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Research Article

Standardization of *Saindhavadi Ghrita*: A Herbal *Ghrita* for Computer Vision Syndrome

Vipul Shukla[1]*, B. Mukhopadhyay[2]

*[1]Jr -3, Professor, Dept. of Shalakya Tantra, FOA, IMS, BHU, Varanasi.

ABSTRACT

Standardization is the present time need for acceptance of Ayurvedic polyherbal formulation. Standard polyherbal formulations have potency to check the pathogenesis of disease process without producing another disease. The upgrade the standard operating procedure can give new identity to the present era**.**

An objective of the study is standardization of *Saindhavadi Ghrita* on various parameters, in order to assure its safety and efficacy on various basis. The *Ghrita* was analyzed for its organoleptic, physico-chemical features and screened for its phyto-constituents. In the present work, the obtained results were found within prescribed limits. The standard analytical methodologies provide safety and efficacy to the product, to avoid complication because eye is very sensitive and precious gift of god. So we cannot use *Ghrita* for *Tarpan* therapy without standardization.

KEYWORDS: *Saindhavadi Ghrita*, Computer Vision Syndrome, Organoleptic Parameters, Physiochemical Analysis.

INTRODUCTION

The advancement in computer science has bring about a enormous change in our lives that we can't imagine life without computer Before the involution of computers, office work had mixed up with various activities including typing, filing, reading, and writing. These activities have need of variety of changes in posture and vision; provide a natural "break" from the prior activity. But now a day's typing writing and reading has been done on a computer without change in posture.[1] Due to continuous stare at computer screen and video display terminal because of continuous strain at which produce group of ocular eye and vision related problem, computer and vision display terminal users have often blurred vision. Dry eyes eye strain headache assume awkward posture in order to position, their eyes so that they can perform their work and develop musculoskeletal symptoms, such as neck back and shoulder pain

In modern system of medicine except using ocular surface lubricants, computer glasses, and counseling for judicious computer use, as there is no satisfactory treatment available for computer vision syndrome, *Ayurveda,* the ancient science of life can be of great help by its preventive and therapeutic principals. In *Ayurveda* their is no description of computer vision syndrome but it can be a *Anukta Vyadhi* [2] as describe by *Acharya charack*. Some of ocular symptoms of CVS can be co-relate with *Suskakshipaka*[3] as describe by *Acharya Sushruta*[3] and *Astanghridya*[4].

There are a variety of Ayurvedic, herbal based dosage forms, which are appropriately mentioned in texts as Ayurvedic Pharmacopoeia and formulary resembling *Vati* (tablets), *Churna* (powders), *Snehakalpa* (medicated oil), *Ghrita* (medicated ghee) *Asava* and *Arishta* (self-generated alcohol based elixir) etc. for the treatment of different diseases. Drugs which have been described in the treatment of *Suskaksipaka* have potent action to reduce in the signs and symptoms of CVS. In CVS dryness (*Suskhata*) and eyestrain is the main clinical feature *Ghrita* have oleation, antioxidant and nourishment property and *Ghrita*[5] have *Vata pitta shamak* property, *Suskhaksipaka* is *Vata pitta* dominant disease so *Saindhavadighrita* is the best for management of CVS. For topical absorption and good result of the *Ghrita* should formed under standard operating procedure

Collection of Raw Drug

Raw drugs were collected from Gola Dinnanath Varanasi. All these were identified and authenticated from Department of *Dravyaguna* and Department of *Rasashastra* IMS BHU Varanasi. The physical impurities were removed from the herbal drugs, and they were dried and made into a coarse powder to use for the Pharmacognostical study.

Table 1: Composition of *Saindhavadi Ghrita*

S.No	Ingredients	Botanical Name	Part Used	Quantity
1	*Shunthi*	*Zingiber officinale*	Rhizome	50 gm
2	*Daruhridra*	*Berberis aristata*	Dried Stem	50 gm
3	*Matulung*	*Citrus medica*	Dried fruits	50 gm
4	*Saindahav Lavan*	*Himalayan rock salt*	Salt	50 gm
5	*Go dugdha*	*Kshira*	Milk	400 ml
6	*Go ghrita*	*Butyrum deparatum*	Pure *Ghrita*	1.6 litre

Method of preparation

Saindhavadi Ghrita were prepared by using different parts of medicinally important plant such as *Daruhridra* (stem), *Shunthi* (rhizome), *Matulung* (Dry fruit), *Saindhav Lavan* in equal quantity of 50 grams each. The above mentioned plant materials were taken and made into coarse powder (particles passed through 40-mesh) and soaked overnight in 16 parts of water means 3200 ml. Next morning, the soaked drugs were subjected to heat and boil when the water remain400 ml *Kwath* is removed from the heat and add 400 ml of *go Dugdha*. Than mix this *Kwath* into a 1.6 litre go *Ghrita* and go for *Sneha paka* as described by *Acharya Sharangdhar* on getting *Sneha sidhhi lakshan ghrita* is removed from heat. On cooling *Ghrita* is packed into 300 gm box under full sterilization condition.

A physicochemical analysis of the final product was carried out in Medicinal Chemistry.

Organoleptic Parameters of *Saindhavadi Ghrita* [6-8]

- **Colour:** Amber yellow
- **Odour:** Ghee like
- **Taste:** Salty sour
- **Touch:** Sticky
- **Appearance:** Viscous, Semi-solid

Physiochemical Analysis: Physiochemical analysis has been done as describe for polyherbal formulation of the Ayurvedic pharamacopia of India. Standard procedure will follow during Physiochemical Analysis of *Saindhavadi Ghrita.* [9-19]

Table 2: Physio-chemical parameters of *Saindhavadi Ghrita*

Parameters	Results
Refractive index	1.243
Specific gravity	0.89
Rancidity test	Fat is not oxidised
Acid value	1.5
Saponification value	92
Iodine value	64
Loss on drying	0.4

Phytochemical Screening: Qualitative Tests[20-24]

1. Phytochemical Qualitative Analysis

The plant extracts in ethanolic solutions were assessed for the existence of the phytochemical analysis by using the following standard methods [20-23]. Tests for different active principles *Saindhavadi Ghrita* was subjected to qualitative tests to detect the various phytoconstituents as Carbohydrates, lipids, alkaloids, terpenoids, tannins, proteins etc.

Materials were dissolved separately in 5 ml of alcohol and filtered; the filtrates were used to test the presence of carbohydrates.[24]

2. Benedict's Test

Filtrate was subjected to treatment with Benedict reagent and then heated on water bath; formation of an orange red precipitate indicates the presence of reducing sugar.

3. Detection of Protein and Amino Acids as in Millon's Test

The alcoholic extracts were treated with 2 ml of millon's reagent. The formation of white precipitate which turns to red upon heating indicates the presence of proteins.

4. Detection of Alkaloids

The extract was dissolved individually in dilute HCL and filtered. The filtrates were treated with alkaloid reagent.

(a) Hagers Test

Filtrates were treated with Hagers reagent (solution of picric acid) formation of yellow precipitate indicates the presence of alkaloids.

(b)Foam Test

To the 5 gm drug powder, water was added in the test tube and shaken for 5 minutes. Formation of persistent froth confirms the presence of saponin glycosides.

5. Detection of Phenol and Tannins (Ferric Chloride Test)

The alcoholic extract was treated with few drops of neutral ferric chloride solution. The appearance of either of green, orange, blue or purple-red color indicates the positive test.

6. Detection of Terpenoids

2 ml of the alcoholic extract was dissolved in 2ml of CHCl3 and evaporated to dryness. 2ml of conc. H2SO4 was then added and heated for about 2 minutes. Development of a grayish color indicates the presence of terpenoids.

Phytochemical screening parameters of *Saindhavadi Ghrita*

Table 3: Reagent Result

Test	Results
Foam Test	+ve
Reducing sugars	+ve
Terpenoids	+ve
Alkaloids	+ve
Tannins	+ve
Proteins	+ve

DISCUSSION

Raw herbs were authenticated and analyzed before processing because good quality products mainly dependent upon genuine raw materials. *Ghrita* was prepared as classical method and on *Sneha sidhhi lakshan ghrita* has removed from heat Organoleptic evaluation was performed for *Saindhavadi ghrita* (Observations of organoleptic analysis are tabulated in Table 2. The colour of *Ghrita* is amber yellow due to the presence of contents like *Daruhridra shunthi matulung* etc because the base is *Go-ghrita*, the odour is ghee like. Taste is salty due to the presence of *Saindhav lavan*. since it is a semi-solid preparation made in ghee, it is viscous and sticky. Results of physicochemical analysis of *Saindhavadi ghrita* has been tabulated above. Loss on drying, Specific gravity, and Refractive index, are within normal range. If Saponification value is more than normal range, it indicates lower molecular saturated fatty acids. Higher the iodine value, the less stable will be *Ghrita* and the more susceptible it is to oxidation and free radical production. High iodine values Ghritas are prone to oxidation and polymerization and the sample becomes rancid, which decreases the shelf life and stability of the product. If acid value is more, then chances of photo-oxidation and rancidity are more. The obtained values of these tests were found in normal limits in *Saindhavadi Ghrita*, which indicate good quality of product. In addition, no rancidity was found in the finished product. The refractive index was 1.243. The specific gravity of the sample was 0.89, which was closer to plain *Ghrita*, for which it was 0.9, showing that the sample was not too dense. The acid value was 1.5 w/v, indicating the amount of free fatty acid present in the *Ghrita*. The saponification value was found to be 92 w/v. It gave an idea of the molecular weight of an oil/fat, and the oil contained a long chain of fatty acids. The observed iodine value for the *Ghrita* was 64 w/v, which indicated the consumption of the iodine molecules by free fatty acids. Phytochemical screening of *Saindhavadi Ghrita* showed the presence of glycosides, mainly in the form of saponin glycoside as zingerone berberine, oxyberberberine etc which is confirmed by the foam

test, it gives positive test for the presence of tannins due to presence of *Amla*. Addition of *Daruhridra* enhances the terpenoids in the formulation and also provides soothing odor to the formulation. Presence of reducing sugars is because of the presence of glucose in the *Ghrita*. Adding together of resins and sugars also contribute towards it. Traces of alkaloids as well as amino-acids are also observed while screening the formulation for the presence of phyto-constituents. Amino acids are likely due to the addition of cow milk and glycine cystine of *Shunthi* to the *Ghrita.*

In the spite of advancement of science standardization of Ayurvedic formulation is still challenging. For public acceptance and appropriate result standardization of both drug and thier procedures of manufacture is necessary. The purpose of standardization of medicinal plants is obviously to ensure therapeutic efficacy. In the above formulation firmly through the standard guidelines, we find considerable information for proper identification of the phytoconstituents and their types. The advancement of analytical techniques can serve as a specific tool in herbal drug research, thereby, allowing the manufacturers to set quality standards and specifications so as to seek marketing approval from regulatory authorities for therapeutic efficacy, safety and shelf- life of herbal drugs.

Therefore, maintaining the quality of these plant products is an essential factor. Pharmacognostical study findings confirm the ingredients present in the *Saindhavadii Ghrita.* It is show that the formulation meets maximum qualitative standards based on physicochemical parameters. The results of this study may be used as the reference standard in further research undertakings of its kind. Pharmacognostical and phyto-chemical evaluation of *Ghrita* illustrated the specific characters of ingredients which were used in the preparation. Physico-chemical profile is an important parameter for quality control and assurance. In the present work, the obtained results were found within prescribed limits. For the first time, pharmaceutical and analytical profile of *Saindhavadi Ghrita* was established.

CONCLUSION

On the basis of the observations and results, obtained from the above methods adopted, this study may be used as standard in the further quality control researches. Pharmacognostical study findings confirm the ingredients present in the *Saindhavadi Ghrita*. Pharmacognostical study findings confirm the ingredients present in the *Saindhavadi Ghrita* are best for the management of computer vision syndrome. On the basis of the observations and results, obtained from the above methods adopted, this study may be used as standard in the further quality control researches.

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***Address for correspondence**
Dr. Vipul Shukla
Jr -3, Dept. of Shalakya Tantra,
FOA, IMS, BHU, Varanasi.
Email: vipulshukla145@gmail.com