



Review Article

Volume 13 Issue 2

Feb 2024

## WATER POLLUTION IN THE CONCEPT OF VIṢA

**\*Raseena VP<sup>1</sup> and Dr Asha KV<sup>2</sup>**

<sup>1</sup>Final year PG scholar, Department of Agad tantra, VPSV Ayurveda College, Kottakkal

<sup>2</sup>Dr Asha KV, Former HOD, Department of Agad tantra, VPSV Ayurveda College, Kottakkal

Corresponding Author's Email ID: raseenayasar7@gmail.com

### Abstract

Water pollution, typically as a consequence of human activities, is the contamination of water bodies. Right to access water is a basic human right according to Indian Constitution under Article 21. Contaminants found in groundwater cover a broad range of physical, inorganic chemical, organic chemical, bacteriological, and radioactive parameters. Principally, many of the same pollutants that play a role in surface water pollution may also be found in polluted groundwater. Life of a human cannot be sustained with polluted water since it causes poisoning and diseases. Poisoned water will be slimy, possesses strong odor and froth and has lines on their surface. Which produce symptoms like Swelling, *Pāṇdu roga*, Skin diseases, Indigestion, *Gulma*, *Dāha* etc.

**Key words:** water pollution, contaminants, skin disease

### Introduction

Water pollution occurs when harmful substances, often chemicals or microorganisms contaminate a stream, river, lake, ocean, aquifer, or other body of water, degrading water quality and rendering it toxic to humans or the environment.<sup>1</sup> Water pollution in India is a major problem in recent years due to industrialization and urbanization.<sup>2</sup> Groundwater is the major source of drinking water in both urban and rural

areas. Ground water is particularly important as it accounts for about 88% safe drinking water in rural areas.<sup>3</sup> Waterborne diseases are those diseases that are transmitted through the direct drinking of contaminated water with human or animal excreta. Contaminated drinking water when used in the preparation of food can be the source of food borne disease through consumption of the same microorganisms. Most waterborne diseases are characterized by diarrhoea, which involves excessive stooling, often resulting to dehydration and possibly death. Approximately 4 billion cases of diarrhoea reported each year cause at least 1.8 million deaths with 90% of the cases being children under the age of five years. Waterborne disease can be caused by protozoa, viruses, bacteria, and intestinal parasites include Cholera, Amoebic dysentery, Bacillary dysentery, Cryptosporidiosis, Typhoid, Giardiasis, Paratyphoid, Salmonellosis, Campylobacter enteritis, Rotavirus diarrhoea, E. coli diarrhoea, Hepatitis A, Leptospirosis and Poliomyelitis<sup>4</sup>.

It has been found that in many parts of the world, ground water become contaminated with heavy metals such as zinc, lead and copper as a result of mining and associated activities. Exposure to heavy metals has been linked to developmental retardation, various cancers, kidney damage and even death in instances of very high exposure<sup>5</sup>. Standard desirable limit of water quality parameters in drinking water prescribed by different agencies, such as ICMR, BIS, WHO<sup>3</sup>. The primary purpose of the Guidelines for Drinking-water Quality is the protection of public health<sup>6</sup>.

In Ayurveda the concept of visha jushta jala comes under the purview of janadodwamsaneeya, mentioned under *Caraka Samhita Vimana sthana*. In susruta Samhita Samhita kalpa sthana under jangama visha vinjaneeyam. In *Kriyākoumudi* comes under *Sthāvara viṣa prakaranam*. And in Ashtanga Sangraha Sutrasthana in Annaraksha Vidhi Adhyaya

### **Water- An Ayurvedic view**

Water is considered to be *Jīva* (life) in Ayurvedic concepts. It is madhura, śīta la and *rucikāraka*. It relieves *dāha, moha, bhrama*. Water helps to relives *nidra, ālasya, viṣa*. It provides *trpti, budhi, bala, vīrya, tuṣṭi, puṣṭi* to debilitated parts of the body. Also, water is wholesome as it has all the six Rasa.<sup>7</sup>

*Aṣṭāṅga Sangraha* described the importance of water as Water is the sustainer of whole living beings and the entire world is full of water, so the absolute avoidance of water is impossible. He also mentions that the symptoms like dryness of mouth, weakness of the body etc or even death might result if water is not available; without water there is no activity in both the healthy and sick persons.<sup>8</sup>

### **Examination of Pure water**

The pure water is termed as gangetic jala according to *Āchārya Vāgbhaṭa*. Acharya has mentioned a method to measure purification of this water. A lump of cooked *śāli* rice, of actual color not having any abnormality in consistency or colour is added to a silver utensil. It should be kept unchanged for a muhurta. If there is no change observed after 1 muhurta, then it is the gangetic water and if its consistency or colour has been changed, then it will be *samudra* or ocean water.<sup>9</sup>

### **Viṣajuṣṭa jala- poisoned water**

According to Ayurveda water is considered as one among the *Pancamahābhūtās* and life of the entire universe. The 5000-year-old classics, of India like *Susruta Samhita*, *Caraka Samhita* etc have analyzed the issues related to water its pollution, causes, effects, its impacts on the body and universe, and the measures to purify the polluted water and also the prevention of water pollution. Even several thousands of years before, the great sages of India had mentioned the issue of water pollution, its hazardous effect on health, community and environment and the measures to purify them.<sup>10</sup>

According to *Susruta*, Poisoned water will be slimy, possesses strong odor and froth and has lines on their surface; frogs and fish living in such water die of intoxication; birds living in marshy places fly around intoxicated; men, horse and elephants which immerse in this water will develop vomiting, delusion, fever, burning sensation and swelling. The doṣas which get aggravated in these animals should be eliminated and attempts made to purify the contaminated water.<sup>11</sup>

According to *Vāgbhaṭa*, the waters of the reservoirs which has been poisoned, will have bad taste, slight warmth, full of long streaks and foam, heavy (hard to digest) and

broken up, rejected by the birds and shoals of dead fish floating. It produces pain, swelling and irritation on touch. Rice cooked in that water causes burning sensation immediately after eating, undergoes digestion after a long time, causing burning sensation, producing fainting and fever after digestion and appearance of colors like blue, yellow, brown or red all over the body.<sup>12</sup>

In *Kriyākoumudi*, it is said that the water in Lake, pond etc if polluted causes *ugra gandha*. *Paicchilya*, *phena*, black lines. By intake of this water causes death of animals, birds etc that inhabits in water. Bathing in this water leads to *moham*, *jwara*, *dāha*, *vami*, *śopha*.<sup>13</sup>

*Caraka* mentioned about *viṣa juṣṭa jala janapadodhwamsanīyam*. Water having the following characteristics is considered to be devoid of its normal attributes.<sup>14</sup>

1. Excessive abnormality in smell, colour, taste and touch
2. Excessive stickiness
3. Absence of birds that move in water
4. Reduction in the number of aquatic animals
5. Manifestation of unpleasantness,

#### Characteristics of polluted water

Characteristics	<i>Caraka</i>	<i>Susruta</i>	A.Sam	A.H.	<i>Kriyākoumudi</i>
Muddy		×		×	
Unexposed to sun, air, moon		×	×	×	
Abnormal color	×	×	×		×
Abnormal smell	×	×	×		×
Distaste	×	×	×		
Covered by algae, leaves etc.	×	×	×	×	
Bubbles coming out	×		×	×	×

Presence of faces, urine etc.				×	
Very cold				×	
Sandram	×			×	
Pichilam	×				×
Guru	×				
Ghanam	×			×	×

### Health hazards of impure water

Disease	<i>Susruta</i>	<i>A.sam</i>	<i>Caraka</i>	<i>Kriyākoumudi</i>
Swelling	×		×	×
<i>Pāndu roga</i>	×			
Skin diseases	×	×	×	
Indigestion	×	×		
Dyspnea	×			
Cough	×	×		
Coryza	×			
Colic	×			
<i>Gulma</i>	×			
<i>Udarda</i>	×	×		
<i>Dāha</i>		×		×
<i>Jwara</i>		×		
<i>Mada</i>				×
<i>Bhrānti</i>				×
<i>Moham</i>				×
<i>Cchardi</i>				×

## Discussion

Visha jushta jala comprised of excessive abnormality in smell, colour, taste and touch, excessive stickiness, reduction in the number of aquatic animals, manifestation of unpleasantness. By using this jala manifests the symptoms like *moham*, *jwara*, *dāha*, *vami*, *śopha* etc. These can be compared with Waterborne disease can be caused by protozoa, viruses, bacteria, and intestinal parasites include Cholera, Amoebic dysentery, Bacillary dysentery, Cryptosporidiosis, Typhoid, Giardiasis, Paratyphoid, Salmonellosis, Campylobacter enteritis, Rotavirus diarrhea, E. coli diarrhea, Hepatitis A, Leptospirosis and Poliomyelitis

## Conclusion

Water is considered to be *Jīva* (life) in Ayurvedic concepts. It is *madhura*, *śīta* la and *rucikāraka*. It relieves *dāha*, *moha*, *bhrama*. Water helps to relives *nidra*, *ālasya*, *viṣa*. It provides *trpti*, *budhi*, *bala*, *vīrya*, *tuṣṭi*, *puṣṭi* to debilitated parts of the body. By using polluted water develops many water born disease which can be correlated to the symptoms comes under Visha jushta jala

## Reference

1. Denchak M. Water pollution: Everything you need to know. Natural Resource Defense Council. Retrieved from <https://www.nrdc.org/stories/water-pollution-everything-you-need-know>. 2018 May.
2. Kumar S, Meena HM, Verma K. Water pollution in India: its impact on the human health: causes and remedies. International Journal of Applied Environmental Sciences. 2017;12(2):275-9.
3. Shyamala R, Shanthi M, Lalitha P. Physicochemical analysis of borewell water samples of Telungupalayam area in Coimbatore district, Tamilnadu, India. E-Journal of chemistry. 2008 Oct 1;5(4):924-9.
4. Manetu WM, Karanja AM. Waterborne Disease Risk Factors and Intervention Practices: A Review. Open Access Library Journal. 2021 May 6;8(5):1-1.

5. Rajasekharan R, Abhiniya M. Heavy metal pollution in ground water – A review. International journal of Chem Tech Research. 2014 Nov; 6(14):5661-5664
6. Water S, World Health Organization. Guidelines for drinking-water quality. Vol. 1, Recommendations.
7. World W. Covered I, Water W. 2.0 Water Treatment in Ayurveda. 2010; Available from: <http://shodhganga.inflibnet.ac.in/bitstream/1060/17116/9/09 chapter 2pdf>
8. Kinjavadekara Ramachandrasastri V. Astanga Sangraha. Sri Satguru publications, Delhi, 1990.; 1990. sutrastana, chapter 6/30.
9. Das bhagwan. Caraka Samhita of Charaka. In Varanasi: chaukambha krishndas Academy; 1998. Sutrastana 27th chapter/197-198.
10. Dr. Lakshmy C. Senan, Dr. Balaji S, & Dr. Rabinarayan Tripathy. (2019). Ayurvedic perspective of water, its pollution and purification. *Journal of Ayurveda and Integrated Medical Sciences*, 4(02), 75-78. Retrieved from <https://www.jaims.in/jaims/article/view/598>
11. prof. K.R Srikantha Murthy. Susruta Samhita. Chaukhambha Orientalia. Varanasi. 2017. Kalpa sthana. Chapter 3/7-10
12. Ashtanga samgraha of Vagbhata. Chaukamba Orientalia. Varanasi. translated by prof. K.R Srikantha Murthy. Vol 1. Sutra sthana/41-43. 9<sup>th</sup> ed, 2005. 180p.
13. Menon Kutty Krishnan V M. Kriyakoumudi. [Malayalam] Sahitya Pravartaka Co-operative society. Kottayam; National book stall 1986 Nov. 747 p.
14. Das bhagwan. Caraka Samhita of Charaka. In Varanasi: chaukambha krishndas Academy; 2013. vimana sthana. 3<sup>rd</sup> chapter /7.