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trn:oid::2945:318656278

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File Size

46.5 KB

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Health Benefits Of Traditional Vessels in Cooking and Water Storage: An Ayurvedic Perspective

Abstract

Introduction: Food plays a central role in human survival and health, with its nutritional quality shaped not only by ingredients but also by the utensils used for cooking and storage. Traditional systems, particularly Ayurveda, emphasized the use of metals and natural materials such as gold, silver, copper, iron, brass, and clay for their therapeutic properties. Classical texts like Suśrutasamhitā describe how these utensils influence digestion, immunity, and water purification.

Methods: This review draws upon Ayurvedic literature and modern scientific studies to assess the impact of different cooking and storage vessels. Traditional materials were evaluated against commonly used modern alternatives, including aluminum, stainless steel, plastics, and synthetic alloys.

Results: Findings indicate that traditional utensils provide measurable health benefits. Gold vessels were associated with improved immunity, silver with antimicrobial effects, copper with collagen production and water purification, and iron with enhanced iron intake. Clay utensils preserved natural flavors and nutrients during cooking. Modern utensils, while convenient, often leach harmful substances; plastics in particular release endocrine-disrupting and potentially carcinogenic compounds. Evidence suggests that nutrient enrichment and detoxifying effects observed with traditional vessels are validated by recent scientific research.

Discussion/Conclusion: The evidence highlights the need to revive traditional practices of using natural and metallic utensils for cooking, storing, and serving food and water. This approach aligns with Ayurvedic principles and offers a sustainable, health-promoting alternative to synthetic materials, contributing to disease prevention and long-term wellness.

Keywords: Ayurveda, Utensils, Water storage, Food safety, Traditional practices, Health benefits

Introduction

Health is strongly influenced by the environment in which one lives. Ecologists define it as a state of dynamic balance between humans and their surroundings, where any disturbance may result in disease. In India, a significant proportion of communicable diseases arises from poor sanitation, particularly through the consumption of contaminated water.

Water is essential not only for physiological processes such as digestion, waste elimination, and thermoregulation, but also serves as a carrier of waterborne diseases such as typhoid, hepatitis A, and diarrhoea [1]. According to the World Health Organization (WHO), safe and wholesome drinking water is a basic human necessity and a critical component of primary healthcare. Yet, studies show that up to one-third of India's 600 districts have unsafe groundwater, and waterborne diseases contribute substantially to the global disease burden [2].

In this context, Ayurveda, the ancient Indian system of medicine, offers valuable insights. It emphasizes not only the treatment of diseases but also their prevention, providing detailed guidelines on food and water safety.

Ayurvedic texts classify water sources, describe purification methods, and highlight that the quality of food and water is influenced by multiple factors, including the material of cooking and storage vessels. The classical concept of Aṣṭa Āhāra Vidhi Viśeṣāyatana outlines eight key factors influencing the effect of food on health: nature (Prakṛti), processing method (Karaṇa), combination (Saṃyoga), quantity (Rāśi), origin (Deśa), time (Kāla), rules of consumption (Upayoga Saṃsthā), and the consumer (Upayoktā).

Among these, Karaṇa (processing of food) includes various transformations known as Sanskāras, such as boiling, grinding, fermentation, and notably Bhājana — the vessel used for cooking or storing [3]. Ancient Indian wisdom recognized that different metals used in utensils — such as copper, bronze, brass, clay, silver, and gold — influence food's energy, taste, and nutritional value. These materials preserved essential nutrients and infused beneficial minerals into food and water.

Thus, there is a growing need to revisit the Ayurvedic perspective on cooking and storage utensils. This study examines the effects of traditional vessels on the purity and quality of food and water, drawing upon classical Ayurvedic texts and modern scientific understanding. The ultimate goal is to promote health through conscious selection of cooking and storage materials, reconnecting with practices that have stood the test of time.

Review of Literature

Food and water have always been fundamental necessities for human survival, with historical significance deeply rooted in Indian culture. Texts such as Ayurveda Mahodadhi by Vaidya Suśena state that water stored in containers made of gold (Hema), tin (Trapusha), bell-metal (Ghoṣapatra), copper (Tāmra), brass (Piṭṭala), iron (Loha), wood from the Ficus religiosa tree (Madhudumbara), and clay possesses unique medicinal properties.

These references underline the significance of selecting appropriate materials not only for utility but also for their health-enhancing qualities [4].

Materials & Methods

This review article provides an overview of the effects of storage vessels on water quality as described in classical texts and explains the concept with logical interpretations. Acharya Suśruta mentioned simple water storage procedures in various containers to make water safe and suitable for drinking.

Water stored in metallic pots such as Suvarṇa (gold), Rajat (silver), Tāmra (copper), Kāṁsya (bronze), Maṇi (precious stone), Mṛttikā Pātra (earthen pot), and fragrant water prepared by infusing scented flowers should be used for drinking.

Tāmra Jala Pātra (copper vessel) is considered uttama (excellent), and in its absence, one should use a clay pot, which is hitakārī (beneficial). Other texts also describe various types of water storage vessels and their qualities. These recommendations were made by Ācāryas after long years of observation and practical experience.

Table 1: Qualities of Storage Containers for Water [5]

Different Types of Vessels	Qualities of Water
Hema / Suvarṇa (Gold) Bhājana	Susvādu (sweet) Vipāka, Śītala (cold in potency), Laghu (light), Tridoṣa sāmaka (pacifies all three Doṣas), Vīrya Bala-Medhakara (improves fertility, immunity, intelligence), Śubha (auspicious)
Trapusa (Tin) Bhājana	Kaṣāya (astringent), Madhura rasa (sweet taste), Kāphahara (reduces Kapha Doṣa), Śītasha (coolant), Aruci (decreases appetite), Malakara (increases the bulk of feces and urine)
Tāmra (Copper) Bhājana	Uṣṇa Vīrya (hot in potency), Svādu (sweet), Tikta (bitter), Katu Vipāka (pungent in potency), Pitta-nāśaprada (vitiates Pitta and Kapha, aids digestion), Sarkarimutra-utsanga (reduces quantity of feces and flatus)
Ghoṣa (Bellmetal)	Uṣṇa Vipāka (hot in potency), Katu (pungent), Guru (heavy to digest), Pitta-Śleṣma-prada (aggravates Pitta & Śleṣma Doṣa), Marutasanana (destroys Vāta Doṣa)
Piṭṭala / Rittika (Brass) Bhājana	Katu rasa (pungent taste), Śleṣma Pitta vināśa (reduces Kapha & Pitta Doṣa), Uṣṇa (hot in potency), Meharoga vivardhanam (may aggravate Pramehā)
Loha (Iron) Bhājana	Atanta rukṣa (very dry), Raktapitahara (treats bleeding disorders), Kaṇduhāra (reduces itching), Tridoṣa-samāna (balances all three Doṣas)

Table 2: Qualities of Heated Water in Different Vessels [6]

Water Heated in Particular Vessels	Properties
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Loha-bhājana santaptam (heated in iron vessel)	Mandāgnikara (diminished Agni), Malānām Rechana (purges the Malas), Āmāsaya Kṣaḷana (cleanses stomach)
Madhudumbara-bhājana taptitam (heated over a vessel prepared from the wood of Udumbara)	Uttama (ideal for body), Bāpu-kanti-prada (increases lustre of body), Pittakāra (alleviates Pitta)
Mṛttikā-bhājana taptam (heated over an earthen vessel)	Mala-kṣaḷana (cleans out waste products), Hitam (wholesome), Dhātu Sātamyā (wholesome for tissues), Vīrya-oja parivardhanam (promotes vitality and strength)

Table 3: Specific Use of Vessels for Serving Foods [7]

Food Item	Vessels Best for Storage
Ghrīta (Ghee)	Khrushṇa-loha-pātra (Iron vessel)
Peya-pādārtha (Drinks)	Rajatapātra (Silver vessel)
Phala & Bhakṣya (Fruits)	Banana leaf or similar leaves
Parisrutska and Pradigadha	Hema (Gold vessel)
Kaṭvara and Khāda (Curd)	Stone vessel
Boiled & Cooled Water (Drinking water)	Tāmra-pātra (Copper vessel)
Madya & Pānaka (Wines, Beverages)	Mṛttikā Pātra (Earthen pot)
Rāga-sādaya & Sattaka (Sour preparations)	Vaidurya Pātra (Vessel made of precious stones)

Table 4: Effects of Different Metals on Human Body

Metal	Effect on Body
Gold	Sweet, cardio-tonic, nourishing, and restorative. Alleviates all three Doṣas, cool and beneficial for the eyes, eliminates poisons.
Silver	Sour, laxative, cool, demulcent. Alleviates Pitta and Vāta.
Copper	Astringent, sweet. Has Lekhana property (anti-obesic), cool, and laxative.
Iron	Increases Vāta and is cool. Pacifies thirst, Pitta, and Kapha.
Bell-metal (Kāṁsya)	Bitter, anti-obesic (Lekhana), beneficial for the eyes, and pacifies Kapha and Vāta.

Commonly used metals for making vessels

Swarnā (Gold)

Swarnā (Gold) is considered the first Śuddha Loha [8]. In ancient times, food was cooked in golden vessels for their immunity-enhancing effects. Rasatarangiṇī mentions the properties of gold, stating that it acts as an aphrodisiac and improves quality of life. It enhances body radiance and physical strength, is useful in Viṣama Jvara and Antarakṣaya, prevents age-related bone changes, and improves cerebral blood circulation [9].

Charaka states: Na sajjate hemāṅge viṣam padmadale ambuvat [10].

Rājata (Silver)

Rājata (Silver) is considered the second Śuddha Loha. Silver is cooling in nature, associated with the moon, and exhibits toxic effects against certain bacteria, viruses, algae, and fungi. In earlier times, milk was preserved by placing silver coins in it, as silver instantly kills various pathogens. It is regarded as one of the best intellectual promoters (Medhya), slows down the aging process, enhances physical strength, and acts as a potent rejuvenator [11].

In Indian tradition, when a child is born, the grandmother gifts silver utensils to the child and mother. Scientifically, if young children drink water or milk from silver utensils, they are protected from many diseases.

Tāmra (Copper)

Tāmra (Copper) is considered the third Śuddha Loha. Being associated with the sun and fire, it helps increase Agni (digestive power). It possesses the Lekhana (scraping) property, helps reduce obesity, and is effective against several abdominal disorders [12]. In the 5th chapter, 46th verse of the classical text Rasaratna-samuccaya, drinking copper-stored water is described as beneficial for health due to its medicinal properties [13].

Scientifically, when water is stored in a copper vessel for more than eight hours, small amounts of copper dissolve into it. This process, known as the “oligodynamic effect,” destroys a wide range of harmful microbes, molds, and fungi due to its toxic effects on living cells. The U.S. FDA suggests that the human body requires approximately 12 mg of copper per day. Drinking two to three glasses of water stored in a copper vessel can provide health benefits.

In ancient times, widespread use of copper vessels was believed to prevent health problems such as heart disease, hypertension, and sleeplessness. In the present era, however, many people rely on medications to manage such problems, which may result in adverse side effects. In Ayurveda, such toxins are metaphorically compared to poison, and copper is prescribed as a means to counteract them. Copper is essential for various physiological functions, including red blood cell synthesis, protein metabolism, enzyme activity, and supporting the nervous system, circulatory system, and bone health.

Loha (Iron)

Loha (Iron) is considered the fourth Śuddha Loha. Cast iron utensils are recommended for cooking because they are thicker, heavier, and help heat food evenly. Iron is beneficial for the eyes and eyesight, improves physical strength, acts as an aphrodisiac, cures Udara Roga and Kapha-Pittaja Roga, enhances complexion, and promotes intellect [14].

Anaemia can be effectively managed by using cast iron utensils [15]. The American Dietetic Association reports that cast iron cookware can leach significant amounts of dietary iron into food. Iron plays an important role in biology by forming complexes with molecular

oxygen in hemoglobin and myoglobin, the two primary oxygen-transport proteins. Cast iron utensils also help reduce the emission of harmful synthetic compounds such as perfluorocarbons (PFCs), which may be released by other metals when heated.

Piṭṭala (Brass)

Piṭṭala (Brass) is an important Miśra Loha (alloy), consisting of copper and zinc, known since the Samhitā Kāla. Brass comprises approximately 70% copper and 30% zinc. Brass is a good source of both copper and zinc.

The advantage of using brass utensils is that they help retain the natural taste of dishes or milk cooked or boiled in them. Cooking in brass utensils results in only about 7% nutrient loss. Brass utensils do not promote worm infestations and improve blood quality by increasing hemoglobin levels [16]. Brass does not corrode easily due to its high resistance.

Kāṁsya (Bronze)

Kāṁsya (Bronze) is another important Miśra Loha, widely used for cooking and eating utensils. According to descriptions in Ayurveda Prakāśa, Kāṁsya utensils are known for their therapeutic benefits. The Sanskrit phrase Kāṁsya Buddhivardhakam means “Kāṁsya sharpens the intellect.” Bronze utensils help retain food’s alkalinity, thereby reducing its acidity and benefiting health. One limitation is that ghee should not be stored or cooked in bronze vessels [17]. These vessels were recommended by Ācāryas after long years of observation and experience.

Discussion

In contemporary times, the use of gold and silver utensils for food or water storage has become nearly impractical due to their high cost. Cooking in earthenware is believed to enrich food with essential minerals such as iron, calcium, magnesium, and sulfur, all of which contribute to overall well-being. The naturally alkaline nature of clay helps neutralize acidity in food and beverages, thereby enhancing their health benefits [18].

Plastics, on the other hand, pose serious health risks linked to breast cancer, obesity, diabetes, hormonal imbalances, and reproductive health issues. Ayurveda, particularly the teachings of Ācārya Suśruta, recognizes six primary types of vessels suitable for food and water storage, thereby purifying the water and reducing the risk of waterborne diseases. Copper, in particular, protects against conditions such as anaemia (Pāṇḍu Roga), fever (Jvara), and intestinal worms (Kṛimi). Madhura (sweet) and Tikta (bitter) rasas can assist in maintaining optimal pH balance in the body, soothe throat irritations, and reduce microbial contamination [19].

Copper is so notable that even modern studies recommend it as a low-cost, efficient solution for drinking water purification [20].

Table 5: Properties of Tāmra as per Nighaṇṭu [21–24]

Name of Nighaṇṭu	Properties
Bhāvaprakāśa Nighaṇṭu [23]	Kaṣāya (astringent), Madhura (sweet), Tikta (bitter), Amla-rasa (sour), Katu Vipāka (pungent), Pitta-Kapha-nāśaka (reduces Pitta & Kapha Doṣa), Śīta (cool), Ropana (heals wounds), Laghu (light), Lekhaniya (scrapes unwanted tissues), Pāṇḍu (anaemia), Udāra-roghara (abdominal diseases), Jvara-hara (reduces fever), Arsa-hara (reduces piles), Amla-pitta-hara (reduces hyperacidity), Śoṭhanāśaka (cures edema), Kṛimi-nāśaka (destroys worms), Śulāhāra (reduces pain)
Kaiyadeva Nighaṇṭu [24]	Tikta (bitter), Kaṣāya (astringent), Madhura (sweet), Amla-rasa (sour), Katu Vipāka (pungent), Śīta Vīrya (cool in potency), Laghu (light), Lekhaniya (scrapes unwanted tissues), Vraṇa-ropana (heals wounds), Kapha-Pitta-nāśaka (destroys Kapha & Pitta Doṣa), Kāsa-Svāsa-hara (reduces cough and breathing difficulty), Arsa-nāśaka (cures edema & anaemia)
Rāja Nighaṇṭu [25]	Madhura (sweet), Kaṣāya (astringent), Tikta (bitter), Katu (pungent), Śīta (cool), Vipāka (metabolic end product), Kapha-Pitta-hara (reduces Kapha & Pitta Doṣa), Sulāghna (reduces pain), Pāṇḍu-nāśa (destroys anaemia), Udāra-nāśa (destroys abdominal disorders)
Dhanvantari Nighaṇṭu [26]	Kuṣṭha-hara (destroys skin disorders), Dahā-hara (reduces burning sensation), Śulāhāra (reduces pain), Śoṭha-hara (reduces edema)

Conclusion

In conclusion, although materials like Tāmra (copper), Hema (gold), and Rājata (silver) may be costly, drawing upon classical Ayurvedic literature makes it evident that traditional vessels possess intrinsic qualities that significantly contribute to human health. Integrating such traditional wisdom into daily life by selecting appropriate cooking and storage vessels can promote overall well-being. In contrast, modern utensils made of plastics or harmful alloys may introduce toxins or compromise food and water quality. Particularly in the context of water purification, the choice of storage containers holds crucial importance.

Classical texts as well as modern research affirm that metals like copper, silver, and clay not only preserve but also enhance water quality through natural antimicrobial actions. By understanding the benefits of these materials, individuals can reduce the risk of waterborne diseases and support long-term health. It is therefore essential to raise awareness and encourage the use of health-promoting utensils. Educating people about the correct use of storage vessels for cooking and drinking can be a powerful preventive measure. Promoting ancient, time-tested practices offers a valuable approach to achieving safe and wholesome food and water in today's world.

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