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PURIFICATION OF VISHA DRAVYAS (POISONOUS PLANTS) IN AYURVEDA: A PHARMACOLOGICAL PERSPECTIVE

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ABSTRACT:

Avyakta Ras (taste that is sometimes palatable and sometimes not palatable or that is hidden), Teekshna (Penetrating), Ruksha (Dry), Sukshma (Minuteness), Ushna (Heat), Ashukar (Quick or immediate action), Vishada (Pervading or diffusing action), and Apaki (Not digested) are the qualities of Visha. It immediately distributes throughout the body before going through digestion. creates the poisonous consequences and the vitiation of Dosha (Vata-Pitta-Kapha) and Dhatu (Rasa-Rakta-Mamsa-Meda-Asthi-Majja-Shukra). Vishaghna Dravyas are medicines that counteract and lessen the harmful effects of the vitiated Dosha (Vata-Pitta-Kapha) and Dhatus, which include Rasa (plasma), Rakta (blood), Mamsa (muscle tissue), Meda (fat), Asthi (bones), Majja (bone marrow), and Shukra (semen). A chemical that is harmful or perhaps fatal that induces Shoka (sadness) is known as visha. Ayurvedic texts provide descriptions of several toxic medications, their counter-actions, and their post-purification pharmacological effects. The chemical makeup of the toxic components and their evolutionary relationships can be used to classify plants as poisonous. Examples of such categories include those that are toxic to eat, poisonous when contacted, photosensitive, and airborne allergens. A wide variety of physiologically active chemical compounds, including alkaloids, polypeptides, amines, glycosides, oxalates, resins, and toxalbumins, are included in phytotoxins. The many detoxification or cleansing procedures (known as "Sodhana") used in the Ayurvedic medical system are discussed in this overview. Thus, in addition to their pharmacological effects and their Guna, Rasa, Vipaka, and Veerya, Prabhava from the many Ayurvedic classical works, an attempt is made here to screen the Visha Dravyas and their methods of purification in various media.

KEYWORDS: Ayurveda, Drug purification, Pharmacological effects, Shodhana, Toxic plants, Visha, Vishaghna Dravyas

INTRODUCTION:

The majority of Ayurvedic medications come from the plant kingdom. Numerous plant compounds from Ayurveda have been identified and made available for use in treating a range of illnesses. Because of their toxicity or adverse effects, some medications have been discontinued. While few plant medications are harmful to human health, the majority are safe. These toxic or poisonous plants are categorized as Visha-poisonous and Upavisha-toxic but not lethal for human health-in Ayurvedic scriptures. Such plant pharmaceuticals need to be cleansed and detoxified before being used, in order to encourage and present their usage as medicine. Sodhana is the term used to describe the cleansing or detoxification process of toxic plants utilized for medical purposes.

The Purification (Sudhana) procedure is specifically made for medications derived from plants and minerals to eliminate or detoxify harmful chemicals. For all types of medications, purification is advised in order to eliminate their doshas (impurities or harmful content). Ayurvedic treatises state that Visha, a poisonous medication, can be transformed into Amruta, or nectar, by using properly prepared ways; on the other hand, using improper methods causes the body to become toxic and die from Pranahara. Poison plant sodhana not only addresses the process of physical and chemical component detoxification or purification, but it also reduces side effects and enhances the medication's strength and therapeutic efficacy. At high doses, the active ingredients in many plant-based medications can have extremely harmful effects. Numerous Sodhana methods have been emphasized in classical Ayurvedic literature to mitigate the side effects of both toxic and non-toxic medications. These methods entail giving the substances—Gomutra, Godugdha, and Triphala Kashaya—different media^[1,2].

MATERIAL AND METHODS:

Based on traditional Ayurvedic literature, the toxic herbs were emphasized, and their effectiveness was investigated through pharmacological effects. Digital data and classical Ayurvedic literature were utilized to screen the toxic medications, which were then enumerated based on their Rasa (tastes), Guna (qualities), Veerya (potency), Vipaka (taste after digestion is complete), and Prabhava (special effects) with corresponding references.

DISCUSSION:

Screening of different poisonous plants include;

1. KUPILU: After appropriate Sodhana, the *Strychnos nux-vomica* Linn. is widely employed in the treatment of a number of medical ailments, including rheumatism, dyspepsia, dysentery, paralysis, weakness of the limbs, and nervous debility. It has been discovered that the Kupilu contains extremely toxic active alkaloids including brucine and strychnine. Kupilu seeds are traditionally purified by repeatedly soaking them in liquid media for three to twenty days^[3,4].
2. GUNJA: After being processed through sodhana, the roots, seeds, and leaves of *Abrus precatorius* Linn. have historically been utilized for their Rechaka (purgative),

Vami (Emetic), Balya (tonic), Vrishya (aphrodisiac), and Keshya (properties that promote hair development) qualities. A poisonous lectin, an albumotoxin called abrin, an enzyme that splits fat, a glucoside known as abruassic acid, urease, abarnin, trigonelline, choline, hypaphorine, and steroidal oil are among the substances found in abrin (abruassic acid) seeds^[4]. Gunja seeds are soaked in Sodhana (boiled) water for three to six hours in a Dola Yantra together with Godugdha (cow's milk) or Kanji (one of the fermented liquid media). After that, the Sodhita Gunja is washed in hot water and let to dry in the shade. The results of the efficacy trials on the antibacterial and hair-growth properties of Sodhita Gunja are noteworthy^[5,6].

3. DHATTURA: The plant's alkaloids include anticholinergic qualities, which can cause dangerous side effects as dry mouth, extreme thirst, cramps and unconsciousness. Dhatura seeds are purified by immersing them in recently collected gomutra, or cow's urine, and leaving them alone for a full day. Following washing, the seeds are placed in the Dola Yantra to undergo a three-hour process known as Swedana, or boiling. The seeds are cleansed with lukewarm water once more, then their testa are removed and allowed to dry. The whole elimination of scopolamine and the partial removal of hyoscyamine show how effective Sodhana of Dhatura is in eliminating toxins^[7].
4. KARAVIRA: It is reported that *Nerium indicum* possesses anti-inflammatory, cardiogenic, neuroprotective, and anticancer effects. A variety of hazardous cardiac glycosides, known as cardenolides, are present in this plant, namely oleandrin and neriine. The Swedana (Boiling) method in the Dola Yantra uses Godugdha (Cow's milk) to purify the roots of Karavira for three hours. The roots are dried and cleaned with water after Sodhana. Furthermore, it was noted that Sodhita (Purified) Karavira did not exhibit any documented toxicity in animal studies^[8,9].
5. VACHA: *Acorus calamus* Linn.'s rhizome is utilized as an appetizer, emetic, antiepileptic, and brain tonic. Additionally, it has analgesic, anthelmintic, antibacterial, antidiarrheal, antidyslipidemic, neuroprotective, antioxidant, anticholinesterase, spasmolytic, and antiulcer properties. Vacha does not fall under the category of dangerous drugs, yet some Ayurvedic literature, such as the Indian Ayurvedic Pharmacopoeia, suggest Shodhana (Purification) for the Vacha rhizome. Vacha has α and β -asarone, calamenenol, α -pinene, and camphene as its primary active components^[10]. Vacha's β -asarone and aromatic oils are primarily responsible for its pharmacological properties. Vacha is boiled for three hours as part of the Shodhana (purification) procedure by Gomutra, Mundi Kwatha (decoction made from the entire plant of *Sphaeranthus indicus*), and Pancha Pallava Kwatha (decoction made of five leaves: Amra (mango), Vata (banana), Ashwattha (fungus), Bakul (*Mimosops elengi*),

and Panasa (jack fruit). Following that, it receives an hour-long treatment with Gandhodaka, or aromatic water. The rhizomes are dried for 12 days following the Shodhana (purification) process. As a result of its volatilization, certain heating procedures using various media cause the content of β -asarone to decrease. According to Bhat et al.'s study, pre-treating rats with raw and Shodhita Vacha both significantly reduces the length of the tonic extensor phase, exhibiting anticonvulsant efficacy^[10,11,12].

6. CHITRAKA: *Plumbago zeylanica* Linn. is a plant that is often used as an appetizer, digestive aid, treatment for piles, irritable bowel syndrome, and discomfort. Higher dosages of plumbagin have been shown to be extremely cytotoxic. Higher doses of chitraka may result in paralysis since plumbagin is present. Chitraka has a 24-hour soak in a mixture of lime and water to begin the purifying process. For a full day, the same process is repeated. According to reports, 50% of plumbagin was eliminated during Chitraka's Shodhana (purification) process. According to findings from another comparative study, the roots of Chitraka had a substantially lower plumbagin content than the roots of *Plumbago indica* following the purification process known as Shodhana^[13].
7. AHIPHENA: Opium that is astringent, constipating, sedative, narcotic, and antispasmodic is produced from *Papaver somniferum* Linn. Fruits. It is used to treat a variety of painful conditions, including migraines, malaria, dysmenorrhea, cystitis, menorrhagia, fever, coughing, inflammatory affections of the eyes, proctalgia (pain caused by spasm of pelvic floor muscles, muscles of the anal sphincters, or the muscles of the rectum), and low back pain brought on by diarrhea and dysentery. Two main ingredients in opium are papavarine and morphine. A large amount of opium can provide euphoria, induce sleep, ease pain, and have lethal effects on the central nervous system. Opium's toxic effects can be mitigated by steeping it in cold water for five to six hours^[14].
8. GUGGULU: An oleo-gum resin is the *Commiphora mukul* Hook. Ex. Stocks. Swedana, or boiling, of Guggulu Pottali in Dola Yantra is part of its purification process. Various media are used, including Godugdha (cow's milk), Gomutra (cow's urine), and Triphala (fruits decoction of *Emblica officinalis*, *Terminalia bellerica*, and *Terminalia chebula*). Pottali should be taken out and the liquid should be evaporated to get Shodhita (purified) Guggulu once all of the Guggulu has dissolved in the medium. Literature mentions that Shodhana of Guggulu may intensify certain actions, like improving mobility, body tonicity, and bioavailability. In the ileum of guinea pigs and Wistar rats, spasms caused by acetylcholine, histamine, and barium chloride are significantly inhibited by Shodhita Guggulu (Purified Guggulu), but not by Guggulu^[15,17].
9. LANGALI: The *Gloriosa superba* Linn., a semi-woody climber, is utilized to treat fever, gout, rheumatoid arthritis, gonorrhea, inflammations, and labor pains. It has been noted that the plant's colchicine has harmful effects, particularly cardiotoxicity. Gloriosine, another poisonous alkaloid found in the species, is also present. Shodhana, or purification, is soaking seeds and roots in gomutra, or cow urine, for a full day before washing them with warm water. Due to its polar nature, which makes it soluble in water and gomutra (cow poop), colchicine levels dramatically decrease during the Shodhana (purification) process^[16].
10. KUMBHINI: Intestinal inflammation, diarrhea, dyspepsia, and constipation and other gastrointestinal diseases are commonly treated with the *Croton tiglium*. The seeds have powerful purgative principles such as phorbol esters and crotonic acid, as well as an irritating oil and a poisonous protein component called crotin, which is made up of crotonglobulin and crotonalbumin. After removing the covering, Kumbhini seeds are cleaned by Swedana using Godugdha, or cow's milk, in a Dola Yantra for three hours. The seeds are then triturated with lemon juice. Following the Shodhana (Purification) process, it has been observed that the phorbol content and toxicity of the croton oil have greatly decreased. Following Shodhana, notable alterations in the physicochemical characteristics of seeds were noted. The amount of crotonic acid and phorbol ester, the two main purgative components, in unpurified Kumbhini. The amount of crotonic acid was absent in purified extract^[18].
11. BHANGA- *Cannabis sativa* Linn. leaves have a variety of medicinal properties, including being bitter, astringent, tonic, aphrodisiac, alterative, intoxicating, stomachic, analgesic, and abortifacient. Convulsions, otalgia, stomach issues, malaria, diarrhea, skin conditions, hysteria, sleeplessness, gonorrhea, colic, tetanus, and hydrophobia are among the conditions it is used to treat. When used in excess, it can lead to psychosis, dropsy, melancholy (a depressing feeling), dyspepsia, coughing, impotence, and restlessness. To lessen these harmful effects, Bhang is triturated with Godugdha (cow's milk) after being boiled for three hours with Babbula Twak Kwatha (decoction of *Acacia bark*). The negative effects of Bhang can be further mitigated by using the resulting powder in Goghrita^[19].
12. BHALLATAKA: This fruit is a powerful medication that relieves rheumatism, sciatica, epilepsy, nervous debility, and a host of other conditions. The phytochemical components that cause irritation, blisters, toxicity, and contact dermatitis are bhallawanol and anacardic acids. The fruits in Bhallataka are immersed in Gomutra and Godugdha and then, as part of the rite, rubbed with brick powder. The fruits are preserved in either Godugdha (cow's milk) or Gomutra (cow's urine) for seven days after the thalamus sections are removed, and then they are washed with water. After three days, the seeds are moved to a bag containing Isthika Choorna (Brick powder), where they are properly cleaned and allowed to dry^[20]. Brick powder absorbs irritating oils

from fruit due to its adsorbent properties. Following Sodhana, Bhallataka's antioxidant activity declines but its safety profile rises as the harmful phenolic oil is eliminated. Furthermore, the plant exhibited typical anti-arthritis action after taking Sodhana^[21,22].

CONCLUSION:

Classics of Ayurveda say that with the right preparation and administration, even a potent poison might become a wonderful remedy. However, if taken improperly, even the most beneficial medication might turn toxic. Under the influence of various purification techniques, Ayurvedic Acharyas attempted to establish several age-old techniques to change potentially harmful medicinal herbs into beneficial ones. Traditional Shodhana methods of detoxification or purifying might enhance the treatment by affecting changes in phytochemical, pharmacological, and toxicological properties. Undoubtedly, certain media have demonstrated a significant function in ensuring that a medication acts without producing negative side effects. Each of these medications contains Laghu, Ushna Vira, Katu Rasa, and Katu Vipaka.

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