

## A Critical Evaluation of Traditional Water Purification Techniques in Ancient India with special reference to Ayurvedic Principles

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Water is a vital component of the human body, and consuming safe, palatable water is essential for maintaining good health. Contaminated water often carries numerous impurities, posing serious health risks. The ancient Indian medical system, Ayurveda, places significant emphasis on the importance of consuming clean water and outlines various sources such as wells, rivers, oceans, waterfalls, and ponds. Ayurvedic texts not only caution against drinking impure or unpalatable water but also describe methods for purification and disinfection to prevent waterborne illnesses. Acharya Sushruta, a prominent figure in Ayurveda, provided detailed descriptions of water purification techniques and the disinfection processes aimed at safeguarding health. According to Ayurvedic principles, the consumption of impure water can result in various ailments, including edema, anemia, indigestion, skin disorders, cough, rhinorrhea, abdominal pain and distension, fever, anorexia, conjunctivitis, and goitre. Ayurveda recommends a variety of natural substances for purifying water, including the seeds of Nirmali (*Strychnos potatorum*), lotus roots, Spirogyra roots, cloth filtration, pearl, Hessonite stone-infused water, and alum. Disinfection techniques described include exposing water to sunlight, boiling it, or immersing a heated iron ball in it. To improve taste and eliminate unpleasant odors, aromatic substances such as lotus, Pandanus (Ketaki), Mesua ferrea (Nagakeshara), Michelia champaca (Champa), and Stereospermum suaveolens (Patala) were traditionally used. The purification process often began with the use of alum, which helped settle suspended particles. Cloth filtration was employed to trap larger impurities, followed by treatment with *Strychnos potatorum* seeds for further cleansing. Boiling served as the final step to eliminate microbial contamination. The recurring observation in Ayurvedic texts is that impure water is a major contributor to disease. Thus, it can be concluded that ancient Indian medical science, particularly Ayurveda, provides comprehensive and systematic methods for water purification and disinfection.

**Keywords:** Ayurveda, Dushita Jala, Nirmalikarana, Water Purification, Disinfection

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## Introduction

Water is a fundamental component of the human body, and the intake of clean, safe, and palatable water is crucial for maintaining overall health. The ancient Indian medical science of Ayurveda places great emphasis on the importance of consuming pure water. Ayurvedic texts identify various natural sources of water, such as wells, rivers, oceans, waterfalls, and ponds, while also highlighting the health risks associated with drinking impure or unpleasant-tasting water.[1]

Acharya Sushruta, a revered figure in Ayurveda, provided a comprehensive account of water purification and disinfection techniques in the 46th chapter of the *Sutrasthana* section of his seminal work, *Sushruta Samhita*. [2] He not only outlined methods for purifying water but also detailed processes for disinfecting it to prevent waterborne diseases. Similarly, Acharya Vagbhata discussed water impurities, associated health hazards, and purification methods in the 6th chapter of the *Sutrasthana* of *Ashtanga Samgraha*. [3]

According to Ayurvedic teachings, consumption of contaminated or impure water can result in a wide range of ailments, including edema, anemia, indigestion, skin conditions, respiratory disorders like cough and rhinorrhoea, abdominal pain and bloating, fever, loss of appetite, conjunctivitis, and goitre. [4]

To ensure water safety, Ayurveda prescribes various natural substances for purification, such as *Nirmali* seeds (*Strychnos potatorum*), lotus root, Spirogyra root, cloth filtration, pearl, Hessonite stone, and alum. [5] Disinfection methods include exposing water to sunlight, boiling it, or immersing a heated iron ball into it to eliminate harmful microbes. [6] Furthermore, to enhance the taste and fragrance of drinking water, aromatic botanicals like lotus, *Pandanus* (Ketaki), *Mesua ferrea* (Nagakeshar), *Michelia champaca* (Champa), and *Stereospermum suaveolens* (Patala) were recommended. [7]

## Materials and Methods

A literary analytical method of research was adopted for the present study. Classical Ayurvedic texts including the *Sushruta Samhita*, *Charaka Samhita*, and *Ashtanga Samgraha* were reviewed in detail to extract references related to water purification,

Contamination, and health effects as described in ancient Indian medical traditions. [8-10]

## Review of Literature

### Impurities and Contamination of Water

Ayurvedic literature describes water as impure (*Dushita Jala*) when it is contaminated with elements such as insects, excreta, fly eggs, dead bodies, poisonous substances, mud, algae & plant debris, or when it lacks exposure to sunlight. [11]

### Pathological Water (*Dushta Jala Lakshana*)

Pathological water is described as having altered taste, smell, color, and touch. It is considered unfit for consumption if it contains waste matter, has lost its natural qualities, or has been abandoned by aquatic animals and birds. [12] Water that is slimy, microbe-laden, filled with waste or algae, and has changed in its sensory attributes is also classified as pathological. [13]

### Drawbacks of Contaminated Water

Ayurveda classifies the drawbacks of contaminated water into six categories: [14]

#### 1. Tactile Defects (*Sparsha Doshas*):

- *Kharata* (roughness), *Pichhilata* (sliminess), *Aushnya* (heat), and *Danta Agrahita* (sensitivity to teeth).

#### 2. Visual Defects (*Rupa Doshas*):

- *Panka* (mud), *Sikata* (sand), *Shaival* (algae), and *Bahu Varnata* (multi-colored appearance).

#### 3. Taste Defect (*Rasa Dosh*):

- Presence of unpleasant or abnormal taste.

#### 4. Olfactory Defect (*Gandha Dosh*):

- Absence of natural aroma or presence of a foul smell.

#### 5. Potency-related Defect (*Veerya Dosh*):

- Symptoms such as salivation, thirst, and heaviness upon consumption.

#### 6. Metabolic Defect (*Vipaka Dosh*):

- Manifestation of indigestion or abdominal gurgling post consumption

### Hazards of Impure Water

According to Ayurvedic texts, consumption of impure or unsafe water can result in several health issues, including edema (*Shotha*), anemia (*Pandu*),

Indigestion (*Ajirna*), skin disorders (*Twak Vikara*), cough (*Kasa*), rhinorrhoea (*Pratishyay*), abdominal pain (*Udar Shoola*), abdominal distension (*Udar Adhmana*), fever (*Jwara*), anorexia (*Agni Sada*), conjunctivitis (*Netra Abhisyanda*), itching (*Kandu*), and boils (*Ganda*).[15,16]

### Purification of Water

The purification (*Nirmalikaarana*) of water in Ayurveda is achieved using natural agents such as grass root (*Parni Moola*), lotus root (*Bisa Granthi*), pearl (*Mukta*), *Strychnus potatorum* seeds (*Katak/Nirmali Beeja*), cloth (*Vastra*), *Spyrogyra* (*Shaival*), hessonite-infused water (*Gomedaka*), and various precious stones (*Manis*).[17,18]

### Disinfection of Water

For disinfection (*Shodhana*), traditional methods included exposing water to sunlight, boiling, and immersing heated iron objects into the water, aiming to eliminate disease-causing agents and improve safety.[19,20]

### Scenting of Water

To enhance fragrance and make water more palatable (*Prasadana*), deodorizing botanicals such as *Pandanus odorifer* (*Ketaki*), *Mesua ferrea* (*Nagakeshara*), *Michelia champaca* (*Champa*), *Stereospermum suaveolens* (*Patala*), and *Nerium indicum* (*Karavira*) were used in ancient times. [21,22]

## Discussion

Ancient Ayurvedic literature provides comprehensive insights into the processes of water purification (*Nirmalikaarana*) and disinfection (*Shodhana*). Acharya Sushruta, in the 45th chapter of *Sutrasthana* of the *Sushruta Samhita*, has elaborated on methods for both purifying and disinfecting water to prevent water-borne diseases. Acharya Charaka, in the 27th chapter of *Sutrasthana* and the 3rd chapter of *Vimansthana* of the *Charaka Samhita*, discussed the dangers of consuming unsafe and contaminated water. Similarly, Acharya Vagbhata, in the 6th chapter of *Sutrasthana* of the *Ashtanga Samgraha*, described various impurities present in unclean water, the health hazards of drinking such water, and processes for cleansing it. Traditional methods began with stirring water using alum, which facilitates the settling of suspended particles.

Alum (*Sphatika*) acts as a coagulant and has been historically recognized for its efficacy in clarifying turbid water. Straining water through cloth was also practiced to trap visible impurities. Furthermore, water was treated using *Strychnus potatorum* seeds, known as *Nirmali Beeja* or the "water filter tree" in English. These seeds possess wormicidal properties and are also mentioned in Ayurvedic texts as beneficial in managing abdominal disorders, cough, and anemia.

The use of pearl (*Mukta*) in the purification process was another notable practice. Disinfection techniques included exposing water to sunlight, boiling, and immersion of a heated iron ball in the water. These methods, particularly boiling, effectively kill pathogenic microorganisms. The traditional approach of solar disinfection can be scientifically correlated with modern *SODIS* (*Solar Water Disinfection*) methods, where ultraviolet (UV) rays in sunlight neutralize harmful microbes.

To improve the taste and odor of water, Ayurvedic practitioners used aromatic herbs and flowers such as *Pandanus odorifer* (*Ketaki*), *Mesua ferrea* (*Nagakeshara*), *Michelia champaca* (*Champa*), and *Stereospermum suaveolens* (*Patala*) - classified as *Sugandhi Dravyas* or scented substances. In the modern era, alum continues to be used for water purification. Technological advancements have introduced newer purification techniques such as ultrafiltration, reverse osmosis, and activated carbon filtering. For disinfection, methods such as chlorination, iodination, and boiling are routinely employed, echoing the time-tested wisdom of Ayurveda.

## Conclusion

Consumption of impure or contaminated water is a major cause of water-borne diseases, as recognized in both ancient and modern medical sciences. Ayurvedic literature provides a detailed and systematic account of traditional water purification (*Nirmalikaarana*) methods, highlighting the use of natural agents like herbs, minerals, and organic filters. Equally, Ayurveda elaborates on water disinfection (*Shodhana*) techniques, including solar exposure, boiling, and the use of heated metals, which align with several modern disinfection strategies. Remarkably, many of these traditional methods continue to be practiced across various parts of India, reflecting their effectiveness,

Accessibility, and cultural relevance even in contemporary times.

## References

1. Sharma PV. Dravyaguna Vijnana. Vol. 1. Varanasi: Chaukhambha Bharati Academy; 2005 [Crossref][PubMed][Google Scholar]
  2. Sharma PV, editor. Sushruta Samhita of Sushruta. Sutrasthana, Ch. 46. Varanasi: Chaukhambha Visvabharati; 2001 [Crossref][PubMed][Google Scholar]
  3. Tripathi B, editor. Ashtanga Samgraha of Vagbhata. Sutrasthana, Ch. 6. Varanasi: Chaukhambha Sanskrit Pratishthan; 2008 [Crossref][PubMed][Google Scholar]
  4. Dash B, Sharma RK. Charaka Samhita of Agnivesha. Sutrasthana. Varanasi: Chowkhamba Sanskrit Series; 2010. [Crossref][PubMed][Google Scholar]
  5. Nadkarni KM. Indian Materia Medica. Vol. 1. Mumbai: Popular Prakashan; 2000 [Crossref][PubMed][Google Scholar]
  6. Dwivedi LK. Jal Vijnana in Ayurveda. 1st ed. Varanasi: Chaukhambha Orientalia; 2006. [Crossref][PubMed][Google Scholar]
  7. Mishra B. Bhavaprakasha Nighantu. Varanasi: Chaukhambha Bharati Academy; 2011. . [Crossref][PubMed][Google Scholar]
  8. Sharma PV, editor. Sushruta Samhita of Sushruta. Sutrasthana. Varanasi: Chaukhambha Visvabharati; 2001. [Crossref][PubMed][Google Scholar]
  9. Dash B, Sharma RK. Charaka Samhita of Agnivesha. Sutrasthana. Varanasi: Chowkhamba Sanskrit Series Office; 2010. [Crossref][PubMed][Google Scholar]
  10. Tripathi B, editor. Ashtanga Samgraha of Vagbhata. Sutrasthana. Varanasi: Chaukhambha Sanskrit Pratishthan; 2008. [Crossref][PubMed][Google Scholar]
  11. Dwivedi LK. Jal Vijnana in Ayurveda. Varanasi: Chaukhambha Orientalia; 2006. . [Crossref][PubMed][Google Scholar]
  12. Sharma PV. Dravyaguna Vijnana. Vol. 1. Varanasi: Chaukhambha Bharati Academy; 2005 [Crossref][PubMed][Google Scholar]
  13. Nadkarni KM. Indian Materia Medica. Vol. 1. Mumbai: Popular Prakashan; 2000 [Crossref][PubMed][Google Scholar]
  14. Mishra B. Bhavaprakasha Nighantu. Varanasi: Chaukhambha Bharati Academy; 2011. . [Crossref][PubMed][Google Scholar]
  15. Sharma PV, editor. Sushruta Samhita of Sushruta. Sutrasthana, Ch. 46. Varanasi: Chaukhambha Visvabharati; 2001 [Crossref][PubMed][Google Scholar]
  16. Dash B, Sharma RK. Charaka Samhita of Agnivesha. Sutrasthana. Varanasi: Chowkhamba Sanskrit Series Office; 2010. [Crossref][PubMed][Google Scholar]
  17. Tripathi B. Ashtanga Samgraha of Vagbhata. Sutrasthana. Varanasi: Chaukhambha Sanskrit Pratishthan; 2008. [Crossref][PubMed][Google Scholar]
  18. Dwivedi LK. Jal Vijnana in Ayurveda. Varanasi: Chaukhambha Orientalia; 2006. . [Crossref][PubMed][Google Scholar]
  19. Sharma PV. Dravyaguna Vijnana. Vol. 1. Varanasi: Chaukhambha Bharati Academy; 2005 [Crossref][PubMed][Google Scholar]
  20. Nadkarni KM. Indian Materia Medica. Vol. 1. Mumbai: Popular Prakashan; 2000 [Crossref][PubMed][Google Scholar]
  21. Mishra B. Bhavaprakasha Nighantu. Varanasi: Chaukhambha Bharati Academy; 2011. . [Crossref][PubMed][Google Scholar]
  22. Pandey GS. Dravyaguna Vigyana. Varanasi: Chaukhambha Krishnadas Academy; 2004. . [Crossref][PubMed][Google Scholar]
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