

## WATER POLLUTION W.S.R TO JANPADODHVANSA IN AGADTANTRA: A REVIEW

Dr. Bhupendra Yadav<sup>1\*</sup>, Dr. Ritu Kapoor<sup>2</sup> and Dr. Manoj Adlakha<sup>3</sup>

<sup>1</sup>MD Scholar, PG Department of Agada Tantra Evam Vyavahar Ayurveda, PGIA, Jodhpur, Rajasthan, India.

<sup>2</sup>Associate Professor & HOD, PG Department of Agada Tantra Evam Vyavahar Ayurveda, PGIA, Jodhpur, Rajasthan, India.

<sup>3</sup>Associate Professor, PG Department of Dravyaguna, PGIA, Jodhpur, Rajasthan, India.

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### \*Corresponding Author

**Dr. Bhupendra Yadav**

MD Scholar, PG

Department of Agada Tantra

Evam Vyavahar Ayurveda,

PGIA, Jodhpur, Rajasthan,

India.

### ABSTRACT

*Ayurveda* is a traditional science that provides several types of treatments for disorders as well as helps in improving and preserving a healthy person's fitness. At the moment, environmental contamination is the main issue. Water is essential need of human being. The harm that pollution does to the earth's natural resources, such as the water and air, that support life on the planet so it should be treated extremely serious. its influence is getting worse day by day. Plants and animals including human being could not survive properly if the basic necessities like water get polluted. Health risks are caused when water is found to be contaminated with harmful substances like arsenic, fluorides, bacteria, etc. The sixth branch of *Ashtang Ayurved*,

*Agadtantra* (*Ayurvedic toxicology*), deals with the detection of poison, varieties of poison from minerals, plants, and animals, as well as synthetic poison, and how to manage them. The concept of water pollution is also mentioned in various types of literary classics, and its contribution to diseases and the downfall of civilizations has been clarified. *Dincharya*, *Ritucharya*, and *Janpadodhvansa's* environmental health were briefly described by *Acharyas* in *Ayurveda*.

**KEYWORDS:** *Ayurveda*, Environmental, water pollution, *Agadtantra*, *Janpadodhvansa*.

## INTRODUCTION

The main component of all living things is water.<sup>[1]</sup> Water is utilised in many different kinds of purposes like drinking, cooking, bathing etc. It is approximately 2/3 of the weight of the human body. According to *Ayurveda*, it is referred to as "*Jeeva*" or "*life*". But in the current situation, not even one aspect of the ecosystem is free from pollution and contaminants. The environment is made up of three components for descriptive purpose.

1. Physical: Air, soil, water, buildings, wastes, radiation, etc.
2. Biologic: Plant and animal life, including bacterial and viral agents as well as insects, rodents, and other creatures.
3. Social: practises, cultures, desires, means of living, line of work, etc.

Man's environment plays a significant role in determining his health. Environmental problems that continue to harm human health include animal reservoirs, poor housing conditions, air pollution, water pollution, soil pollution, and insect-borne disease vectors. One of the main causes for various diseases is water pollution. Water is contaminated by the use of herbicides and insecticides on plants. Critical contamination has been detected in 839 of 5723 ground water resources in the country.<sup>[2]</sup> According to *Ayurveda*, an unhealthy environment is one that called "*Janpadodwamsa*" in the *Charak Samhita*, and that unhealthy environment is caused by the *Adharma* of people living in that area.<sup>[3]</sup> Further *Acharya* mentioned in the *Shushrut Samhita* that people intentionally harm the environment and other living things, including humans, by introducing various forms of poisons into food, water, air, land, and other products.<sup>[4]</sup> People in large numbers are referred to as *Janpada*, and "*Janpadodhvansa Rogas*" is the term used when these large numbers of people affected by a sickness and that spreads like an epidemic throughout the entire area and eliminates that whole society. In chapter 3 of *Vimana Sthan*, *Acharya Charaka* describes that how the *Vayu* (air), *Desha* (land), *Kala* (season), and *Jala* (water) get affected. *Poorvarupa* (Early Signs) of *Janpadodhvamsa* are the abnormalities in stars, planets, moon, sun, air, fire, and the symptoms of *Ritu vikaras* will also showup.<sup>[5]</sup>

**Causes of water pollution** –Water gets polluted by the decayed aquatic animals (such as insects, snakes, and so on) or if untouched by the sun, moon, air, or by microbes combined with rainfall.<sup>[6]</sup>

**Vikrita Jala Lakshana** – When water exhibits severe derangement in any one of the six categories like *Sparsha* (touch), *Roopa* (sight/color), *Rasa* (taste), *Gandha* (odour), *Veerya*

(potency), and *Vipaka* (chemical transformation) then that should be considered as meritless.<sup>[7]</sup>

**Characteristics & Effects of polluted water<sup>[8]</sup>** – Water that has been poisoned takes on the characteristics of slimy, pungent, foamy, and is surface-marked with (black-colored) lines. In that water, frogs and fish die for no apparent reason. If a man, horse, or elephant bathes in this poisoned water, they may experience vomiting, fainting, fever, a burning sensation, and swelling of the limbs. In birds that live in the water and on its shores, shows confusion as an Effects of poison.

**Diseases due to ingestion of contaminated water** – Constipation (*Kosthabaddhata*), excessive thirst (*Trishna*), flatulence (*Adhmana*), abdominal disease (*Udarvyadhi*), fever (*Jwara*), cough (*Kasa*), appetite loss (*agnimandhya*), goitre (*Granthi*), heaviness (*Angagaurav*), abdominal pain (*Udarshool*), anaemia (*Pandu*), indigestion (*Ajeerna*), edema (*Shoatha*), asthma (*Shwasa*) & rhinitis (*Pratishaya*), etc are the diseases brought by the contact with polluted water – Usage of contaminated water for bath or by any other means its contact with the body can cause skin disorders (*Kustha*), itching (*Kandu*)& (*Netrabhishyanda*) conjunctivitis.<sup>[9,10]</sup>

**Purification of polluted water** – The drugs listed below should be gathered and burned into ashes in order to detoxify the contaminated water. The cold ashes should be put into poisoned water, which will make it clean (nonpoisonous), or a handful of this ash (1 *Anjali* = 160 mg) should be added to the pot containing drinking water that can be used as needed.<sup>[11]</sup>

➤ Drugs mentioned for Water purification

S.N.	Ayurvedic name	Botanical name
1.	<i>Dhawa</i>	<i>Anogeissus latifolia</i>
2.	<i>Ashwakarna</i>	<i>Dipterocarpus turbinatus</i>
3.	<i>Asana</i>	<i>Pterocarpus marsupium</i>
4.	<i>Paribhadra</i>	<i>Erythrina variegata</i>
5.	<i>Patala</i>	<i>Stereospermum suaveolens</i>
6.	<i>Nigundi</i>	<i>Vitex negundo</i>
7.	<i>Mokshaka (Makha)</i>	<i>Schrebera swietenoides</i>
8.	<i>Amalatas</i>	<i>Casia fistula</i>
9.	<i>Somavalka</i>	<i>Acacia leucorrhoea</i>

There have been tools mentioned in the classics of *Ayurveda* that can make *Kalushita Jala* (impure water) acceptable. The following are they.<sup>[12,13]</sup>

- A. It should be made clear by adding knots (tubers) from lotus plants and *Parnimula*, a type of grass with the ability to dilute the water.
- B. By adding flowers of plants that release fragrances into the water, such as *Nagkesar* (*Mesua ferrea* L.), *Champak* (*Michelia champaca* L.), *Utpala* (*Nymphaea sellata* Willd.), *Patala* (*Stereospermum suaveolens.*), *Karvira* (*Nerium indicum.*), and others, thus foul odours are eliminated.
- C. It is recommended to drink fragrant water from a glass made of gold, silver, copper, or earth, as well as from a bowl made of bell metal or valuable stones. It is thought that drinking water that has been kept in copper containers over-night will have "health benefits." The *Ayurvedic* texts teach that copper, when taken in small doses, has a scraping effect (*Lekhana*), heals, and nourishes the body.
- D. ***Chandrakanta Mani* (moonstone)** – can eliminate poison, insects, worms, and harmful bacteria from contaminated water.
- E. ***Hanshodaka***<sup>[14]</sup> - The 'best' quality water in *Sharada Ritu* (fall season), that gets exposed to the sun's rays during the day and to the moon's rays at night. It is *Anabhishyandi* (which doesn't block channels of circulation), *Rasayana* (rejuvenating), *Balya* (strengthening), and *Medhya* (increasing intellect) & it also alleviates three *Doshas*.

#### ➤ Recent Studies

1. Storing drinking-water in copper pots kills 'Diarrhoeagenic bacteria'.<sup>[15]</sup>

➤ This study shows the effect of the copper pot against important diarrhoeagenic bacteria, including *Vibrio cholerae* O1, *Shigella flexneri* 2a, enterotoxigenic *Escherichia coli*, enteropathogenic *E. coli*, *Salmonella enterica typhi*, and *Salmonella paratyphi*. The study demonstrates the benefits of using copper to purify drinking water and enhance public hygiene. In this experiment, copper surfaces entirely eliminated the bacteria *E. Coli*, and even after enrichment culture, none of the pathogens could be recovered.

2. Study on the Antibacterial activity of selected Natural Herbs and its application in Water Treatment.<sup>[16]</sup>

➤ This study focuses on how medicinal herbs can be used to purify water. The authors tried to determine which herbs, including *Ocimum sanctum* Linn. (*Krishna Tulsi*), *Ocimum kilimandscharium* Guerke. (*Karpoora Tulsi*), *Azadirachta indica* A.Juss. (*Neem*), *Saraca indica* Linn. (*Ashoka tree*), etc. possess antibacterial activities. against various bacteria, as

determined by the spread plate method, Kirby-Bauer disc diffusion method, most probable number (MPN) method, and Petrifilm method, including total coliforms, faecal coliforms, *Escherichia coli*, etc. The outcome demonstrates that among all herbs, *Ocimum sanctum* has the most effective antibacterial activity.

### Management of *Janpadodhwansa* according to *Acharya Charaka*<sup>[17]</sup>

The best treatment is *Panchkarma* therapy, which includes *Vamana*-Emesis, *Virechana*-Purgation, *Niruha*, *Anuvasanam*, and *Nasya*-Errhines. After that, it is advised to apply *Rasayana* (Rejuvenative therapy/Immuno-modulator) and management should be done by the drugs gathered in a normal environment. *Sadvritta* & *Aachar Rasayan* (Good Behavioural Activity and Personal Hygiene), *Brahmacharya*, *Devta Archana*, are also beneficial for minimising the impact of *Adharma*, which is the primary cause of *Janpadodhwansa* (Ecosystem Imbalance).

### SUMMARY AND CONCLUSION

The most crucial factor for a healthy existence and the socioeconomic development of society and the country is the environment. The most pressing issue facing all nations in the globe is the slow destruction of our ecology caused by the indiscriminate progress that characterises today's day. If we don't take the situation seriously now, it will get worse in the future. The therapy of diseases and illnesses linked to *Janpadodhwansa* has been expertly defined by our *Acharyas*. In modern science, it can be highly successful in addressing pollution-related issues. Environmental toxicology is under the supervision of *Agadtantra*, one of the most important branches of *Ayurveda* that deals with various forms of toxicity and its treatment. Numerous studies shown that some of these *Ayurvedic* techniques may be able to purify the environment. More study must be done to demonstrate the effectiveness of these *Ayurvedic* detoxification techniques for both the environment and the body. It is possible to conduct experimental studies to demonstrate the effectiveness of these precious *Ayurvedic* detoxification techniques, which do not affect other vital components while purifying the body and environment.

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