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An Analytical study the Preliminary Physico-Chemical Properties of Dashanga Agada

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ABSTRACT

The most frequent reason for medical emergency is *visha*. The most common source of concerning stings is the *keeta*. The medicine has been standardized since the most crucial elements of effective therapy in these emergency situations are the therapeutic agent's safety and purity. The investigation will assess the aforementioned information about this medication since *Dashanga Agada* finds a significant mention in *Keeta Visha.*

Keywords: *Dashanga Agada*, thin layer chromatography

INTRODUCTION

Deliberate maligning of articles with poisons or as in adulteration is quite common in today's times also. Nowadays, as the bulging human population is indenting in the forests increasingly, contacts with poisonous animals and insects is also on the rise. This scenario makes it a necessity to learn about toxic drugs & ingredients, toxicity and its symptoms. In all these toxicological conditions, lots of Agada formulations are mentioned for management of different Visha conditions. Agada, a toxicology jargon, is used in relation to a remedy of toxic substances or conditions[1] . Acharya Susruta tells that Agada is to be used specifically in conditions of toxicity[2] , which suggests that these are out- of- the- ordinary remedies. One such formulation is described in reference to Keeta Visha by Acharya Vagbhatta in the chapter Keetalutadivishapratishedha Adhyaya in uttarasthana by the name, Dashanga Agada[3] . The literal meaning of Agada is 'aushadh' or without 'gada' which is deciphered as disease- free state or medicine[4] . It is an herbal formulation explained in the above context in AstangaHridaya for the treatment of Keeta Visha. This drug is widely used by physicians to treat various symptoms of Keeta Visha and other allergic dermatological manifestations The therapeutic properties of medicinal plants may be due to one or more of the many compounds present in the plant material. These phyto- chemicals include complex carbohydrates, alkaloids, glycopeptides, phenols, cardiac glycosides, terpenoids, tannins, cyanogens, peptides, amines, steroids, flavonoids, inorganic ions among numerous others[5] .

Aims & Objective

1. To evaluate the general physico- chemical properties of *Dashanga Agada*.
2. To study the preliminary physico- chemical properties of *Dashanga Agada*.

MATERIAL & METHODS

All the steps, from drug manufacture till the completion of above objectives is as follows:
The test drug: The test drug, *Dashanga Agada*, reference was taken from *Astanga Hridayam*, chapter *Keetalutadivishapratishedha* in *uttarsthana*,

वचा हिङ्गु विडङ्गानि सैन्धवं गजपिप्पली॥
पाठा प्रतिविषा व्योषं काश्यपेन विनिर्मितम्।
दशाङ्गमगदं पीत्वा सर्वकीटविषं जयेत्॥ **(अ.हृ.उ.37/27-28)**

The 10 ingredients of test drug, *Dashanga Agada*, were taken 10gms each. They were properly desiccated and then it was pounded till a powder form in a clean and dry iron mortar and pestle. At first it was sieved through clean muslin cloth and then through clean, dry sieve (no. 120) to obtain a still finer powder from the product of pounding. About 80g of very fine

powder of the drug was obtained at last. It was stored in an air- tight container, at room temperature. The details of the ten ingredients of test drug are as-

Sl. No.	Sanskrit name	Botanical/ English name	Family	Part used	Quantity
1.	*Vacha*	*Acorus calamus* Linn.	Araceae	*Kanda* (rhizome)	1 part
2.	*Hingu*	*Ferula narthex* Boiss.	Umbelliferae	*Niryasa* (resin)	1 part
3.	*Vidanga*	*Emblia ribes* Burm. f.	Myrsinaceae	*Phala* (fruit)	1 part
4.	*Saindhava lavana*	Rock salt	-	-	1 part
5.	*Gajapippali*	*Scindapsus officinalis* Schott	Araceae	*Phala* (fruit)	1 part
6.	*Ativisha*	*Aconitum heterophyllum* Wall	Ranunculaceae	*Kanda* (rhizome)	1 part
7.	*Patha*	*Cissampelos pareira* Linn.	Menispermaceae	*Mula* (root)	1 part
8.	*Shunthi*	*Zingiber officinale* Rosc.	Zingiberaceae	*Kanda* (rhizome)	1 part
9.	*Marich*	*Piper nigrum* Linn.	Piperaceae	*Phala* (fruit)	1 part
10.	*Pippali*	*Piper longum* Linn.	Piperaceae	*Phala* (fruit)	1 part

The amount finally received was divided in to roughly three parts for the study. First part of it was made to undergo the following tests for physico- chemical analysis and the other two were used in a suitable manner for the toxicological analysis.

PHARMACOLOGICAL ANALYSIS

- **Moisture Content-**
  Determination of moisture content:- Moisture content was determined by placing weighed sample of 5gm of drug in oven at 105ºC for 5 hours, and weight of sample was calculated at every 30 minutes, until the weight of the sample was constant and no variation of weight was further recorded. This sample was allowed to cool at room temperature in a desiccator for 1 hour before final weighing. Weight of the empty petridish = W1 gm Weight of the drug sample = X gm Weight of the petridish with drug before drying (W3) = (W1 + X) Weight of petridish after drying = W2 gm Loss on drying in % = W3-W2x100/X
- **pH**
  Determination of pH value-The pH value of an aqueous liquid may be defined as the common logarithm of the reciprocal of the hydrogen ion concentration expressed in gram per liter. The pH of the given solution was measured by using digital pH meter. First the pH meter was standardized. For this, tablets of different pH were taken and one tablet was dissolved in 100 ml of distilled water to prepare solutions of different known pH 4, 7 and 9 (buffer solutions). The instrument was then switched on and left for some time unless it shows a reading of the solution pH. Buffer solution was taken in the beaker and the electrode was dipped in it. Same procedure was repeated for the other buffer solutions after washing the electrode thoroughly with distilled water. The test sample was taken (as 10% aqueous solution) and the electrode was dipped in it and the value of pH was noted.
- **Total Ash**
  Determination of Total Ash: The total ash method is design to measure the total amount of material remaining after incineration. This includes both physiological ash which is derived from the plant tissue itself and non-physiological ash which is the residue of the extraneous matter (e.g. sand and soil) adhering to plant surface. A silica crucible was cleaned, dried and labeled with glass pencils and then weighed to constant weight. 5 gm of powdered drug sample was put in this crucible. The drug was spread evenly to a thin layer. This crucible was then placed in a muffle furnace and ignited at a temperature of 450°C for about 6 hrs or more until the ash was totally free from carbon. The crucible containing the ash was allowed to be cooled in desiccator and subsequently weighed to constant weight. The percentage of ash with reference to the air dried drug was calculated.

- **Acid Insoluble Ash**
  Determination of acid insoluble Ash: Acid insoluble ash value was determined as per Pharmacopoeia of India, 1996. The total ash (prepared above) was boiled with 25 ml of 2M hydrochloric acid for 5 minutes. The insoluble matter was collected in a Gooch crucible, and was washed with hot water. It was ignited again and then cooled in a desiccator and weighed. The percentage of acid - insoluble ash with reference to the air - dried drug was calculated by the following formula: Wt. of drug sample - X gm Wt. of empty Gooch's Crucible with filter paper - G1 gm Wt. of the Gooch's Crucible with residual ash - G2 gm Percentage of acid insoluble ash - G2-G1/ X×100
- **Water Soluble Ash**
  Water- soluble Ash: Water- soluble ash value was determined as per Pharmacopoeia of India, 1996. The total ash (prepared by above method) was boiled for 5 minutes with 25 ml of water. The insoluble matter was collected in a Gooch's crucible, washed with hot water and was ignited again for 15 minutes at a temperature not exceeding 450˚C. The weight of the insoluble matter was subtracted from the weight of the ash and the difference in weight represented the water - soluble ash. The percentage of water – soluble ash with reference to the air - dried drug was calculated as follows: Wt. of the empty Gooch's Crucible with filter paper - G1 gm Wt. of drug sample - X gm Wt. of the Gooch's Crucible with water Insoluble Ash - G2 gm Wt. of total ash- A gm Percentage of water soluble ash- [A – (G2 – G1)/X] x 100
- **Alcoholic Extractive Value**
  Determination of Alcohol Soluble Extractive:- 5g of the macerated air dried drug was taken, and it was coarsely powdered. Then it was mixed with 100 ml of alcohol of specified strength and kept in a closed flask for twenty-four hours, shaken frequently during six hours and allowed to stand for eighteen hours. Then it was filtered rapidly, taking precautions against the loss of solvent and then 25 ml of the filtrate was evaporated to dryness in a tarred, flat bottomed shallow dish, and then dried at 105˚C, to constant weight and then weighed. The percentage of alcohol-soluble extractive was calculated with reference to the air-dried drug.
  Determination of Water Soluble Extractive:- The same process as above was used for the determination of alcohol-soluble extractive, using distilled water instead of ethanol.
- **Fixed Oil Content**
  Determination of Petroleum Ether Soluble Extractive (Fixed Oil Content):- Depending on the fixed oil content, a suitably weighed quantity of the air-dried, crushed drug was taken in an extraction thimble, extract with solvent ether (or petroleum ether) in a continuous extraction apparatus (Soxhlet extractor) for 6 hours. Filtered the extract quantitatively into a tarred evaporating dish and evaporate off the solvent on a water bath. Dry the residue at 105ºC to constant weight. Calculate the percentage of ether-soluble extractive with reference to the air-dried drug by the following formula: Weight of the drug material = X gm Weight of the empty petridish = W1 gm

Chromatography

OBSERVATIONS & RESULTS

Physico- Chemical Analysis Of *Dashanga Agada*:

Table 1: Pharmaco- chemical Analysis

S. No.	Tests	Value
1	Moisture Content	2.45 %
2	pH	4.3
3	Total Ash	6.41 %
4	Acid Insoluble Ash	0.13 %
5	Water Soluble Ash	4.35 %
6	Alcoholic Extractive Value	15.65 %
7	Aqueous Extractive Value	27.74 %
8	Fixed Oil Content	6.71 %
9	Chromatography	R_f Value: 0.19, 0.24, 0.31, 0.45, 0.54, 0.64, 0.74, 0.85

Stationary Phase: Silica gel G F256
Mobile Phase: Chloroform : Methanol : Toluene (7:2:1)
Visualization: Vanallin Sulphuric Acid

CONCLUSION

The study was undertaken with an attempt to analyze and evaluate the components of the test drug, *Dashanga Agada*, by making it undergo various physical tests like moisture content, pH, total ash, acid insoluble ash, water soluble ash, alcoholic extractive value, aqueous extractive value and fixed oil content. The drug was also subjected to thin- layer chromatography and many components especially steroids and alkaloids were separated by the method.this study show that *dashanga agada* posses steroidal effect which can be used as anti -histaminic drug for the treatment of *keeta visha* (sting).

REFERENCES

[1]. Shabdakalpadrum Reprint 2011,Part 1, Raja Radhakantdev ; Chaukhamba Sanskrit Serise, Varanasi, P7
[2]. Susruta. Susruta Samhita ;Ayurvedtatvsandeepika; Agnihotri Avadhbihari, Reprint 1992,Part 1, Chaukhamba Parkashan: Varanasi, Kalpa.S8/77, P74
[3]. Vagbhata .Astang Haridyam; Vidyotini Commentary ;Paradkar Hari Sadashiv Shashtri, Reprint 2007, Krishanadas Academy: Varanasi, Ut.S.37/27/28, P916
[4]. Shabdakalpadrum Reprint 2011,Part 1, Raja Radhakantdev ; Chaukhamba Sanskrit Series, Varanasi, P7
[5]. Evans WC. Trease And Evans Pharmacognosy. 14th Edn, Sunders, London,Pp: 5-7, 119- 130, 438 -48 Yakubu M.T., Adebayo O.J., Egwim E.C. And Owoyele B.V. (2005).