



PHARMACOLOGICAL & PHYTOCHEMICAL EVALUATION OF *YOGRAJ CHURNA*: AN COMPOUND AYURVEDIC FORMULATION

Sikha Lekharu^{1*}, Khagen Basumatary²

*¹PG Scholar, ²Professor & HOD, Dept. of Samhita Siddhanta, Govt. Ayurvedic College, Guwahati, Assam, India.

ABSTRACT

Yograj churna is an important Ayurvedic formulation containing *Triphala* (*Amlakhi* – *Embelica officinalis*, *Bibhitaki* – *Terminalia bellerica*, *Haritaki* – *Terminalia chebula*), *Triakatu* (*Sunthi*-*Zingiber officinale*, *Maricha*- *Piper nigrum*, *Pippali* – *Piper longum*), *Vidanga* (*Embelia ribes* Burm. f), *Chitrakmula* (*Plumbago zeylanica* Linn), *Sudhashilajit* (*Asphaltum punjabianum*), *Swarnamakshika* (Copper pyrite (CuFeS₂), *Raupyamakshika* (Iron pyrite (Fe₂S₃), *Lohabhasma* (Iron Powder) and *Mirsi* (sugar) as main ingredient. of all the constituent were available and prepared accordingly as mentioned in *Charak samhita*, *Chitsasthana*, *Panduroga adhyaya* in Ayurvedic pharmacy, BHU. Though *Yograj churna* is very effective in anemia, it is useful in different disorder and as an excellent rejuvenator. But till date no work has been carried out to standardize the formulation. Hence the present study was undertaken to standardize the compound Ayurvedic formulation through Pharmacognostical and pharmaceutical evaluation. The sample was subjected for various Phytochemical parameters like water soluble extractive (11.39%w/w), alcohol soluble extractive (23.63% w/w), ash value (39.19% w/w), acid insoluble ash (36.38% w/w), loss on drying (8.86% w/w), the pH (5.03), TLC. The TLC, solvent system was methanol:ethyl acetate (by trial and error method), showed the presence of 4 spots Rf (0.1, 0.46, 0.76, 0.9). The phytochemical analysis showed the presence of Alkaloids, Glycosides, Saponins and Tanins. Thus the physiochemical and microscopic characters achieved may provide guidelines for standardization of formulation, *Yograj churna*.

KEYWORDS: *Yograj churna*, TLC, Pharmacognostical, Physiochemical Evaluation.

INTRODUCTION

Yograj churna is an Ayurvedic herbomineral preparation as mentioned in the 16th chapter of *Charak Chikitsasthana*, *Panduroga Adhaya*¹ composed of medicinal plants of different botanical families and some minerals but from Ayurvedic pharmacological point of view having similar properties which are highly effective as an excellent Rejuvenator, cures diseases specially Anemia, Poisoning, Bronchitis, Tuberculosis. Obstinate Skin Diseases including Leprosy, Indigestion, Obstinate Urinary Disorder including Diabetes, Asthma, Anorexia, Epilepsy, Jaundice and Haemorrhoids¹. *Yograj* contains *Haritaki*, *Bibhitaki*, *Amalaki*, *Sunthi*, *Pippali*, *Marica*, root of *Chitraka* and *Vidanga*, along with *Silajatu*, *Raupya Mala* (silver rust). purified *Makshik* and powder *Bhasma* of iron and sugar¹.

Since past many years Ayurvedic drugs are getting recognition worldwide. Maintaining the quality of a drug

and looking at the effectiveness of the herbomineral formulation of *Yograj churna* there is a high need in the light of scientific evaluation. But till date there is no scientific evaluation of *Yograj churna*. In the present study the powder formulation of *Yograj churna* was subjected to Pharmacognostical (microscopic), TLC, and pharmaceutical (evaluation of various physiochemical parameters) evaluation in order to prepare a preliminary profile of the formulation.

MATERIALS AND METHOD

Method of preparation of *Yograj churna* as per *Charak Samhita*¹. For the present study all the ingredients were collected from reliable sources. 2 kg powder was prepared in the Ayurvedic Pharmacy of Banaras Hindu University, Banaras under supervision and guidance.

Table 1: Ingredients of *Yograj churna* as per *Charak Samhita*¹

S.No	Name	Botanical name/Chemical name	Quantity of drug
1	<i>Triphala</i>	<i>Amlakhi</i> – <i>Embelica officinalis</i> <i>Bibhitaki</i> – <i>Terminalia bellerica</i> <i>Haritaki</i> – <i>Terminalia chebula</i>	50gm each
2	<i>Trikatu</i>	<i>Sunthi</i> – <i>Zingiber officinale</i> <i>Maricha</i> – <i>Piper nigrum</i> <i>Pippali</i> – <i>Piper longum</i>	50 gm each
3	<i>Chitrakmula</i>	<i>Plumbago zeylanica</i> Linn	150 gm
4	<i>Vidanga</i>	<i>Embelia ribes</i> Burm. f	150 gm
5	<i>Sudhashilajit</i>	<i>Asphaltum punjabianum</i>	250 gm

6	Rupyamakshik	Iron pyrite (Fe ₂ S ₃)	250 gm
7	Swarnamakshik	Copper pyrite (CuFeS ₂)	250 gm
8	Lohabhasma	Iron Powder	250 gm
9	Misri	Sugar	400 gm

PHARMACOGNOSTICAL EVALUATION

Microscopic and macroscopic studies of the *Churna* were done at State Drug Testing Laboratory, AYUSH, Govt. Ayurvedic College and Hospital, Guwahati.

0.5mg of the powdered sample was analysed in dry form with the help of Trinocular Research microscope (MAGNUS). The powder was analysed in 10X and 40X magnification lens, where (no significant changes or appearance of the powdered material was seen. Foreign matters were 0.8%-1%).

ORGANOLEPTIC CHARACTERISTICS^{5,6}

Colour, Odour, Texture and Taste were done as per standard procedures.

Physiochemical evaluation of *Yograj churna*⁷

Yograj churna was subjected to physiochemical study in order to develop analytical profiles. In this following parameters were carried out – loss on drying at 105°C, pH value, total ASH value, Acid insoluble ash, Water soluble extractive, Alcohol soluble extractive.

Thin layer chromatography⁸

300 gm of powder of *Yograj churna* was extracted successively with solvents like Petroleum Ether, Benzene, Chloroform, Acetone and Methanol respectively in soxhlet apparatus. Each solvent extract was concentrated by distilling off the solvent under reduced pressure.

TLC was carried out with the methanolic extract and maximum spots have been separated on precoated silica gel TLC plate with trial and error method. The mobile phase consisted of methanol : ethyl acetate in a ratio of 5:95 (v/v).

Phytochemical analysis

300gm of dried *Yograj churna* was taken, extraction was done by successive method for 8 hrs in soxhlet apparatus. Each time before extracting with the next solvent, dried the powdered material in air oven below 50 degree celcius.

Detection of alkaloids

Preparation of filtered solvent free extract (50mg) is stirred with dilute hydrochloric acid and filtered. In 1 ml of filtered a drop of Mayer's Reagent was added by the side of test tube then observed for a white creamy precipitate.

Detection of Glycosides

To 0.5 ml of filtrate 0.5 ml of Benedicts Reagent was added. The mixture was heated on a boiling water bath for 2 minutes. Red colour precipitate was absent.

Detection of Saponins

1ml of aqueous extract is diluted by distilled water upto 10 ml and shaken for 15 min. There is absence of layer of froth.

Detection of Tannins

2ml of extract was taken in test tube and added 2ml of Ferric Chloride Solution. Deep green colour of the solution was formed which shows the presence of tannins.

RESULTS AND DISCUSSION

Pharmacological study

Microscopy study – no significant changes or appearance of powdered material was seen. Foreign matters were 0.8% - 1%

Organoleptic characters

Dark brown colour, sweet and pungent in taste, aromatic in odour and moderately fine powder.

Table 2: Organoleptic characters

Parameters	<i>Yograj churna</i>
<i>Rupa</i> (colour)	Dark brown
<i>Rasa</i> (taste)	Sweet pungent
<i>Gandha</i> (odour)	Aromatic
<i>Sparsha</i> (texture)	Moderately fine powder

Physio-chemical Analysis

Table 3: Result of physiochemical analysis

Serial number	Test	<i>Yograj churna</i>
1	pH(10%aq sol)	5.03
2	LOD	8.86%w/w
3	Total ash	39.193%w/w
4	Acid insoluble ash	36-38%w/w
5	Water soluble extractive	11.394%w/w
6	Alcohol soluble extractive	23.63%w/w

Phyto- chemical analysis

Table 4: Result of phytochemical analysis

Serial number	Test	<i>Yograj churna</i>
1	Alkaloids	+ve
2	Glycosides	+ve
3	Saponins	+ve
4	Tanins	+ve

TLC

Table 5: TLC of *Yograj churna* (ethanol extract) at nm showed 4 spots

Extract	Solvent system	No of spots	Rf value
Methanol	Methanol: ethyl acetate	4	0.1 0.46 0.76 0.9



Fig.1 TLC Showing four spots

DISCUSSION

Pharmacognostical evaluation showed that the organoleptic characters of the sample was dark brown in colour, sweet and pungent in taste and aromatic in odour and fine powder in consistency. Sweet taste due to sugar and pungent due to presence of *Triphala*. The physiochemical results obtained in the present research work for *Yograj Churna* may be useful in similar research work in future as till date no standard information are available. The TLC showed 4 spots, among which the Rf was at 0.1, 0.46, 0.76 and 0.9. The phytochemicals analysis showed the positive presence of alkaloids saponins tannins and glycoside.

CONCLUSION

The study on *Yograj Churna* is a step towards Pharmacognostical, physiochemical standardization in powder form. As there is no published information available on pharmacognostical and physiochemical profiles on *Yograj Churna*, this preliminary information can be used as reference in future for similar research works.

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*Address for correspondence

Dr Sikha Lekharu

PG Scholar,

Dept. of Samhita Siddhanta, Govt.

Ayurvedic College, Guwahati,

Assam, India.

Phone: 8811834122

Email: shikhalekharu@gmail.com