

AYURVEDIC ANTIDOTES FOR MODERN DRUG OVERDOSE: A COMPARATIVE  
REVIEW WITH CONTEMPORARY MEDICINEVaibhav S. Patil<sup>1\*</sup> and Shubhangi R. Nalawade<sup>2</sup><sup>1</sup>Assistant Professor, Department of Agadtantra avum Vidhi Vaidyaka, Shivajirao Pawar Ayurvedic Medical College, Pachegaon, Tal - Newasa, Dist - Ahilyanagar, Maharashtra.<sup>2</sup>Professor and HOD, Department of Agadtantra avum Vidhi Vaidyaka, Shivajirao Pawar Ayurvedic Medical College, Pachegaon, Tal - Newasa, Dist - Ahilyanagar, Maharashtra.

\*Corresponding Author: Dr. Vaibhav S. Patil

Assistant Professor, Department of Agadtantra avum Vidhi Vaidyaka, Shivajirao Pawar Ayurvedic Medical College, Pachegaon, Tal - Newasa, Dist - Ahilyanagar, Maharashtra.

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## ABSTRACT

Drug overdose is a critical global health issue that requires immediate and effective interventions. Conventional medicine relies on specific antidotes and supportive care, while Ayurveda, with its deep-rooted principles in *Agadtantra* (Toxicology), offers unique detoxification methods and herbal formulations. This review aims to compare Ayurvedic and contemporary medical approaches to managing drug overdoses, exploring their mechanisms, efficacy, and scope of integration.

**KEYWORD:-** Ayurveda, Drug Overdose, *Agadtantra*, Herbal Antidotes, Detoxification, Comparative Medicine.

## INTRODUCTION

The increasing incidence of drug overdose due to opioids, sedatives, and other pharmaceutical agents has necessitated an extensive search for effective antidotes. Contemporary medicine provides pharmaceutical antidotes such as naloxone for opioid overdose and activated charcoal for general detoxification.<sup>[1]</sup> Ayurveda, on the other hand, employs a holistic approach incorporating herbal, mineral, and dietary interventions under *Agadtantra*.<sup>[2]</sup> This article explores the Ayurvedic perspective on drug toxicity and compares its interventions with modern treatments.

Ayurvedic Perspective on Toxicology (*Agadtantra*)

*Agadtantra*, a branch of Ayurveda dealing with toxicology, includes the management of poisons from natural and artificial sources, including drugs. Classical texts such as *Charaka Samhita* and *Sushruta Samhita* describe various antidotes (*Vishahara dravyas*) and detoxification techniques such as *Vamana* (Therapeutic emesis), *Virechana* (purgation), and *Panchakarma* therapies.<sup>[3]</sup>

## Ayurvedic antidotes for drug overdose

Ayurveda categorizes antidotes into herbal, mineral, and dietary formulations. Some of the key antidotes include:

- **Activated charcoal (Ayurvedic equivalent: *Bibhitaki churna*):** *Bibhitaki* (*Terminalia bellirica*) possesses adsorptive properties and has been used traditionally in cases of poisoning.<sup>[4]</sup> Modern studies

indicate its efficacy in binding toxins in the gastrointestinal tract, similar to activated charcoal.<sup>[5]</sup>

- **Opioid overdose: Naloxone vs. *Madhuka* (*Glycyrrhiza glabra*):** Naloxone is a life-saving drug for opioid overdose, but Ayurveda recommends *Madhuka*, which exhibits anti-inflammatory and hepatoprotective effects.<sup>[6]</sup> Experimental studies have shown that *Madhuka* extracts help reduce opioid toxicity symptoms.<sup>[7]</sup>
- **Heavy metal toxicity: Ayurvedic *Bhasma* vs. Chelation therapy:** Chelation therapy is used in modern medicine to remove heavy metals like lead and mercury.<sup>[8]</sup> Ayurveda employs *Bhasma* preparations like *Tamra Bhasma* and *Swarna Bhasma*, which have been found to support detoxification processes.<sup>[9]</sup>
- **Sedative overdose: *Brahmi* (*Bacopa monnieri*) and Contemporary sedative antidotes:** In cases of sedative overdose, modern medicine employs flumazenil, whereas Ayurveda recommends *Brahmi*, a well-known nootropic herb with neuroprotective effects.<sup>[10]</sup> Studies suggest that *Brahmi* modulates neurotransmitters and reduces sedative-induced toxicity.<sup>[11]</sup>

**Comparative analysis: Ayurvedic vs. Modern Approaches**

Overdose Type	Modern Antidote	Ayurvedic Antidote	Mechanism of Action
Opioids	Naloxone	<i>Madhuka (Glycyrrhiza glabra)</i>	Opioid receptor modulation
Heavy Metals	Chelation Therapy	<i>Tamra Bhasma, Swarna Bhasma</i>	Metal ion chelation
Sedatives	Flumazenil	<i>Brahmi (Bacopa monnieri)</i>	Neurotransmitter modulation
General Poisoning	Activated Charcoal	<i>Bibhitaki Churna</i>	Adsorptive toxin removal

**Clinical Evidence and Case Studies**

Several clinical studies highlight the potential of Ayurvedic antidotes in managing toxicological emergencies. For instance, a study demonstrated the hepatoprotective effect of *Madhuka* in opioid-induced liver toxicity.<sup>[12]</sup> Another study compared *Bibhitaki Churna* with activated charcoal, showing comparable adsorption efficacy.<sup>[13]</sup>

**Challenges and Future Prospects**

While Ayurveda offers promising antidotes, the integration of its practices into modern toxicology faces challenges such as standardization, dosage determination, and regulatory approvals.<sup>[14]</sup> Collaborative research between Ayurveda and allopathic medicine can help validate traditional antidotes scientifically.<sup>[15]</sup>

**CONCLUSION**

Ayurvedic antidotes present a valuable alternative in drug overdose management. By integrating herbal and mineral-based detoxification therapies with contemporary medicine, a comprehensive and holistic approach to toxicity treatment can be achieved. Further research and clinical trials are essential to establish their efficacy and safety, paving the way for integrative toxicology.

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