



ISSN 2456-3110

Vol 6 · Issue 3

May-June 2021

Journal of  
**Ayurveda and Integrated  
Medical Sciences**

*www.jaims.in*

JAIMS

An International Journal for Researches in Ayurveda and Allied Sciences



**Maharshi Charaka**  
Ayurveda

Indexed

# Concept of environmental pollution and its management in Ayurveda

Dr. Umesh Dattatraya Shirsath<sup>1</sup>, Dr. Vinod Kashiramji Badole<sup>2</sup>

<sup>1</sup>Associate professor, Dept. of Agadtantra, PMT's Ayurved College, Shevgaon, Maharashtra, India.

<sup>2</sup>Associate professor, Dept. of Kayachikitsa, MS Ayurvedic Medical College Hospital and Research Institute, Kudwa Gondia, Maharashtra, India.

## ABSTRACT

In current era environmental pollution is a major treat and is one of the greatest problems that the whole world is facing. The term pollution is presence of offensive matter in environment. This offensive matter is nothing but the presence of various pollutants in the surrounding environment. It involves five basic types of pollution air, water, soil, noise, light. Pollutants are components of pollution; they may be either foreign substances or naturally occurring contaminants. Pollutants are a waste matter that pollutes soil, water and air. The harmful chemicals became an integral part of our life. The harmful chemical causes damages to our body as well as our environment. As it has a negative effect on natural elements this Pollution must be taken seriously. Through maintenance of *Dincharaya*, *Rutucharya*, *Sadvritta*, person's physical and mental health is secured.

**Key words:** Pollution, Pollutants, Environment, Chemicals.

## INTRODUCTION

Because of improper diet, lack of exercise, stress, low quality of food grains & global warming overall health status of individuals is poor & they are getting easily prone to communicable diseases. H1N1 influenza, Ebola is the recent examples. Ayurveda though an ancient medical science has clearly described such communicable diseases & their cause, mode of transmission, prevention as well as cure. *Charak* has quoted *Janapadodhwansa*, (mass destruction) & its 4 reasons *Asdushitavayu* (Air), *Jala* (Water), *Kala* (time), *Desha* (region). *Sushrut* has already mentioned

*Aupsargikarogas* (communicable diseases) i.e., *Kushtha* (Skin diseases), *Jwara* (Fever) etc. & their mode of transmission. Due to advancement of science and research life span of human being has been increased but simultaneously threat of communicable disease is increasing day by day. Communicable disease spread from person to another or from an animal to a person. The spread often happens via air borne viruses or bacteria, but also through blood or other bodily fluids. It may also spread easily due to large population, crowd, unhygienic conditions and low immunological status of individual. H1N1 Influenza, Ebola virus are the recent example of such diseases. Because of its contagious nature, a large number of individuals are getting infected at the same time thus creating great strain over public health. During war, king and his military should be careful as the enemies may divert path, road, water to drink, shade, food, drink fuels and their food etc.<sup>[1]</sup>

In *Kalpasthna*- king when entering the kingdom should examine the- Grass, Water, Path, Food, Smoke, and Air And so on, which may be poisoned by enemies. He described vitiation method and method of purifying them.

### Address for correspondence:

Dr. Umesh Dattatraya Shirsath

Associate professor, Dept. of Agadtantra, PMT's Ayurved College, Shevgaon, Maharashtra, India.

E-mail: amritabaidya91@gmail.com

Submission Date: 19/05/2021

Accepted Date: 21/06/2021

### Access this article online

Quick Response Code



Website: [www.jaims.in](http://www.jaims.in)

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## MATERIALS AND METHODS

### Lakshana of Vitiated Land

- Loss in natural odour, colour and texture
- Excessively slimy
- Invaded by predators
- Overgrowth of grass
- Dead plants and Dried habitat
- Contaminated air with smoke and blowing with sound
- Birds flying around, barking of dogs and many animals around Quotes in Sushruta
- Whoever touches such land may have edema and burning sensation
- There may be loss of hair and nails<sup>[2]</sup>

### Treatment of vitiated land

- Charak tells the treatment in common for all vitiated water, land, country side and time
- “Their ultimate treatment is Panchkarma
- Use of rejuvenation therapy and observance of behavioral rules plays an important role in management of diseases caused by *Visha*.<sup>[3]</sup>
- Sushruta tells the management in different way
- They should be sprinkled with paste of *Aruna* , *Sugandhatraya*,
- Also milk mixed with soil is to be sprinkled over road <sup>[4]</sup>
- Root of vittiver, drumstik and soma are to be mixed with little amount of curds and it is administered to all
- The urine, flesh and blood of goat, sheep and elephant all the fragment drug are to be boiled well in water and spread all over poisoned land.

### Vitiated Water Lakshna

- The vitiated water will possess abnormal odour, colour, taste touch and appearance and kleda .It will abandoned by aquatic animal. It will possess

no taste at all and it is causing a version for drinking

- It will possess warm and insect
- Will vitiated by fecal matter, urine dead and decayed animal.
- The animal bathing in it may develop vomiting, confusion
- Fever, edema and burning sensation<sup>[5]</sup>

### Treatment of Vitiated Water

- *Katak, Gomedak, Bisgranthi, Shaiwalmul, Wastra, Muktamani* <sup>[6]</sup>
- *Dhava, Ashwakarna, Asan, Paribhadra, Patala, Sidhak, Mokshak, Rajdrum and Somawalka* etc
- *Shigruwadi Agad* to drink
- Burnt ash of *Ajashrunji, Vishala, Vishaghni* dissolved in water and filtered

### Vitiated Air Lakshna

- One flowing in other direction than its normal course in particular session
- No air movement, excessively stormy, very cold-hot
- Hitting each other and attaining vortex (*Kundaliniakruti*) shape
- Possessing bad odour, moist with sand particle, dust and smoke associated <sup>[7]</sup>
- Cough, cold, head and eye diseases <sup>[8]</sup>
- Birds fly difficulty in air

### Treatment of Air

- *Dhupan Karma: Laksha, Haridra, Ativisha, Abhaya, Ela, Kushtha, Priyangu* etc. are to be done for purification of air
- *Shigruwadi Agada*: Fine powder of *Devdar, Arjuna, Lodhra* are to be sprinkled over top of tree, flag post etc by coming contact with everywhere poisoned air become detoxified

## Pollution

- Developmental activities such as construction, transportation and manufacturing not only deplete the natural sources but also produce large amount of waste that lead to pollution of air, water, soil and ocean and global warming and acid rains.
- Untreated or improperly waste is a major cause of pollution of river and environment. Degradation causing ill health and loss of crop productivity.
- Pollution may be defined as addition of undesirable material into the environment as a result of human activities.
- A pollutant may be defined as physical, chemical or biological substance, unintentionally released into the environment which is directly or indirectly harmful to human and other living organisms.

## Types of Pollution

- Air pollution
- Noise pollution
- Water pollution
- Soil pollution
- Radiational pollution

## Air Pollution

- Air pollution is a result of industrial and certain domestic activities. An ever increasing use of fossil fuels in power plants, industries etc.
- Air pollution may be defined as any solid, liquid and gaseous substance including noise and radioactive substance in atmosphere in such a concentration that may be directly or indirectly injurious to human and other organisms, plants or interferes with normal environmental process

## Effects of Air Pollution on Human Body

### Suspended particulate matter (SPM)

- Reduces sunlight and visibility
- Increases corrosion

- Pneumoconiosis
- Asthma
- Cancer
- Other lung disease.

## Gaseous pollutant

- Carbon compound: Respiratory problem, Greenhouse effect
- Nitrogenous compound: Irritation in eyes and lungs
- Hydrocarbon: Respiratory problem, cancer causing properties
- Fiber: Lung disorder

## Prevention Control of Air Pollution

- Industrial : LNG power plant
- Filters: Remove particulate matter from gaseous stream
- Electrostatic Precipitators: Used in boilers, furnaces and many other units of thermal plants.
- Inertial collectors
- Scrubber: Remove aerosols from stream of gases

## Effects of Water Pollution on Body

- Pollution of water bodies by mercury causes Minamata disease in human and DROPSY in fishes. Lead causes DISPLEXIA; cadmium causes ITAI-ITAI disease etc.
- Oil pollution of sea kills marine birds and adversely affects other marine life and beaches.
- Pollution due to pesticides and inorganic chemicals may enter in the food chain. Metals like lead, zinc, arsenic and cadmium adversely affects humans and animals causing skin lesions, rough skin, dry and thickening of skin and skin cancer

## Methods of controlling water pollution

- Proper treatment of Sewage water by sedimentation, coagulation, filtration, disinfection, softening and aeration

- Water recycling after treatment should be practiced to the maximum extent possible
- The quantity of waste water discharge should be minimized
- Altering the techniques used

#### Soil Pollution

- Addition of the substances which adversely affects the pollution of soil and its fertility is called soil pollution. Plastics, cloth, glass, metals and organic matter, sewage, building debris etc. causes soil pollution.
- Sources of soil pollution are plastic bags, industrial sources, agricultural sources.

#### Control of Soil Pollution

- Indiscriminate disposal of solid waste should be avoided.
- Stop the use of plastic bags.
- Sewage should be treated properly.
- Organic matter from domestic, agriculture and other waste should be segregated and Vermicomposted.
- Industrial waste should be properly treated to remove hazardous materials.
- Biomedical waste should be separately collected and incinerated properly.

#### Radiation Pollution

- Radiation is a form of energy travelling through space. The radiation emanating from the decay of nucleoids are major sources of radiation pollution
- There are two types of radiation pollution
  - Non-ionizing radiation pollution
  - Ionizing radiation pollution

#### CONCLUSION

Due to advancement of science and research life span of human being has been increased but simultaneously threat of communicable disease is increasing day by day. Ayurveda though being an

ancient life science clearly mentions about such disease conditions. A detailed chapter on *Janapadodhwans* in *Charak Samhita Vimansthan 3rd Adhyaya* explains epidemic disease and its etiological factors. In *Sushrut Samhita Kushthanidanadhyay* there is a good description on mode of transfer of disease. They are called *Aupasargikrogas* (Communicable diseases). From these references we come to know that in ancient time also there were such epidemics. A detailed regimen for such diseases is also described in *Charak Samhita* as use of *Panchakarma* and *Rasayana* along with *Sadvrittapanan*. *Charak Samhita Vimansthan 3<sup>rd</sup> Adhyaya Acharya Charak* has described the term *Janapadodhwans* meaning destruction of a population living in an area. It is similar with epidemics. People having different *Prakruti, Sarata* and *Aahar* but some factors like air, region are common to them and vitiation of these factors leads to disease production and death which is termed *Asjanapadodhwans*. *Janapadodhwans* occurs due to vitiation of *Vayu, Jala, Desh, Kala*. They are nothing but modes by which infectious diseases spread. *Aacharya Charaka* has mentioned *Adharma* as the root cause of *Janapadodhwans*.

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**How to cite this article:** Dr. Umesh Dattatraya Shirsath, Dr. Vinod Kashiramji Badole. Concept of environmental pollution and its management in Ayurveda. J Ayurveda Integr Med Sci 2021;3:149-153.

**Source of Support:** Nil, **Conflict of Interest:** None declared.

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