be put on fire and fumigated, purifies smoke and air [11].

- *Panchakarma* and proper administration of *Rasayana* therapies are recommended for effective management of *Janapadodhvansa*. (Communicable diseases). Treatment of Person who is Suffering from Epidemics (*Janapadodhvansa*) is given below.

### IMPORTANCE OF RASAYANA

The *Rasayana* mentioned in *Ayurveda* are used in clinical practice to boost immunity.

- 1) *Ayurveda* states the use of *Ashwagandha* (*Withania somnifera*), *Guduchi* (*Tinospora cordifolia*), *Shatavari* (*Asparagus racemosus*), *Amalaki* (*Phyllanthus embelica*), and *Yashtimadhu* (*Glyceriza glabra*) as potential immunomodulators which are well established by our research findings.
- 2) According to *Sushruta*, *Rasayanatantra* includes various steps that delay the ageing process, increase longevity and intelligence, and provide disease resistance power to the individual [12].
- 3) As per *Sushruta*, *Naimittika Rasayana* is disease specific. It possesses *Vyadhi Harana* property.
- 4) Few *Naimittika Rasayana* explained in different classics involves.
  - *Amrutha Bhallataka Rasayana - Rasavaha Srotas*
  - *Madhu Snuhi Rasayana - Rakta Vaha Srotas*
  - *Khadira, Bakuchi* in *Kusta* (skin disorders)
  - *Bhringaraja, Katuki* in *Yakrut Vikara* (liver disorders)

### Dhupana Karma (Fumigation)

In *Sushruta Samhita*, *Rakshoghna Dravyas* are like *Sarsapa, Nimba, Lavana* with *Ghrita* used for fumigation twice a day for 10 days reduces Microbes [13].

### Shabda Agada Chikitsa (Sound Therapy)

According to *Acharya Sushruta*, if food is contaminated with poison, various symptoms arise as a result of the poison, and to treat them, different pastes are applied to various types of instruments and sound is produced from them [14].

### Nasya

- 1) *Ayurveda* suggests applying medicated oils to the nostrils, such as *anu Taila* and *shadbindu taila*.
- 2) This may prevent pathogens from entering the respiratory tract. *Ayurveda* thoroughly describes this procedure, known as *nasya*.
- 3) Pure sesame oil was found to be effective in treating dry nasal mucosa.
- 4) *Kavala* and *Gandusha*, by using *taila* may form a biofilm and serve as a barrier for entry of virus.

## Other Treatments

- Due to pollution various condition like Nasal and throat congestion, bronchoconstriction, headaches, and sinusitis can all be successfully treated clinically with steam inhalation and hot fomentation (with aromatic oils like menthol).
- Several clinical studies have reported on its function in enhancing nasal conditioning, enhancing nasal mucus velocity, and lowering congestion and irritation.
- *Ayurveda* promotes a number of non-pharmacological practices that are essential to overall health, including as yoga, meditation, food, sleep, and mental calm. *Pranayama* (Yoga breathing practises), *asanas* (postures), and *yogic kriya* procedures have been shown to improve lung health and exercise tolerance in numerous studies.
- **Diet** - Fresh, hot soups of vegetables (such as radish, trigonella leaves, drumstick vegetable pods), pulses (such as lentils, green gram/mung beans, and chickpeas), and spices (such as *Mulaka*, *Lahsun*, *Ajwain*, and *Sharshapa*) are all part of the suggested daily diet (*Brassica nigra*).

- 1) **Concept of Dushi Visha:** Dushi visa is so named because it frequently vitiates dhatus by being excited by place, time, food, and day-sleep [15].
- 2) **Characteristics of Dushi Visha:** Poison which is old (stored for a long time), attenuated by anti-poisonous remedies, dried in forest fire, wind, and sun, or is naturally deficient in properties takes on the nature of 'dushi visha.' It is not fatal due to its low potency and the fact that it is covered in kapha; it remains in the body for many years [16].
- 3) **Poorvarupa of DushiVisha:** Excessive sleep, heaviness, excessive yawning, looseness, horripilation, and body ache are premonitory symptoms of Dushi visha [17].
- 4) **Lakshana of Person who Suffering from Dushi visha:**Dushi visa is characterised by abnormally coloured liquid stool, a foul odour and tastelessness in the mouth, thirst, fainting, vomiting, muffled voice, and symptoms of toxicity and Dusyodara. If it is located in the stomach, the person suffers from kapha and vata disorders, and if it is located in the intestines.The person suffers from vata and pitta disorders. Hair fall, skeletal deformity, and the person resembles a bird with severed wings, for example, if it resides in rasa dhatu it causes the disorders of dhatus. It is quickly aggravated by cold, wind, and bad weather[18].
- 5) **Function of Dushi Visha:** Intoxication after eating, indigestion, anorexia, patches, allergic rashes, mental confusion, dhatus depletion, oedema in feet, hands, and face; ascites, vomiting, diarrhoea, discoloration, fainting, intermittent fever, or severe thirst; some causes insanity, another causes hardness of bowels, another causes semen depletion, another causes muffled voice, and another causes kustha[19].
- 6) **Treatment of Dushi Visha:** Swedana, Shodhana and Agada Pana, Dushi vishari agada contains pippali, dhyamaka (kattrna), mamsi, sabara (rodhra), paripelava, suvarcika, suksma ela, balaka, and svarna gairika-mixed with honey. It is referred to as 'Dusivisari' (enemy of Dusi visha), and it is not restricted (to Dusivisha and is used in other types of poison and diseases as well) [20].
- 7) **Sadhyata – Asadhyata:** Poisoning of immediate origin and in patients of strong will is curable; poisoning of one year's duration is palliable; and Dushi visha is incurable, especially in patients who are emaciated and use unwholesome substances [21].

**Some Aushadhi Gana are also described by Sushruta in which he indicates for visa they are as follows:**

- 1) *Aaragwadhadi gana* – 21drugs
- 2) *Rodhradi gana* – 14drugs
- 3) *Arkadi gana* -13 drugs

- 4) *Eladi gana* – 27drugs
- 5) *Shyamadi gana* – 19 drugs
- 6) *Patoladi gana* – 7drugs
- 7) *Anjanadi gana* – 8drugs
- 8) *Utpaladi gana* – 7 drugs
- 9) *Trapvadi gana* – 7 drugs

## DISCUSSION

By references it is clear that *Acharya Sushruta* had much concern about the environment and given much emphasis to protect it and create better environment conditions for future generations. In this regard *sushruta Samhita chikitsa sthana* deals with all possible methods to purify *Vayu, Bhumi, Jala* by using different methods like *Dhupana, Nasya, Jala shodhana, Rasayana* therapies, *shamana* and *Pathya dravyas* to be consumed to prevent and treat the diseases caused by the effect of this polluted environment around the person. If exposure of this polluted conditions persists for a definite period, it leads to the symptoms of *Dushi Visha* (Cumulative Poison) in the body which needs utmost care and vigorous treatments to overcome the condition. The various purificatory measures mentioned by *sushruta* along with the use of few *Gana dravyas* will potentially detoxify the environmental pollutants without causing harm to the mankind.

## CONCLUSION

- 1) The main aim of *Ayurveda* is prevention of disease in healthy individual and cure of unhealthy one.
- 2) Prevention from *Aupasargika vyadhis* which is considered under *Janapadodvansa*.
- 3) To cure the cumulative poison by *Dushivishari agada* and other treatments like *Panchakarma, rasayana, Dhupana* and *shabda agada chikitsa* may effectively prevent and manage during epidemic and pandemic conditions.

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