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PRELIMINARY ANALYSIS OF *DASHANGA AGADA*

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ABSTRACT

Introduction: *Dashanga Agada* has been mentioned by *Acharya Vaghabhata* in *Astanga Hrudaya* for *Keeta Visha* (insect bite/sting). It is the herbo-mineral compound having *Vacha*, *Hingu*, *Vidanga*, *Patha*, *Prativisha*, etc drugs as its ingredients, which is a potent formulation used in all types of *Keeta Visha*. AFI haven't explained the standardization parameters for *Dashanga agada* so, standardizing the formulation is a crucial step in quality assurance. Hence here we focused on a preliminary study of the formulation *Dashanga Agada*. **Methods:** It includes the organoleptic characteristics such as color, odor, and taste. Physicochemical analysis such as foreign matter, loss on drying, total ash, acid-insoluble ash, water, and alcohol-soluble extractive. Phytochemical analysis for organic and inorganic compounds, pH, test for specified microorganisms, microbial limit test, and thin layer chromatography. **Result:** Each raw drug showed its own organoleptic characteristics, *Dashanga Agada* was yellowish brown in color, characteristic odor, and pungent taste. LOD was 4.600%, TAV was 15.100%, AISAV was 0.950%, WSE was 33.440%, ASE was 16.400%, phytochemical analysis showed the presence of carbohydrates, reducing sugar, cardiac glycosides, anthraquinone glycosides, alkaloids, tannins, sodium, phosphate, chloride, carbonate,

and nitrate. pH was 4.91, thin layer chromatography showed 12 bands each at 254nm and 366nm wavelengths, and no microbial growth was detected in the study drug. **Conclusion:** The preliminary analysis of *Dashanga Agada* was carried out by assessing organoleptic characteristics, physicochemical, phytochemical, TLC, and microbial growth.

Keywords: *Dashanga Agada, Visha, Keeta, Agada, Preliminary analysis*

INTRODUCTION

Dashanga Agada is mentioned in *Astanga hrudaya* [1], *Astanga Sangraha* [2], *Chakradatta* [3], *Yogaratanakar* [4], *Vangasena* [5] and there is no difference of opinion regarding ingredients as well as quantity. It has 10 drugs, out of which 9 are herbal and 1 is of mineral origin [6], indicated in *Keeta Visha* (insect bite/sting) [7]. Analysis helps in the standardization of the formulation

which is an important step in quality control of herbal drugs [8]. AFI haven't explained the standardization parameters for *Dashanga Agada*, this analysis aids in the development and ensures the standard-quality product.

Ingredients, part used, and quantity of individual drugs of *Dashanga Agada* is mentioned in **Table 1.** [9]

Table 1: Ingredients of *Dashanga Agada*, Botanical name, Part used & Quantity [7]

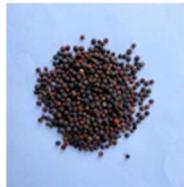
S. No.	DRAVYA	SCIENTIFIC NAME	PART USED	PROPORTION USED
1	<i>Vacha</i>	<i>Acorus calamus</i> Linn.	<i>Kanda</i> (Rhizome)	1Part
2	<i>Hingu</i>	<i>Ferula narthex</i> Boiss.	<i>Niryasa</i> (Gummy resin)	1 Part
3	<i>Vidanga</i>	<i>Embelia ribes</i> Burm.	<i>Phala</i> (Fruit)	1 Part
4	<i>Saindava</i>	Rock salt	-----	1 Part
5	<i>Gajapippali</i>	<i>Scindapsus officinalis</i> Schott	<i>Phala</i> (Fruit)	1 Part
6	<i>Patha</i>	<i>Cissampelos peltata</i> Hook	<i>Mula</i> (Root)	1 Part
7	<i>Prativisha</i>	<i>Aconitum heterophyllum</i> Wall.	<i>Kanda</i> (Rhizome)	1 Part
8	<i>Shunti</i>	<i>Zingiber officinale</i> Rosc.	<i>Kanda</i> (Rhizome)	1 Part
9	<i>Maricha</i>	<i>Piper nigrum</i> Linn.	<i>Phala</i> (Fruit)	1 Part
10	<i>Pippali</i>	<i>Piper longum</i> Linn.	<i>Phala</i> (Fruit)	1 Part



1. VACHA



2.HINGU



3.VIDANGA



4.SAINDHAV



5.GAJAPIPPAL



6.PATHA



7.ATIVISHA



8.SHUNTI



9.MARICHA



10.PIPPALI

MATERIALS AND METHODOLOGY

- Procurement of raw drugs and preparation of *Dashanga Agada* was done.
- Authentication, analysis of raw drugs, and *Dashanga Agada* were carried.

Preparation of *Dashanga Agada*

- Ingredients, parts used, and proportions were mentioned in **Table 1**.
- *Hingu bharjana* was done in *Ghruta* on medium flame till the color changed to brown.
- Each ingredient was made into powder form.
- All the ingredients were taken in

equal quantities in a vessel and mixed homogeneously.

- Final product was kept in a UV chamber under UV rays for 2 hours.
- Packed in an airtight container.

RESULTS

Results of Organoleptic Characteristics and Physicochemical analysis of raw drugs of *Dashanga Agada*, Organoleptic Characteristics and Physicochemical analysis of *Dashanga Agada*, Phytochemical analysis of *Dashanga Agada*, Results of Specified Microorganisms, Results of microbial limit test, TLC values of *Dashanga Agada* are mentioned in **Table 2, 3, 4, 5, 6 and 7** respectively.

Table 2: Organoleptic Characteristics and Physicochemical Analysis of raw drugs of *Dashanga Agada*

DRUG	PART USED	COLOR	ODOUR	TASTE	FM	TAV	ASE	WSE	AISA
<i>Vacha</i>	<i>Kanda</i> (Rhizome)	Externally- Light brown to pinkish Internally-buff colored	Aromatic	Pungent and bitter	Nil	6.231%	10.191%	18.570%	0.939%
<i>Hingu</i>	<i>Niryasa</i> (Gummy resin)	Reddish brown	Strongly characteristic & persistent	Bitter and acrid	Nil	3.953%	-	52.217%	0.867%

<i>Vidanga</i>	<i>Phala</i> (Fruit)	Brownish black	Slightly aromatic	Astringent	Nil	5.094%	13.436%	10.078%	1.098%
<i>Saindava</i>	-----	Whitish	Not specific	Salty	-	P ^H (10% solution) 5.96	Test for sodium (Na ⁺) - Present	Test for Potassium (K ⁺) - Present	-
<i>Gajapippali</i>	<i>Phala</i> (Fruit)	Brownish grey	Not distinct	Not distinct	Nil	5.797%	6.301%	12.658%	0.695%
<i>Patha</i>	<i>Mula</i> (Root)	Light brown to yellowish	Faint aromatic	Bitter	Nil	2.859%	12.392%	14.564%	0.533%
<i>Prativisha</i>	<i>Kanda</i> (Rhizome)	Externally ash-grey Internally starch-white	Not specific	Bitter	Nil	2.010%	7.987%	26.191%	0.392%
<i>Shunti</i>	<i>Kanda</i> (Rhizome)	Buff colored	Agreeable and aromatic	Agreeable and pungent	Nil	4.302%	4.586%	13.64%	1.040%
<i>Maricha</i>	<i>Phala</i> (Fruit)	Greyish black to black	Aromatic	Pungent	Nil	4.270%	10.732%	9.494%	0.287%
<i>Pippali</i>	<i>Phala</i> (Fruit)	Greyish black to black	Aromatic	Pungent	Nil	6.647%	6.502%	34.60%	0.244%

Table 3: Organoleptic Characteristics and Physicochemical Analysis of *Dashanga Agada*

FORMULATION	COLOR	ODOR	TASTE	LOD	TAV	AISA	WSE	ASE	pH
<i>Dashanga Agada</i>	Yellowish brown	Characteristic	Pungent	4.600%	15.100%	0.950%	33.440%	16.400%	4.91

Table 4: Phytochemical analysis of *Dashanga Agada*

TESTS FOR ORGANIC COMPOUNDS	RESULT	TESTS FOR INORGANIC COMPOUNDS	RESULT
Carbohydrate	Positive	Calcium	Negative
Reducing sugar	Positive	Magnesium	Negative
Monosaccharides	Negative	Sodium	Positive
Pentose sugar	Negative	Potassium	Negative
Hexose	Negative	Iron	Negative
Non-reducing polysaccharides	Negative	Sulphate	Positive
Proteins	Negative	Phosphate	Positive
Amino Acids	Negative	Chloride	Positive
Steroids	Negative	Carbonate	Positive
Cardiac glycoside	Positive	Nitrate	Positive
Anthraquinone glycosides	Negative		
Saponin glycoside	Positive		
Flavonoids	Positive		
Alkaloids	Positive		
Tannins	Positive		

Table 5: Results of Specified Microorganisms

PATHOGENS	LIMITS (AS PER IP)	RESULTS
<i>E coli</i>	Absent/100ml	Absent
<i>S aureus</i>	Absent/100ml	Absent
<i>P aeruginosa</i>	Absent/100ml	Absent
<i>S abony</i>	Absent/100ml	Absent

Table 6: Results of microbial limit test

S. No.	PATHOGENS	LIMITS (AS PER IP)	RESULTS
1	Total Bacterial Count	30-300 cfu/ml	No growth
2	Total Fungal Count	10-100 cfu/ml	No growth

Table 7: TLC values of *Dashanga Agada*

EXTRACT	SOLVENT	Rf VALUES
2gm of <i>Dashanga Agada</i> + 20ml ethanol	Toluene: ethyl acetate (7:3v/v)	Short Wave: -0.2, 0.260, 0.31, 0.37, 0.42, 0.47, 0.53, 0.62, 0.71, 0.8, 0.9, 0.93 Long Wave: -0.2, 0.23, 0.3, 0.33, 0.45, 0.5, 0.55, 0.7, 0.75, 0.85, 0.9, 0.92



11. Loss on drying



12. Total Ash



13. Acid insoluble ash



14. Water soluble extract



15. Alcohol soluble extract



16. Evaluation of pH



17 & 18. Thin layer Chromatography



19, 20, 21 and 22. Preliminary phytochemical Analysis

DISCUSSION

Each raw drug has shown its own organoleptic characteristics. *Dashanga Agada* was a yellowish-brown colored formulation with a characteristic odor and pungent in taste. These characteristics help in the identification of the raw drugs and final product [10].

Standardization of crude drugs is aided by physicochemical analysis [11]. As there is loss on drying the raw and *Dashanga Agada* which indicate less moisture content, which in turn prevents microbiological growth enhances product's self-life. Microbial limit test supports by showing no growth of the

organisms. The result of total ash and acid insoluble ash showed the existence of less inorganic materials or adulterants in raw drugs and *Dashanga Agada*. Findings of water and alcohol soluble extract showed that the raw drugs and *Dashanga Agada* have high solubility in water than alcohol. Water is usually advised as an *Anupana* with this *Yoga*(formulation), which supports its efficacious effects.

The aqueous extract of *Dashanga Agada* showed a pH of 4.91, indicating its acidic nature and this in turn helps for better absorption as well as acts as antimicrobial agent. Phytochemical analysis of the aqueous extract of *Dashanga Agada* showed the presence of carbohydrates, reducing sugar, cardiac glycosides, anthraquinone glycosides, alkaloids, tannins, sodium, phosphate, chloride, carbonate, and nitrate. These have a wide range of applications such as it improves the function of nerve cells, antimicrobial, anti-inflammatory agents, and etc [12-16], so it counteracts the pathology of *Keeta Visha*. The phytochemical components of herbal medicines can be qualitatively analyzed using thin-layer chromatography [17], which showed 12 bands in a long wave (366nm) and 12 bands in a short wave(254nm).

In the above-mentioned formulation, some of the drugs were known for their *Krimigna* and

Vishagna actions so it can be effectively used in the management of *Keeta Visha* [18-25].

CONCLUSION

The data obtained from the preliminary analysis of *Dashanga Agada* is mentioned and discussed above and this can be utilized for the quality control and standardization of the Ayurvedic formulation of *Dashanga Agada*.

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Conflicts of interest - There are no conflicts of interest.

REFERENCES

- [1] Paradkar Harishastry, Editor. Astanga Hrudaya of Acharya Vagbhat, collected by Kunte A M and Narve K.R.S. Uttarasthana; Keetluthadi Pratishediya Adhyaya: Chapter 37, verse 27-28. varanasi, Krishnadas Academy.2017; Page No 916.
- [2] Srikantha murthy KR, Translator. Astangasangraha of Vruddha Vagbhata, Uttaratantra; Keetavisha pratished Adhyaya: Chapter 43, verse 45. Varanasi, Chowkambha Sanskrit series office. 2016; Page No 410.
- [3] Dr. Shailaja Srivastava, Chakradatta of Acharya Chakrapanidattdatta, Chikitsa sthana; Vishachikitsa Adhikara: Chapter 65, verse 30-31. Varanasi, Chaukhambha publication. 2021; Page No 679.

- [4] Dr. Pandeya R. Yogaratnakara, Visharogadhikara: Verse 135- 136. Varanasi, Chowkambha Krishnadas Academy. 2021; Page No 927.
- [5] Dr Rajivkumar Roy, Vangasena Samhita of Vangasena, Visharogadhikara, Verse 211, Varanasi, prachya prakashan. 2010; Page No 727
- [6] Binorkar S, A comparative clinical evaluation of Vilwadigutika against *Dashanga Agada* along with Ghrita Saindhava Dhara in the management of *Vrishchika Damsha*. V.P.S.V. Ayurveda College, Kottakkal. Kerala state.
- [7] Paradkar Harishastry, Editor. Astanga Hrudaya of Acharya Vagbhat, collected by Kunte A M and Narve K.R.S. Uttarasthana; Keetluthadi Pratishediya Adhyaya: Chapter 37, verse 27-28. varanasi, Krishnadas Academy. 2017; Page No 916.
- [8] Patel P M, Patel N M, Goyal R K. "Quality control of herbal products". The Indian Pharmacist, March 2006; 5(45): 26-30.
- [9] Paradkar Harishastry Vaidya, Editor. Astanga Hrudaya of Acharya Vagbhat, collected by Kunte A M and Narve K.R.S. Uttarasthana; Keetluthadi Pratishediya Adhyaya: Chapter 37, verse 17-19. Varanasi, Krishnadas Academy. 2017; Page No 925.
- [10] Parvesh K, Preliminarily phytochemical and physicochemical analysis of Dashanga Agada. World Journal of Pharmacy and Pharmaceutical Sciences, 2017; 6(9):1856-1862.
- [11] Tamboli F, More H, Pharmacognostic and Physicochemical Analysis of Barleria Gibsoni Dalz. Pharmacophore an International Research Journal, 2016; 7(2): 118-123.
- [12] Tamil SA, Dinesh MG, Satyan R S, Chandrasekaran B and Rose C. Leaf and seed extracts of *Bixa Orellana* L exert anti-microbial activity against bacterial pathogens. Journal of Applied Pharmaceutical Science, 1022;1:116–20
- [13] Hisanori A, Kazuyasu F, Osamu Y, Takashi O, Keiji I. Antibacterial action of several tannins against *Staphylococcus aureus*. Journal of Antimicrobial Chemotherapy, 2001;48: 487–91.

- [14] Ullah A, Munir S, Badshah S L, Khan N, Ghani L, *et al*, Important Flavonoids and Their Role as a Therapeutic Agent. *Molecules* 2020; 25(22), 5243.
- [15] Cowan MM, Plant products as anti-microbial agents. *Clin Micro Rev.* 1999; 12:564-582.
- [16] Ngoci SN, Macharia E, Ng'ang'a E, Screening for anti-bacterial activity and phytochemicals of *Leonotis nepetifolia* leaves methanol extract. *J Biotech Sci.* 2013; 1(1):15-21.
- [17] Yau WP, Goh CH, & Koh HL, Quality Control and Quality Assurance of Phytomedicines. *Phytotherapies*, 18-48.
- [18] Sharma P C, Yelne M B, Dennis T J. Database on Medicinal Plants used in Ayurveda, (Reprint), Vol I, CCRAS, 2002, Pg no 469-472.
- [19] Levekar G S *et al*, Database on Medicinal Plants used in Ayurveda & Siddha, Vol VIII, CCRAS, 2007, Pg no 125-132.
- [20] Levekar G S *et al*, Database on Medicinal Plants used in Ayurveda & Siddha, (Reprint), Vol V, CCRAS, 2008 (a) Pg no 478-482. (b) Pg no 315-323 (c) Pg no 187-192
- [21] Kamat S D. Dhanvantari Nighantu, Chapter no 2, Delhi, Chaukhamba Publication, 2002: Page no 134-135.
- [22] Sharma P C, Yelne M B, Dennis T J. Database on Medicinal Plants used in Ayurveda, Vol IV, CCRAS, Pg no 182-186.
- [23] Sharma P C, Yelne M B, Dennis T J. Database on Medicinal Plants used in Ayurveda, (Reprint), Vol II, CCRAS, 2005, Pg no 438-441.
- [24] Billore K V, Yelne M B, Dennis T J, Chaudhari B G. Database on Medicinal Plants used in Ayurveda, Vol VII, CCRAS, 2008, Pg no 38-42.
- [25] Sharma P C, Yelne M B, Dennis T J. Database on Medicinal Plants used in Ayurveda, (Reprint), Vol III, CCRAS, 2005, Pg no 472-474.

Abbreviations

1. LOD- Loss on drying
2. TAV- Total ash value
3. AISAV- Acid insoluble ash value
4. WSE- Water soluble extract
5. ASE – Alcohol soluble extract
6. TLC- Thin layer Chromatography
7. nm – nano meter
8. DA – Dashanga Agada
9. CFU-Colony forming units
10. Rf- Refractive index