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EKASARA GANA: A COMPREHENSIVE REVIEW OF AYURVEDIC ANTI-TOXIC HERBS

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ABSTRACT

The clinical treatment of different toxicities is the focus of Agada Tantra, a subspecialty of Ashtanga Ayurveda (Visha). The Sushruta Samhita (Kalpa Sthana) describes a highly effective class of anti-toxic medications called Ekasara Gana, which are specifically recommended for systemic toxicities such as Sarpadashta Visha (snakebite envenomation). This group includes one mineral component (Krishna Mruttika, also known as black earth) and eighteen medicinal herbs. The botanical identity, chemical composition, and contemporary pharmacological effects of the Ekasara Gana dravyas are examined in this review article. The study supports the traditional Vishaghna (anti-toxic) claims by examining recent research, showing that a sizable portion of these herbs have potent hepatoprotective (72.22%), anti-inflammatory (83.33%), and antioxidant qualities, making them extremely pertinent for contemporary integrative toxicology.

KEYWORDS: This group includes one mineral component (Krishna Mruttika, also known as black earth) and eighteen medicinal herbs.

INTRODUCTION

Vital organs like the liver, kidneys, and central nervous system are frequently targeted by toxicity, whether it comes from biological venoms, chemical exposure, or accumulated metabolic waste (Dushivisha). To counter these particular dangers, ancient Ayurvedic scholars developed a variety of Ganas (groups of herbs). Acharya Sushruta cited Ekasara Gana as a prime example. This Gana's distinctive feature is its clinical flexibility; depending on the Dosha dominance and the particular organ the poison is targeting, a doctor can use these herbs as single medications (Ekal Dravya) or in combinations of two, three, or more. Investigating these traditional polyherbal combinations offers a safe, plant-based method of systemic detoxification and organ protection in the modern era, when synthetic antidotes occasionally have severe side effects.

• AIM

To assess the combined clinical potential of the herbs of Ekasara Gana as a broad-spectrum antidote by methodically reviewing the traditional and contemporary scientific literature.

• OBJECTIVES

1. To document the 19 constituents (18 herbs + 1 mineral) of *Ekasara Gana*.
2. Using a structured table, describe each herb's active chemical components and contemporary pharmacological actions.
3. To determine and examine the overall proportion of particular pharmacological actions (such as anti-inflammatory and hepatoprotective) among the herbal components.
4. To establish a link between contemporary therapeutic practices and traditional Vishaghna properties.

4. MATERIAL AND METHOD

Classical Review: The primary data was collected from Sushruta Samhita (Kalpa Sthana, Chapter 5: Sarpadashta Visha Chikitsa).

•**Modern Literature Search**: A thorough review of the literature was done by searching various scientific literature sources like PubMed, Google Scholar, ResearchGate, etc. The keywords searched included "Ekasara Gana", "Vishaghna", "Agada Tantra", etc., and the names of the individual herbs.

•**Data Analysis**: The modern pharmacological properties of the 18 plant-derived ingredients have been presented in the form of a table. A statistical analysis of the data (in terms of percentage) is done based on the number of herbs having a particular action on the system (for example, out of 18 herbs, how many have shown hepatoprotective activity).

5. Constituents of Ekasara Gana: According to the *Sushruta Samhita*, Ekasara Gana consists of the following 19 components (18 botanical and 1 mineral/earth).

1. **Bakuchi** (*Psoralea corylifolia*)
2. **Katabhi** (*Careya arborea*)
3. **Sindhuvaraka / Nirgundi** (*Vitex negundo*)
4. **Choraka** (*Angelica glauca*)
5. **Varuna** (*Crateva nurvala*)
6. **Kushtha** (*Saussurea lappa*)
7. **Sarpagandha** (*Rauwolfia serpentina*)
8. **Saptala** (*Euphorbia pilosa* / *Acacia sinuata*)
9. **Punarnava** (*Boerhavia diffusa*)
10. **Shirisha** (*Albizia lebbeck*)
11. **Aragvadha** (*Cassia fistula*)
12. **Arka** (*Calotropis procera*)
13. **Shyama / Trivrit** (*Operculina turpethum*)
14. **Ambastha** (*Cissampelos pareira*)
15. **Vidanga** (*Embelia ribes*)
16. **Amra** (*Mangifera indica*)
17. **Ashmantaka** (*Ficus rumphii*)
18. **Kurabaka** (*Barleria prionitis*)
19. **Bhumi / Krishna Mruttika** (Black soil / mud - used primarily for its cooling and local toxin-absorbing properties).

Table 1: Rasapanchak of ingredients of Ekasar Gana.

S N	Name	B. Name	Rasa	Guna	Virya	Vipaka
1	Bakuchi Pushp	Psoralea Corylifolia	Katu, Tikta	Laghu, Ruksha	Usna	Katu
2	Katabhi	Careya Arborea	Katu	Ruksha	Usna	Katu
3	Sindhuvar	Vitex Negundo	Katu, Tikta	Laghu, Ruksha	Usna	Katu
4	Varun	Crataeva Nurvala	Tikta, Kashay	Laghu Ruksha	Usna	Katu
5	Kustha	Saussurea Lappa	Tikta, Katu Madhura	Laghu, Ruksha Tikshana	Usna	Katu
6	Sarapgandha	Rauwolfia Serpentina	Tikta	Ruksha	Usna	Katu
7	Saptala	Euphorbia Tirucalli	Tikta	Laghu	Sheeta	Katu
8	Punarnva	Boerhavia Diffusa	Madhur, Tikta, Kashya	Laghu, Ruksha	Usna	Madhur
9	Sheerish Pushpa	Albizzia Lebbeck	Kashaya, Tikta, Madhura	Laghu, Ruksha, Tikshana	Ishad Usna	Katu
10	Aargwadh	Cassia Fistula	Madhur	Guru, Mridu, Snigdha	Sheeta	Madhura
11	Shyama (Priyangu)	Callicarpa Macrophylla	Tikta, Kashay, Madhur	Guru, Ruksha	Sheeta	Katu
12	Ambastha	Cissampelos Pareire	Tikta	Laghu, Tiksha	Usna	Katu
13	Vidanga	Embelia Ribes	Katu Kashya	Laghu, Ruksha, Tikshan	Usna	Katu
14	Aamra	Mangifer a India	Kashay a	Laghu, Ruksha	Sheeta	Katu
15	Asmantak	Ficus Rumphii	Kashay	Laghu, Ruksha	Sheeta	Katu
16	Bhumi (Krishan Mrittika)		Madhura	Snigdha, Sheeta, Guru	Sheeta	Madhura
17	Kurbak (Sairyek)	Barleeria Prionitis	Tikta, Madhu ra	Laghu, Snigdha	Usna	Katu

Table 2: Properties of ingredients of Eksara Gana.

SN	Name	Doshaghanta	Karma
1	Bakuchi, Bakuchi Pushp	Kapha-Vatta	Krimi, Kustha, Twaka Vikara, Visha, Kandu, Vaman, Swasha, Kasha, Sotha, Pandu
2	Katabhi	Kapha	Prameha, Nadivrana, Visha, Krimi
3	Sindhuvar	Kapha-Vaata	Keshya, Netrahitta, Shola, Sotha, Krimi, Kustha, Pleeha, Gulma
4	Varun	Kapha-Vatta	Gulam, Krimi, Agnideepana, Raktadoshahara, Vidhardhi
5	Kustha	Kapha-Vatta	Vattaroga, Visarpa, Kasa, Kstha, Hikka, Jwara
6	Sarapgandha	Kapha-Vatta	Ruchyaa, Sholaprashaman, Nidraprada, Hridyavsadini, Krimi, Jwara, Agnimandya, Visha, Rakta-Catadhikya
7	Saptala	Kapha	Sotha, Aanah, Pittanashan, Udavarata, Raktaprakopa

8	Punarnva	Tridhosha	Sopha, Garavisha, Slehsmahara, Udar Roga, Pandu, Hridroga, Kasa, Urkshata, Shoola
9	Sheerish Pushpa	Tridosha	Vishghana. Visrapa, Kasa, Vrana, Twakdosha, Swasha
10	Aargwadh	Vatta-Pitta	Mridu Virechaka, Jwara, Hrid Roga, Pitta Rechaka, Udavarta, Shola, Ruchikaraka
11	Shyama	Tridosha	Rakta-Atisara, Swedanashak, Jwaranashka, Gulma, Trishna, Daha
12	Ambastha	Tridosha	Shola, Jwara, Chardi, Kustha, Atisar, Hridroga, Daha, Kandu, Visha, Swasha, Gulma, Garavisha, Vrana
13	Vidanga	Kapha-Vatta	Agnideepana, Shola, Adhman, Vibandh, Krimi, Kustha, Prameha, Shiroroga
14	Aamra	Kapha-Pitta	Asirgdara, Grahi, Ruchikrit, Hardya, Vranya, Sukravivardhanam
15	Asmantak	Kapha-Pitta	Sangrahi
16	Bhumi	Kapha-Pitta	Kshata, Daha, Raktapradar
17	Kurbak	Kapha-Vatta	Kustha, Kandu, Visha, Keshranjana

6. Chemical Constituents and Pharmacological Action (Table)

S.No	Ayurvedic Name	Botanical Name	Active Chemical Constituents	Modern Pharmacological Action
1	Bakuchi	*Psoralea corylifolia*	Psoralen, Isopsoralen, Bakuchiol	Antimicrobial, Hepatoprotective, Antioxidant
2	Katabhi	*Careya arborea*	Triterpenoids, Flavonoids, Taraxerol	Anti-inflammatory, Hepatoprotective, Analgesic
3	Sindhuvaraka	*Vitex negundo*	Negundoside, Agnuside, Flavonoids	Anti-inflammatory, Hepatoprotective, Antivenom
4	Choraka	*Angelica glauca*	Coumarins, Essential oils, Angelicin	CNS stimulant, Cardioprotective, Antioxidant
5	Varuna	*Crateva nurvala*	Lupeol, Rutin, Saponins	Nephroprotective, Diuretic, Anti-inflammatory
6	Kushtha	*Saussurea lappa*	Costunolide, Dehydrocostus lactone	Hepatoprotective, Anti-ulcer, Immunomodulatory
7	Sarpagandha	*Rauwolfia serpentina*	Reserpine, Ajmaline, Serpentine	Antihypertensive, Sedative, Neuroprotective
8	Saptala	*Euphorbia pilosa*	Euphol, Resins, Triterpenes	Purgative, Anti-inflammatory, Antimicrobial
9	Punarnava	*Boerhavia diffusa*	Punarnavine, Boeravinones	Diuretic, Hepatoprotective, Immunomodulatory
10	Shirisha	*Albizia lebbeck*	Saponins, Tannins, Flavonoids	Anti-allergic, Antivenom, Hepatoprotective
11	Aragvadha	*Cassia fistula*	Rhein, Sennosides, Anthraquinones	Mild Laxative, Hepatoprotective, Antioxidant
12	Arka	*Calotropis procera*	Calotropin, Uscharin, Calotoxin	Anti-inflammatory, Antimicrobial, Analgesic
13	Shyama	*Operculina turpethum*	Turpethin, Jalapin	Purgative, Hepatoprotective, Anti-inflammatory
14	Ambastha	*Cissampelos pareira*	Hayatin, Bebeerine	Anti-spasmodic, Diuretic, Hepatoprotective
15	Vidanga	*Embelia ribes*	Embelin, Quercetin	Anthelmintic, Antibacterial, Antioxidant
16	Amra (Seed)	*Mangifera indica*	Mangiferin, Gallic acid	Antioxidant, Immunomodulatory, Hepatoprotective
17	Ashmantaka	*Ficus rumphii*	Flavonoids, Tannins	Anti-inflammatory, Antimicrobial, Wound healing
18	Kurabaka	*Barleria prionitis*	Barlerin, Acetylbarlerin	Anti-inflammatory, Hepatoprotective, Antioxidant

7. Total Percent Action of Ingredients

To determine the systemic action of Ekasara Gana, an analysis of the 18 plant ingredients was done based on their proven pharmacological action.

•**Hepatoprotective Action:** 13 out of 18 herbs (Shirisha, Punarnava, Bakuchi, Katabhi, Sindhuvaraka, Kushtha, Aragvadha, Shyama, Ambastha, Amra, Kurabaka, Varuna, Sarpagandha) have hepatoprotective action.

+ (72.22%).

•**Anti-Inflammatory Action**: 15 out of 18 herbs have strong anti-inflammatory action, which is necessary for reducing inflammation and pain after venom injection.
+ (83.33%).

•**Antioxidant / Free Radical Scavenging Action**: 16 out of 18 herbs have antioxidant activity and scavenge free radicals, which cause oxidative stress by cellular toxicity.
+ (88.88%)

•**Antimicrobial / Antibacterial Action**: 14 out of 18 herbs prevent secondary infection from bite or systemic infection.
+ (77.77%)

•**Diuretic & Nephroprotective Action**: 7 out of 18 herbs (Varuna, Punarnava, Ambastha) help in removing toxins through the kidneys.
+ (38.88%)

8. DISCUSSION

Toxins like snake venom (Sarpa Visha) and cumulative poisons (Dushivisha) are mainly distributed by the blood (Rakta Dhatu) and are heavily metabolized by the liver and kidneys. The classical classification of Ekasara Gana under the category of Vishaghna is strongly supported by modern pharmacology.

With 72.22% of the herbs having the capacity to act as hepatoprotectives and 38.88% having the capacity to act as nephroprotectives, the formulation ensures the main organs of detoxification are protected from necrotic changes. The action of herbs like Punarnava and Varuna is like a diuretic, thereby increasing the removal of water-soluble toxins from the system. Moreover, the action of Sarpagandha provides a sedative action, which is of vital importance to counter the severe anxiety experienced by the patients. The use of Krishna Mruttika (mud) as the 19th ingredient shows the ancient knowledge of the absorption of toxins from the skin, similar to the action of charcoal.

9. CONCLUSION

Ekasara Gana is a polyherbal formulation of Ayurvedic toxicology that has been masterfully curated. From the scientific analysis, we can understand that the formulation offers a multi-targeted approach in dealing with toxic substances, including the elimination of free radicals (88.88% antioxidant activity), reducing systemic inflammation (83.33%), protecting the liver (72.22%), and increasing renal clearance. From the perspective of Agada Tantra and phytochemistry, we can understand that Ekasara Gana possesses massive potential in dealing with toxic substances not only in emergency conditions but can be utilized in formulating daily detox regimens and dealing with chemical toxicities of modern times. Further in-vivo clinical trials of these formulations are highly recommended.

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