

Analytical Standardization Assessment of *Dushivishari Agad*

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Abstract

Background: *Dushivishari Agada* (DVA) is an Ayurvedic herbo-mineral formulation having a vital role in inflammatory disorders of skin due to its anti-inflammatory, antioxidant, and immunomodulatory properties. DVA comprises *Pippali* (*Piper longum* Linn.), *Dhyamaka* (*Cymbopogon martinii* (Roxb.) Wats.), *Jatamansi* (*Nardostachys jatamansi* (DC.)), *Musta* (*Cyperus rotundus*) *Lodhra* (*Symplococcus racemosa* Roxb.), *Ela* (*Elettaria cardamomum* Maton.), *Suvarchika* (Salt petre), *Kutannatum* (*Oroxylum indicum* (L.) Benth. ex Kurz), *Natam* (*Valeriana wallichii*), *Kushta* (*Saussurea lappa* DC.), *Yashtimadhu* (*Glycyrrhiza glabra* L.), *Chandana* (*Santalum album* L.), and *Gairika* (Red Ochre Fe₂O₃) which is used to combat residual toxicity. Standardization of self-prepared herbo-mineral formulation of DVA is important for purity, safety, and efficacy of the product. **Objectives:** The present study aimed to standardize DVA and its contents, employing a standard testing protocol for AYUSH drugs. **Materials and Methods:** DVA was prepared according to Ashtang Hridaya and the Analytical profile was evaluated as per WHO guidelines, *Ayurvedic Pharmacopoeia* of India and *Indian Pharmacopoeia* by Organoleptic, Physicochemical, Phytochemical, Microbiological and Chromatographical parameters. **Results:** Organoleptic and Physicochemical parameters have proved the color, odor, taste, appearance, purity, and strength of DVA. Phytochemical test proved the presence of alkaloids, glycosides, flavonoids, amino acids, steroids, saponines and tannins. High-performance thin-layer chromatography proved the presence of 8 phytoconstituents in DVA. **Conclusion:** The analytical assessment revalidates the standardization of DVA in the given standard conditions of the study.

Key words: *Dhyamaka*, *Dushivishari Agada*, *Jatamansi*, *Lodhra*, Physico-chemical analytical standardization, *Pippali*

INTRODUCTION

Dushivishari Agada (DVA) is extremely useful in latent poisoning and its complications. In current era people are more prone to *Dushivisha* and its hazardous effects. Herbo-mineral drug standardization is very wide and deep. For the purpose of research work on standardization of Herbo-mineral formulations, a deep knowledge of the herbs and minerals found in India and widely used in *Ayurvedic* formulations is very much essential. DVA^[1] is an *Ayurvedic* herbo-mineral formulation comprising *Pippali* (*Piper longum* Linn.), *Dhyamaka* (*Cymbopogon martinii* Roxb.) Wats.), *Jatamansi* (*Nardostachys jatamansi* (D. Don DC.)), *Musta* (*Cyperus rotundus*), *Lodhra* (*Symplococcus racemosa* Roxb.), *Ela* (*Elettaria cardamomum* Maton.), *Suvarchika* (Salt petre), *Kutannatum* (*Oroxylum indicum* (L.) Benth. ex Kurz), *Natam* (*Valeriana wallichii*), *Kushta*

(*Saussurea lappa* DC.), *Yastimadhu* (*Glycyrrhiza glabra* L.), *Chandana* (*Santalum album* L.) and *Gairika* (Red Ochre) Ingredients of DVA having anti-inflammatory, antioxidant, antimicrobial, antiproliferative and immunomodulatory properties.^[2-10] Keeping these views in mind, DA and contents was subjected for standardization to ensure quality and also to authenticate the preparation. Physico-chemical studies like

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loss on drying, total ash, acid insoluble ash, water soluble ash, alcohol soluble extractive, water soluble extract, and high-performance thin-layer chromatography (HPTLC) were carried out as per the WHO guidelines, *Ayurvedic*, and Indian Pharmacopoeia.^[11] Quality indicating physical and chemical tests were done and standard values for DVA were recorded. Standardization tests done on DVA helped in authenticating the poly-herbal preparation and also in ensuring the quality of the same.

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Preparation of *Dooshivishari Agada*

All selected herbal ingredients were thoroughly cleaned, dried, and pulverized to get fine powder. All pulverized ingredients were sieved (Sieve no. 80) and were mixed and ensured uniform distribution of all contents. Furthermore, the red chre (purified in Goghрут) and the potassium nitrate were added in the mixture. Finally, the prepared sample of DA was stored in air tight container.

MATERIALS AND METHODS

Authentication and Preparation of *DVA*

The ingredients of *DVA* were collected, identified, and authenticated from the Dattatray Ayurved Rasshala,

Analytical Study^[11-16]

Analytical study of the raw drugs of *DVA* and finished product, i.e., *DVA* was done at authorized standard laboratory at the



Table 1: Organoleptic and physicochemical parameters

Drugs	Organoleptic parameters			Physicochemical parameters						
	Color	Odor	Taste	Loss on drying at 105° (%)	Total ash (%)	Water insoluble ash (%)	Acid soluble ash (%)	Water-soluble extractive value (%)	Alcohol soluble extractive value (%)	pH
<i>Chandan</i>	Yellowish	Sweet	Aromatic	0.71	4.98	0.93	0.5	15.25	12.81	4.9
<i>Suvarna gairik</i>	Reddish	Astringent	Characterstic	0.34	5.77	1.93	1.5	7.89	6.77	4.9
<i>Ela raw</i>	Greenish	Pungent	Aromatic	0.02	4.37	0.93	0.00	16.63	14.73	4.8
<i>Suvarchika raw</i>	Greenish	Pungent	Characterstic	0.43	4.23	1.11	0.22	18.63	23.87	5
<i>Dhyamak raw</i>	Greenish	Sweet	Characterstic	0.39	4.93	1.21	0.27	15.73	20.22	4.9
<i>Shyonak Twak</i>	Brown	Astringent	Characterstic	0.48	4.33	1.12	0.5	25.94	27.46	5.1
<i>Kushta Raw</i>	Brown	Bitter, pungent	Characterstic	0.63	4.22	0.53	0.34	21.38	25.11	5
<i>Tagar raw</i>	Brown	Bitter, pungent	Characterstic	0.44	4.39	1.2	0.5	28.46	23.72	5.1
<i>Pipali Raw</i>	Black	Pungent	Characterstic	0.45	4.33	0.48	0.23	30.44	27.46	4.7
<i>Lodhra Twak</i>	Yellowish	Astringent, Bitter	Characterstic	0.32	3.92	1.01	0.5	25.83	23.27	5.1
<i>Yastimadhu raw</i>	Yellowish	Sweet	Characterstic	1.22	4.93	1.29	0.21	28.33	20.31	5.1
<i>Musta raw</i>	Brown	Bitter	Characterstic	0.44	4.21	0.32	0.00	27.93	31.33	4.9
<i>Jatamansi raw</i>	Brown	Bitter	Aromatic	0.52	4.22	0.83	0.31	25.36	37.26	4.8
<i>Dushivishari Agad</i>	Reddish	Astringent	Characterstic	0.34	5.77	1.93	1.5	7.89	6.77	4.9

pharmacy of Department of Dravyaguna, MGAC College of Ayurveda and Hospital, Salod, Wardha, Maharashtra state, India. Parameters assessed for DVA and its contents:

1. Organoleptic parameters: Color, odor, taste.
2. Physicochemical parameters: Loss on drying, total ash, acid insoluble ash, water soluble ash, alcohol soluble extractive, water soluble extract, and HPTLC were carried out.
3. Phytochemical study: Alkaloids, glycosides, flavonoids, amino acids, steroids, saponins, and tannins were carried out.
4. Microbiological study: Enterobacteriaceae, *Escherichia coli*, *Salmonella*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, total variable count, and total fungal count.
5. Chromatographic assessment: Chromatographic assessment of DVA was done using HPTLC technique.^[17]

RESULTS

Tables 1-4.

DISCUSSION

According to Acharya in samhita DVA is used for treating different kinds of skin manifestations due to dushi visha.^[18]

Now in practice, it is used for treating different skin diseases and chronic diseases. The above analytical study of DVA was done for accessing physicochemical, phytochemical, microbiological, and HPTLC parameters.

Organoleptic and Physicochemical parameters of a raw drug of DVA have proved the color, odor, taste, identity, quality, and purity. DVA is found to be light reddish brown in color with no characteristic odor and has an astringent taste [Table 1].

The physicochemical parameters such as loss on drying at 105° is 0.34% which suggest quality and stability of formulation as due to the less moisture it is not likely to get contaminated by fungal growth.^[19]

Total ash value is 5.77%. Less Ash value indicates less inorganic matter and silica were detected, water insoluble ash is 1.93%, acid soluble ash is 1.5%. The extractive value is a valuable tool to assess and determine the chemical ingredients contained in the crude medication as well as useful in determining the chemical proportions soluble in a certain solvent system. Alcohol soluble extractive value 6.77%, high alcohol-soluble extractive value indicates the presence of polar ingredients such as steroids, phenolics, flavonoids, and glycosides. Water-soluble extractive value

S. No.	Test for determination	Confirmation	No. of components	Contribution (%)
1	Alkaloids	+	13	100
2	Glycosides	+	13	100
3	Flavonoids	+	12	90
4	Amino acids	+	6	60
5	Steroids	+	5	40
6	Saponins	+	6	60
7	Tannins	+	4	30

Table 2: Phytochemical parameter

Drugs	Alkaloids	Glycosides	Flavonoids	Amino acids	Steroids	Saponine	Tannins
<i>Chandan</i>	Present	Present	Present	Present	Absent	Absent	Absent
<i>Suvarna gairik</i>	Present	Present	Present	Absent	Present	Absent	Absent
<i>Ela raw</i>	Present	Present	Present	Absent	Absent	Absent	Absent
<i>Suvarchika raw</i>	Present	Present	Present	Absent	Absent	Present	Absent
<i>Dhyamak raw</i>	Present	Present	Present	Present	Absent	Present	Present
<i>Shyonak Twak</i>	Present	Present	Present	Present	Absent	Absent	Absent
<i>Kushta Raw</i>	Present	Present	Absent	Present	Present	Absent	Absent
<i>Tagar raw</i>	Present	Present	Present	Present	Present	Absent	Absent
<i>Pipali Raw</i>	Present	Present	Present	Absent	Present	Present	Present
<i>Lodhra Twak</i>	Present	Present	Present	Absent	Absent	Present	Present
<i>Yastimadhu raw</i>	Present	Present	Present	Absent	Present	Present	Absent
<i>Musta raw</i>	Present	Present	Present	Absent	Absent	Present	Present
<i>Jatamansi raw</i>	Present	Present	Present	Present	Absent	Absent	Absent

Table 3: Microbiological parameters

Drugs	Total variable count	Enterobacteriaceae	Total fungal count	<i>Escherichia coli</i>	<i>Salmonella</i>	<i>Staphylococcus aureus</i>	<i>Pseudomonas aeruginosa</i>
Chandana	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Suvarna Gairik	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Ela raw	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Suvarchika raw	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Dhyamak raw	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Shyonak Twak	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Kushtha Raw	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Tagar Raw	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Pipali Raw	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Lodhra Twak	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Yastimadhu raw	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Musta raw	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Jatamansi raw	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Dushivishari Agad	Absent	Absent	Absent	Absent	Absent	Absent	Absent

Table 4: HPTLC of DVA and raw drugs

Drugs	Rf value observed at 254 nm								Total number phytoconstituents
DVA	0.04	0.14	0.25	0.35	0.41	0.46	0.56	0.75	8
Dhayamak	0.05	0.11	0.30	0.57					4
Swarna Gairik	0.05	0.16	0.32	0.49					4
Yashtimadhu	0.05	0.09	0.25	0.32	0.39	0.52			6
Tagar	0.04	0.18	0.30	0.39	0.52	0.60			6
Shyonak	0.05	0.20	0.30	0.52					4
Hurhur	0.05	0.25	0.52						3
Elaichi	0.05	0.23	0.40	0.46	0.55				5
Pipali	0.05	0.25	0.52						3
Jatamansi	0.05	0.20	0.40	0.45	0.54				5
Musta	0.05	0.11	0.28	0.48	0.77				5
Kushta	0.03	0.17	0.30	0.47	0.72				5
Lodhra	0.04	0.26	0.74						3
Chandan	0.01	0.32	0.60	0.76					4

is 7.89% while water-soluble extractive value shows the presence of acids, sugars, and inorganic compounds. pH value is 4.9 which indicates that it is basic in nature and does not cause any adverse effect on the gastric mucosa [Table 1].

Phytochemical analysis indicates that DA is a rich source of phytoconstituents Polyphenols and terpenoids. Animal and human researches have provided evidence that polyphenols is having anti-inflammatory and antioxidant capabilities.

Phytochemical parameter of raw drugs of DVA revealed the presence of alkaloid, glycosides, flavonoids in 12 contents: dhyamak, suvarna gairik, shyonak, chandan, hurhur, pipali, lodhra, elaichi, jatamansi, musta, yashtimadhu, tagar of DVA.

Steroids are absent in all contents except suvarna gairik, kushtha, pipali, tagar, and yashtimadhu. Results of amino acids, saponine, tannins presence according to Table 2.

Microbiological parameters of DVA and raw drugs revealed the absence of Enterobacteriaceae, *E. coli*, *Salmonella*, *S. aureus*, *P. aeruginosa*, total variable count, and total fungal count according to Table 3.

HPTLC of DVA shows highest pick value at 0.04, 0.14, 0.25, 0.35, 0.41, 0.46, 0.56, 0.75 means presence of 8 phytoconstituents are detected and its raw drugs dhyamak, suvarna gairik, shyonak, chandan, hurhur, pipali, lodhra, elaichi, jatamansi, musta, kushtha, yashtimadhu, tagar,

Revealed presence of 4, 4, 6, 6, 4, 3, 5, 3, 5, 5, 5, 3, 4 respective number of phytoconstituents, at Rf value 254 nm according to Table 4.

CONCLUSION

DVA is an invaluable polyherbomineral drug preparation, which was prepared following the Ashtang Hrudaya.

In the present study, DVA and its raw material physicochemical, phytochemical, microbiological, and HPTLC study completely standardized the product this assessment revalidates the standardization of DVA in the given standard conditions of the study. However, the dimensions may vary as per the quantity and quality of the raw material. Further standardization and phytochemical screening are advantageous for the validation of DVA.

REFERENCES

- Vagbhata A. Ashtanga Hridaya with Sarvanga Sundara Commentary of Arunadatta and Ayurveda Rasayana Commentary of Hemadri Collated by Dr. Anna Moreshwar Kunte and Krishna Ramachandra Shastri Navre. Varanasi, 35/39: KrishnaDas Academy, Choukamba; 1982. p. 905.
- Kumari M, Ashok BK, Ravishankar B, Pandya TN, Acharya R. Anti-inflammatory activity of two varieties of Pippali (*Piper longum* Linn.). *Ayu* 2012;33:307-10.
- Yazhlini P, Cecil A, Rajeshkumar S. Anti-inflammatory activity of *Symplocos racemosa* (lodhra) and *Cinnamomum cassia* (cinnamon bark) assisted silver nanoparticles. *J Pharm Negat Results* 2022;2864-70.
- Doshi K, Ilanchezhian R, Acharya R, Patel BR, Ravishankar B. Anti-inflammatory activity of root bark and stem bark of Shyonaka. *J Ayurveda Integr Med* 2012;3:194-7.
- Salam NA, Priya S, Paul RP. *In-vitro* study to evaluate the comparative antimicrobial activity of Ela Choorna in Amalaki Swarasa, Kadali Swarasa and Narikelodaka for selected urinary. *Int J Res Ayurveda Pharm* 2019;10:53-5.
- Verma SK, Jain V, Katewa SS. Blood pressure lowering, fibrinolysis enhancing and antioxidant activities of cardamom (*Elettaria cardamomum*). *Indian J Biochem Biophys* 2009;46:503-6.
- Sunila ES, Kuttan G. Immunomodulatory and antitumor activity of *Piper longum* Linn. And piperine. *J Ethnopharmacol* 2004;90:339-46.
- Mazumder PM, Pattayak S, Parvani H, Sasmal D, Rathinavelusamy P. Evaluation of immunomodulatory activity of *Glycyrrhiza glabra* L roots in combination with zing. *Asian Pacific J Trop Biomed* 2012;2 Suppl 1:S15-20.
- Tyagi T, Sharma S, Sharma R. Pharmacological actions of *Valeriana wallichii* (Tagara): A fundamental analysis supporting traditional benefits. *Int J Ayurveda Pharma Res* 2022;10 Suppl 1:1-7.
- Suryawanshi RM, Pawale SD. Therapeutic potentials of Gairika with special reference to Charaka Samhita. *Int Res J Hum Inter Stud* 2021;2:68.
- Sreejith GS, Ancheril IJ, Sunil Kumar KN, Anitha MG, Arun Raj GR. Chemical analysis of *Dushivishari agada*: An Ayurvedic herbo-mineral formulation to combat residual toxicity. *Int J Res Ayurveda Pharm* 2016;7 Suppl1:80-3.
- WHO. Quality Control Methods for Medicinal Plant Materials. Geneva, Delhi: AITBS Publishers and Distributors; 2002. p. 65-7.
- The Ayurvedic Pharmacopoeia of India. Government of India Ministry of Health and Family Welfare, Department of Ayurveda, Yoga and Homoeopathy (AYUSH). 1. ed. Vol. 1-5., New Delhi: The Ayurvedic Pharmacopoeia of India; 2001. p. 1.
- Indian Pharmacopoeia. (Ministry of Health and Family Welfare, Government of India, New Delhi). Vol. 1. India: Indian Pharmacopoeia; 2010. p. 10-146.
- Gundakalle MB, Savalgimath MP, Lingayat AC, Karoshi SS. Quality standardization of dooshivishari Agada. *IJAPC Int J Ayu Pharm Chem* 2019;10:25-30.
- Hukkeri SS, Savalagimath MP. Dooshivishari Agada: A Herbo-Mineral Compound and its Standardization. Vol. 8. Delhi: Red Flower Publication Pvt Ltd.; 2015.
- Sethi PD. High Performance Thin Layer Chromatography. New Delhi: CBS Publishers and Distributors; 1996.
- Waghmare TS, Wasu IP. Samhitokta concept of dushi visha - a review article. *J Ayurveda Integr Med Sci* 2020;5:215-9.
- Chalakh S, Urkude M, Wanjari A. Physicochemical and Phytochemicals investigation of Dooshivishari Agada by HPLC. *Int J Ayurvedic Med* 2023;13:1013-101.

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