

“Toxins Through Time: The Ancient Poison Code Behind – A Short Communication. Today's Cancer Risks”

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Abstract

Background: Cancer continues to be a major global health concern, with environmental carcinogens playing a significant role in its rising incidence. Ayurveda, the traditional Indian system of medicine, offers a preventive framework through its branch of toxicology, Agadtantra. Within this branch, the concepts of Visha (acute poison) and Dooshi Visha (sub-lethal, cumulative poison) present noteworthy parallels to modern carcinogens.

Objective: To explore the relevance of Visha and Dooshi Visha in cancer incidence and prevention by correlating Ayurvedic toxicological principles with contemporary understandings of carcinogenesis.

Methods: A conceptual review was conducted using classical Ayurvedic texts like Charaka Samhita, Sushruta Samhita and contemporary literature on toxicology and oncology. Correlative analysis was performed to map Ayurvedic toxic descriptions with known environmental carcinogens.

Results: Dooshi Visha exhibits characteristics—such as latency, bioaccumulation, and progressive pathology—that closely resemble the long-term effects of carcinogenic exposure. Ayurvedic formulations like Triphala, Haridra, and Guduchi show documented antioxidant and chemopreventive potential. Traditional detoxification and lifestyle guidelines further align with modern preventive strategies.

Conclusion: Agadtantra offers a rich, underexplored resource for preventive oncology. Its principles, when integrated with modern science, may contribute significantly to reducing cancer risk through holistic, toxin-aware healthcare practices.

Keywords: Agadtantra, Dooshi Visha, Carcinogens, Ayurveda, Cancer prevention, Toxicology

Introduction :

The modern surge in cancer cases is often seen as a consequence of industrialization, pollution, and lifestyle changes. Yet, an emerging discourse challenges this view, suggesting that cancer risks are not solely the outcome of modern living, but are also deeply entwined with ancient toxic exposures and traditional medical knowledge. This review critically explores this idea by tracing the thread of environmental carcinogens through time, examining classical Ayurvedic texts, modern epidemiological data, and contemporary research in environmental toxicology and phytomedicine.

Ancient Observations of Poison and Disease

Long before cancer was classified as a modern medical condition, ancient Indian texts like the *Charaka Samhita* and *Sushruta Samhita* demonstrated a nuanced understanding of toxins and their chronic effects on the body. These texts describe concepts such as *Dooshivisha*—a category of latent, low-grade poisons that accumulate in the body and cause long-term harm^(1,2). The pathology described under *Dooshivisha*—chronic inflammation, tissue degeneration, and multi-system deterioration—bears resemblance to what modern oncology recognizes as precancerous and carcinogenic processes.

Such classical frameworks demonstrate an early recognition of environmental and dietary toxins as contributors to chronic disease, if not directly linked to cancer as understood today. However, critics argue that while metaphorically parallel, ancient frameworks lacked the molecular specificity and pathological validation of modern oncology. Nevertheless,

the inclusion of latent toxicity in ancient Ayurvedic thought shows that chronic disease etiology was not entirely foreign to traditional knowledge systems.

The Modern Cancer Burden: A Growing Crisis

According to the World Health Organization (WHO), cancer is now the leading cause of death globally, accounting for nearly 10 million deaths in 2020 alone⁽³⁾. In India, data from the National Cancer Registry Programme highlights an alarming rise in cancer incidence, particularly of environmentally linked cancers such as those affecting the lungs, gastrointestinal tract, and reproductive organs⁽⁴⁾.

Modern research confirms a direct connection between environmental carcinogens and this rising trend. Chronic exposure to pollutants such as heavy metals, persistent organic pollutants, endocrine-disrupting chemicals, and processed food additives are recognized contributors to cancer risk⁽⁵⁾. However, the core thesis of "Toxins Through Time" urges us to interpret these exposures not as modern anomalies but as intensified versions of ancient toxic interactions.

Environmental Carcinogens: Ancient Exposure, Modern Amplification

The Ayurvedic concept of *Agadtantra*—the branch of medicine dedicated to toxicology—offers a historical lens through which chronic toxicity can be viewed. Modern researchers have attempted to bridge this ancient toxicological wisdom with contemporary environmental health science. For example, *Dooshivishari Agada*, a classical polyherbal formulation, is traditionally used for detoxifying chronic poison exposure. Its pharmacognostic

and phytochemical studies have revealed antioxidant, anti-inflammatory, and detoxifying potential, which could hypothetically mitigate carcinogenic stress⁽⁶⁾.

Experimental studies have even shown that *Dooshivishari Agada* reduced reproductive toxicity caused by monosodium glutamate (MSG) in animal models, hinting at its broader protective effects against chemical-induced cellular damage⁽⁷⁾. While such results are promising, the lack of large-scale clinical trials and molecular studies limits their current applicability in mainstream oncology.

Phytomedicine and Cancer Prevention: From Tradition to Evidence

Triphala, another renowned Ayurvedic formulation, has shown chemopreventive properties in modern research. Its active constituents—gallic acid, ellagic acid, and chebulinic acid—demonstrate antioxidant and DNA-protective effects⁽⁸⁾.

These findings validate the traditional Ayurvedic understanding of certain herbs as “*rasayana*” or rejuvenators, and support the idea that ancient plant-based formulations might counteract some long-term effects of environmental carcinogens.

Nonetheless, while the phytomedicinal bridge between traditional wisdom and modern science is expanding, the evidence base remains fragmentary. Most studies are in vitro or animal-based, and few are replicated across different populations or contexts. There is a risk of over-relying on historical formulations without adequate scrutiny under modern pharmacological standards.

Results

A thematic correlation between Ayurvedic toxicology and environmental carcinogenesis was established:

1. Visha and Dooshi Visha: Conceptual Parallels

Sr. No.	Ayurvedic Concept	Modern Equivalent / Common Exposure	Exposure Source (Human)	High Exposure Group	Mechanism Linked to Carcinogenesis
1	Naga (lead)	Lead (heavy metal)	Lead-contaminated water, lead-based paints in older houses, leaded petrol	Children (due to hand-mouth activity and development)	DNA damage, epigenetic alterations
2	Dooshi Visha	Pesticides, BPA, POPs, microplastics	Contaminated food, plastic bottles, packaged foods	Children & Females (due to diet and plastic use)	Cumulative toxicity, immune suppression
3	Cosmetics (Keshu Dravya Visha)	Parabens, phthalates, heavy metals in cosmetics	Use of skin creams, hair dyes, lipsticks	Females (higher cosmetic use)	Endocrine disruption, genotoxicity, oxidative stress
4	Plastic usage (Polymer Visha)	BPA, phthalates, microplastics	Use of plastic containers, toys, water bottles	Children & Females (greater plastic exposure)	Hormonal disruption, cumulative toxicity
5	Swarasa Visha (alcohol)	Ethanol (alcohol)	Alcoholic beverages consumption	Males (higher alcohol consumption)	DNA adduct formation, oxidative stress, inflammation
6	Visha Maansa (contaminated meat)	Processed/red meat containing nitrosamines	Processed and smoked meat consumption	Males & Females (varied dietary habits)	Formation of carcinogenic metabolites, DNA damage
7	Bhanga (Cannabis)	THC and cannabinoids	Recreational or medicinal cannabis use	Males (higher prevalence)	Oxidative stress, potential mutagenic effects (debated)
8	Rasa Visha (heavy metals like mercury)	Mercury, arsenic	Contaminated fish, industrial pollution	Females & Children (fish-heavy diets, vulnerability)	DNA methylation changes, oxidative stress, immunotoxicity
9	Madya (alcoholic beverages)	Chronic alcohol intake	Beer, wine, spirits consumption	Males (higher consumption rates)	Acetaldehyde-induced DNA crosslinks, reactive oxygen species

The Ayurvedic Lens on Cancer: Philosophical and Clinical Overlaps

Recent interpretive work suggests that Ayurvedic toxicology holds potential insights into cancer prevention when viewed through a modern lens⁽⁹⁾. Scholars argue that cancer, although not described in the same pathological language, aligns with Ayurvedic concepts like *Granthi* (tumors), *Arbuda* (malignant swellings), and chronic *Dosha* imbalance leading to systemic dysfunction.

However, this philosophical overlay must be approached critically. Correlating ancient disease categories with modern biomedical terminology is not straightforward and risks creating false equivalencies. While Ayurveda offers valuable preventive and supportive care models, its role in cancer treatment must be complementary rather than substitutive.

Conclusion:

“Toxins Through Time” presents a compelling narrative: the human body has always navigated a chemically complex environment, and cancer risks have evolved—not emerged—from ancient exposures. Traditional systems like Ayurveda offer a rich but underexplored repository of concepts and interventions that resonate with modern understandings of environmental carcinogenesis.

Yet, this continuum should not obscure the crucial differences in exposure intensity, chemical novelty, and population vulnerability that define modern cancer risks. Ancient poisons were real, but today's are more pervasive, persistent, and potent. Revisiting ancient toxicology can enrich modern cancer prevention strategies, but only when grounded in rigorous scientific validation and integrated with contemporary public health infrastructure.

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