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# A COMPILATION OF ANTIDOTES IN CONTEMPORARY SCIENCE AND AYURVEDA

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#### **ABSTRACT**

Many drugs have been used for therapeutic purposes in Ayurveda since the Vedic period, and they are either of the plant (Sthavar Udbhava), animal (Jangam Udbhava), or metal, mineral (Khanija) origin. After the period of Acharya Nagarjuna, the use of metals, minerals, and poisonous drugs became prevalent. Agada Tantra is a branch of Ayurveda that deals with the treatment of various poisons. Toxicology is concerned with the identification and management of various types of poisons, including those derived from plants and animals. Various poisons have been described, and various antidotes for their management have been mentioned in Agada Tantra texts. A poison is a substance that, when introduced into or applied to the body, has the potential to harm or destroy life. It causes tissue damage, illness, or death in the organism. Visha is the substance that causes sadness in the world. It was given the name Visha because it makes the rest of the world despair. It damages tissues and causes illness or death in the organism. Visha is the substance that causes sadness in the world. It was given the name Visha because it made the rest of the world despair<sup>1</sup>. The drugs known as antidotes are used to neutralise or disable the effects of poison. As we can see from the current paper, antidotes play an essential role in the treatment of poisoning. A doctor's primary goal is to preserve the patient's life. For proper treatment, the concept of Prativisha, which has been around since the past, needs to be expanded upon, clarified, updated, and narrated. This article, therefore, aims to compile references for various antidotes that have been mentioned in different Ayurvedic literature.

**Key words:** Visha, Agada Tantra, Antidote

#### INTRODUCTION

Agada Tantra is one of the eight branches of Ashtang Ayurveda, which deals with the treatment of various poisons. If we look at modern toxicology, it deals with a variety of poisons, including those with plant and animal origins as well as their management. Visha is the substance that, as soon as it enters the body, vitiates healthy dhatus or kills healthy individuals<sup>2</sup>, while Visha is the substance that brings sadness to the world<sup>3</sup>. An antidote is a chemical compound that blocks or reduces the effects of a poison<sup>4</sup>. The word for an antidote in Ayurveda is Prativisha. Prativisha is one of the Chaturvimshati upakramas, according to Charak.<sup>5</sup> In Ashtanga Sanghrah Uttara sthana 48th Adhyaya, Prativisha is explained in detail. After the fifth stage has ended and before the seventh stage has begun, if the effects of poisons have not subsided despite the use of medicinal hymns and medications, Prativisha must be administered with the patient's permission<sup>6</sup>. The poisons, in any form, may be inhaled or swallowed, absorbed through the skin after being implanted by stings, bites, or other wounds, or absorbed through the mucous membrane, which is thinner and more delicate.<sup>7</sup> According to Acharya Charaka, a Visha (poison) can turn into a very good oushadha if it is administered correctly, but an oushadha can also turn into poison if it is administered incorrectly. The ancient tradition of the vishavaidya sampradaya is described in Vishavaidyajyotsnika, along with a mantra chikitsa that was written in the regional language of Malayalam, reaffirming the book's relevance. *Vishavaidyajyotsnika*'s name means "moonlight that gives eternal happiness from the heart". *Basavarajeeyam* is a well-known Ayurvedic treaty that is widely used by Ayurvedic physicians. In the 23rd chapter of "*Visharoganidhanalakshana adhyaya*," the author mentions various poisons and their antidotes.

**AIMS AND OBJECTIVES:** Review the effects of the antidote described in *Visha* in Ayurvedic texts as well as the contemporary antidote.

#### **ANTIDOTE DEFINITION:**

Antidotes are substances that act specifically to prevent, inhibit, inactivate, counteract, reverse, or relieve the action or poisonous effect of a toxic agent, i.e., they are poison counteractants. In other words, antidotes are medications used to counteract the effects of poison.<sup>9</sup>

# THE MOST COMMON MODE OF ACTION OF ANTIDOTES<sup>10</sup>

- 1. Formation of inert complexes, such as a chelating agent for heavy metals.
- 2. Increased detoxification, such as thiosulphate for cyanide.
- 3. Less toxic conversion, such as ethanol, to methanol.
- 4. Receptor site blocking agents, such as naloxone for opiates

**Table 1**: List of poison and its specific antidotes in Basavarajeeyam<sup>11</sup>

Sl.no	Poison	Antidote
1.	Ankola (Alangium salvifolium), Kara-	Hareetaki (Terminalia chebula)
	veera (Nerium indicum)	
2	Langali (Gloriosa superba)	Shunti (Zingiber officinale)
3	Bhallataka (Semecarpus anacardium)	Palasha pushpa (Butea monosperma)
4	Snuhi ksheera (Euphorbia neriifolia)	Avartaki (Cassia auriculata)
5	Vishamushti (Strychnos nuxvomica)	Jambu (Syzygium cumini), ketaki (Pandnus tectorus)
6	Karpoora	Bhringaraja (Eclipta alba)
7	Jambu phala (Syzygium cumini)	Cow's milk
8	Sarshapa (Brassica campestris)	Amalaki (Emblica officinalis)
9	Honey, ghee	Water

10	Tambula	Tintrini (Tamarind)
11	Bhallataka (Semecarpus anacardium)	Kapikacchu (Mucuna pruriens)
12	Dhattura (Datura metal)	Kamala (Nelumbo nucifera) choorna and Tandulodaka
13	Tintrini phala (Rhus parviflora)	Haridra (Curcuma longa)
14	Curd	Warm water
15	Amrasthi	Narikela water (coconut water)
16	Sudha (lime)	Guduchi (Tinospora cordifolia)
17	Tila pishta	Taila
18	Pruthuka (beaten rice)	Saindhava lavana
19	Trikatu	Tandulodaka (rice-washed water)
20	Hayanaka	Chandana (Santalum album)
21	Trivrit (Operculina turpethum)	Babbula twak (Acacia nilotica)
22	Mudga (green gram)	Jaggery
23	Butter milk	Gambhari (Gmelina arborea)
24	Araganikudu	Mustard oil
25	Gingelly oil	Hingu (Ferula northax)
26	Ketaki (Pandnus tectorus), Koshataki	Mustaka (Cyperus rotundus)
	(Luffa acutangula)	
27	Vatsanabha (Aconitum ferox)	Meghanada
28	Chetarasi	Viriginara
29	Soorana kanda	Tambula ( Pipper beetle) patra
30	Panasa (jack fruit)	Shunti (Zingiber officinale)
31	Kanaka beeja	Nimbhu swarasa (Citrus medica), Jeeraka (Cuminum cyminum)
32	Nimba pala	Kharjoora (Phoenix sylvestris)
33	Haridra	Sudha (lime)
34	Narikela	Tandula
35	Sesame seed	Ketaki( Pandanus tectorius) swarasa
36	Arkaksheera	Neeli (Indigofera tinctoria) swarasa
37	Karpasa beeja	Pashana (Bergenia ligulata)
38	Ahiphena	Ardraka ( Zingiber officinale) swarasa
39	Balurakkasi	Varuna (Crataeva religiosa)
40	Ghee	Buttermilk
41	Buttermilk	Kataka (Strychnos potatorum)

Table 2: List of poisons and their antidotes in  $Visha\ Vaidya\ Jyotsnika^{12}$ 

S. No	Poison	Antidotes		
1.	Kannampatty Puzhaparuhi (Hibiscus tiliaceus)			
2.	Alcohol Lemon (Citrus limon)			
3.	Bhanga (Cannabis sativa) Bimbi (Coccinia indica)			
4.	Aveen (Papaver somniferum) Root and leaves of mathigni (Datura metel)			
5.	Langali (Gloriosa superba)	Root of neeli (Indigofera tintoria)		
6.	Nirvisha (Delphinium denudatum) Maricha (Piper nigrum)			
7.	Pashana- sarshapa (Brasica nigra)	The root of neeli (Indigofera tinctoria), mrinalam (Nelumbo nu-		
		cifera)		
8.	Parada (Mercury) Kushmanda (Benincasa hispida)			
9.	Aaval (Chirivilwa- Holoptelea integrifolia)	Eranda (Ricinus communis), navaneeta (butter) and shatavari		
	and Chitraka ( Plumbago zeylanica)	(Asparagus recemosa)		

10.	Oral intake of Kupilu (Strychnus nuxvomi-	Kalka of tender leaves of Gunja (Abrus precatoris)
	ca)	
11.	Vatsanabha (Aconitum ferox)	Nirvisha (Delphinium denudatum)
12.	Removing poison from buttermilk and curd	Old unripe mango brine and cotyledon
13.	Dhooma patra	Coconut milk
14.	Taila veerya	Saline water
15.	Panasa	Telkada (Heliotrapium indicum), shunti (Zingiber officinale)

Table 3: List of Vanaspatic visha (Sthavar visha) and its specific Ayurvedic prativisha and antidote.

S. N.	Visha	Prativisha	Antidote
1.	Ahiphena	1)Aadhraka <sup>13</sup> 2)Shunthi <sup>13</sup> 3)Brahatshudra Rasa(1Pal) with Milk <sup>14</sup>	1. Naloxone-0.4-2mg IV/IM (repeated every2-3 min up to-10mg if no response occurs). 2.Naltrexone-50mg/day for several weeks or months. Nalmefene-0.1mg followed by 0.5mg). 15
2.	Bhallataka	1)Kapikachchu <sup>13</sup> 2)Palash pushpa <sup>13</sup> 3)Meghanadh Cholai with navneet –Lepa <sup>14</sup> 4)Navneet+Daruharidra+sharshap+ Mustak <sup>14</sup>	Not specific antidote.
3.	Dhatura	1)Nimbu swarasa, Jiraka <sup>25</sup> 2)Godhugdha 1Prastha+ Sharkara 2 Pal <sup>14</sup> 3)Vrantaka phala beej Ras(1Pal) – Pana <sup>14</sup> 4)Karpas Asthi+Karpas pushp kuwatha – Pana <sup>14</sup>	Physostigmine- 0.5- 2mgIV/IM <sup>16</sup>
4.	Snuhi ksheera	Avartaki <sup>13</sup> Suwarna-gairika with water – Pana <sup>14</sup>	Not specific antidote
5.	Vatsnabha	1)Megdhnadh Ptra swarasa <sup>14</sup> 2)Patvn vraksha Rasa(1Pal) <sup>14</sup>	Chemical antidote (Tannic acid-10gm in 2 liters of water) <sup>17</sup>
6	Arka ksheera	<ol> <li>Nili Swarasa<sup>14</sup></li> <li>Suwarna gairika with water – Pana<sup>14</sup></li> <li>Chincha Patra with water – Mardhan<sup>14</sup></li> </ol>	Not specific antidote
7.	Gunja	1)Medhnada Rasa with Sharkara – Pana <sup>14</sup> 2)Kewal godugdha – Pana <sup>14</sup>	Anti-abrin <sup>18</sup>
8.	Karveera	1) Haritaki <sup>13</sup> 2) Mahish Dadhi with Sharkara <sup>14</sup> 3) Arka Twaka Churna with water – Pana <sup>14</sup>	Not specific antidote
9.	Kuchala	1) Jambu <sup>13</sup> 2) Ketki <sup>13</sup> 3) Madhu+Sharkara+Ghrita – Pana <sup>13</sup>	Barbiturates (0.3-0.6gm in 10cc distilled water up to 5times, IV) <sup>19</sup>
10.	Langali	Shunthi <sup>13</sup>	Not specific antidote
11.	Eranda	-	2-5 gm sodium bicarbonate -8 hour <sup>20</sup>
12.	Bhanga	Shunti with Godahi <sup>14</sup>	Not specific antidote

Table 4: List of Jangham visha and its specific Ayurvedic Prativisha & Antidote.

S.N.	Jangham Visha	Prativisha	Antidote
1.	Snake bite	<ol> <li>Ghrahadhoom+haridra+daruharidra+Tanduliyak smoola – Anupan madhu,ghrit<sup>21</sup></li> <li>Langhali Moola pishta in water– Nasya<sup>22</sup></li> <li>Araka Moola+ tankana – pishta in water –Pana<sup>23</sup></li> <li>Shobhanjana beeja– Bhavna dravya(shirish swarasa)– Nasya, Pana, Anjanartha<sup>24</sup></li> <li>Vakra+ kushtha (2Pal) + Shodra ghrita (4Pal)<sup>25</sup></li> </ol>	Anti-snake venom <sup>26</sup>
2.	Scorpion bite	<ol> <li>Jiraka kalka+ghrit +Sendhav +madhu - Lepa<sup>27</sup></li> <li>Rock salt powder + warm cow ghee - Lepa<sup>28</sup></li> </ol>	Anti-Scorpion Venom <sup>35</sup>
3.	Rabies	<ol> <li>Sharpunkha Moola (1 karsh) + Dhatura (1/2 karsha) with Tandulodak-Pana<sup>30</sup></li> <li>Dhatura patra kalka with Tandulodaka – Pana<sup>31</sup></li> <li>Purana ghrita – Pana<sup>32</sup></li> <li>Shirisha beeja + Snuhisheera -Lepa(dansha sthan)<sup>33</sup></li> </ol>	Purified chick embryo cell vaccine (P.C.B.C. Vaccine) Post-exposure 1 ml I.M. injection on 0,3,7,14,30,90 days. Prophylaxis 0,30,60 and booster after 1year human diploid cell vaccine (H.D.C. Vaccine) Post exposure 0,3,7, 14,30,90 days. Prophylaxis 1ml intradermal/I.M. Vaccine 0/30 days followed by a booster every year. Human Rabies Immune Globulin (H.R.I.G.) 20 units per Ig I.M. in gluteal region Rabies Vaccine Absorbed(R.V.A.), foetal rheusus lung diploid cell vaccine – 1ml, I.M., And wound area on 0,3,7,14,28 days <sup>34</sup>
4.	Spider (Loota)	Pipali +Sleshmatk +Bibhitaka – lepa <sup>35</sup>	Not Specific antidote
5.	Keeta Vi- sha	<ol> <li>Dashang Agada<sup>36</sup></li> <li>Champaka Agada<sup>37</sup></li> <li>Padhamka Agada<sup>38</sup></li> </ol>	Wasp- Antihistamine cream Hydrocortisone <sup>39</sup>
6.	Shatpadi	Kumkumadi Agada <sup>33</sup>	Not antidote specific
7.	Piplika	Krashn Valmiki mratika pishti with gomutra – Lepa <sup>41</sup>	Not specific antidote
8.	Makshika	Krashn Valmiki mratika pishti with gomutra – Lepa <sup>41</sup>	Not specific antidote
9.	Galgolika	Rajanyaadi Agada <sup>42</sup>	Not specific antidote
10.	Manduka	<ol> <li>Meshsharangi Agada<sup>43</sup></li> <li>Shirisha (seed)+Snuhi sheera –lepa<sup>44</sup></li> </ol>	Not specific antidote

 Table 5: List of Dhatu Visha and its specific Ayurvedic Prativisha & Antidote.

S.N.	Dhatu Visha	Prativisha	Time	Antidote
1.	Abharaka	Aamlaki fruit pisti in water	Three	Not specific antidote
			days	
2.	Makshika	1) Kulatha kasaya	3 days	Not specific antidote
		2) Dadima tvaka		
3.	Suvarna	Haritaki with sharkara	3 days	Not specific antidote
4.	Ropya	Sharkara+ madhu	3 days	Not specific antidote
5.	Tambra	Sonfa with sharkara- early morn-		Mechanical antidote White eggs or De-
		ing Pana		mulcent milk drink
				Chemical antidote Potassium ferrocy-
				naide
				Physiological antidote
				Calcium EDTA BAL Panicillamine <sup>46</sup>
6.	Loha	Durva Rasa with madhu		Not specific antidote
			3 days	Mechanical antidote Demulcent drinks,
7.	Naga	Hema haritki+sita mishri		milk, egg white, etc.
				Chemical antidote Magnesium sulphate
				& Sodium sulphate
				Physiological antidote
				EDTA <sup>47</sup>
8.	Vanga	Meshsharngi +sita	3 days	Not specific antidote
9.	Yashada	Ela + madhu sharkara	3 days	Not specific antidote
10.	Manahashila	Jiraka + mashika	3 days	Not specific antidote
11.	Harital	1. Jiraka with sharkara	7 days	Not specific antidote
		2. Kushmanda Rasa		
12.	Ras karpoora	Dhaniya with sharkara- Pana		Not specific antidote
13.	Parada	Nagvalli Rasa+ bharangraj	3days	Mechanical antidote
		+ Tulsi Rasa takes one of these in	(Two Pra-	Demulcent drinks, milk, egg white, Acti-
		Prastha Matra only and Mardhana	hara every	vated charcoal.
		with Aaja milk	day)	Chemical antidote
				Magnesium sulphate & Sodium sulphate
				Physiological antidote
				B.A.L. – 3-4mg /kg I.M. every 4hour
				Panicillamine <sup>48</sup>

**Table 6:** List of Antidotes in specific Poisoning.<sup>49</sup>

Tuble of Philadeles in specific 1 disconing.		
Specific poisoning	Specific antidote	
Acetaminophen/Paracetamol	N.A.C.	
Aspirin	Sodium bicarbonate	
Arsenic	B.A.L.	
Anticholinergic poisoning	Physostigmine	
Beta-blockers	Glucagon, Insulin	
Benzodiazepines	Flumazenil	
Botulism	Guanidine	
Rodenticide poisoning-warfarin	Vit K1	

Arsenic	Dimaval
Calcium channel blockers	Atropine, insulin, calcium, lipid emulsion
Copper	Penicillamine
Chloroquine	Desf errioxamine mesylate
Lead	Calcium disodium EDTA
Mercury	N-Acetyl Penicillamine
Methanol	Ethanol
Tricyclic Antidepressant	Sodium bicarbonate
Snake bite	Anti-snake venom
Scorpion sting	Anti-Scorpion venom
Insulin	Glucose/dextrose

#### DISCUSSION

People have been exposed to poisoning on a daily basis since ancient times, which has resulted in major health problems. Antidotes are used in Ayurveda to treat poisoning. Antidotes are pharmaceuticals that stop the progression of negative health effects brought on by exposure to exogenous substances, such as drugs, metals, and poisons<sup>50</sup>. The usage of antidotes is dependent on the clinical indication and the product's availability. Plant, animal, and mineral products are readily available antidotes. The majority of the antidotes discussed in this literature are plant and animal items. Swarasa is commonly used as an antidote to plant products. Milk is commonly used as an antidote to animal products. The probable mode of action of each antidote can function with the concept of incompatible action for each other, as we have seen in day-to-day practice, where we can observe alcoholic patients who drink too much alcohol and then use lemon juice to lower the toxicity of the liquor. Similarly, Neeri Root is used to treat Langali toxicity. We can use ethanol for methanol poisoning and other antidotes for research purposes. As a result, an attempt has been made to consolidate everything into one publication.

#### CONCLUSION

Ayurveda recognised the necessity of *Prativisha* (Antidote) in counteracting poisonous possessions. *Visha* has virtues such as *Laghu*, *Aashu*, *Sukshma*, *Vyavayi*, *Vikashi*, and others that will penetrate *Sukshmatisukshma srotas* and work fast. Ayurveda

has described various antidotes that are widely available. The highest poisoning death rate in the world is seen primarily in lower socioeconomic strata, with minimal publicity for emergency treatment. This article has discussed various specific antidotes that are widely available. This is the time to stimulate additional research on the antidote, for new and improved antidotes, and its action in various modes of poisoning conditions.

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