

PHYTOCHEMICAL EVALUATION OF MANJISTAADI YOGA - A POLY HERBAL AYURVEDIC FORMULATION

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ABSTRACT

Ayurveda has explained many formulations to cure diseases or to prevent it, but many of them are not in practice and *Manjistaadi Yoga* is one among them. Chemical evaluation of such poly herbal formulation is essential to assess the quality of the drugs, based on the concentration of their active principles. Pharmaceutical and phytochemical assessment of *manjistaadi yoga*. *Manjistaadi Yoga* prepared as per classic (Ref: Cha.chi.23/196). In present study physical analysis such as ash values, extractive values, loss on drying, Phytochemical and organoleptic tests of *Manjistaadi yoga* have been done. The Qualitative tests on polyherbal formulation revealed the presence of sugars, proteins, alkaloids, flavanoids and tannins. The richness of various chemical constituents in the formulation is confirmed by the TLC study. The present phytochemical study of polyherbal formulation showed the presence of various chemical.

Keywords: *Manjistaadi Yoga*, Poly Herbal Formulation

INTRODUCTION

In classics we get many formulations but many are not in practice because of endangered species, controversies understanding the source of plant, identification and difficulties during of preparation. *Manjishtaadi Yoga* is one such formulation in spite of having all easily available drugs medicine or combination is not used in practice. *Manjishtaadi Yoga*

is specially explained for the management of *mandali damsha* by *acharya charaka in visha chikitsa adhyaya*.¹ In present time *mandali sarpa* can be correlated to Russell's viper based on morphology of snake, signs and symptoms of bite, thus *manjishtaadi yoga's* effect in Russell's viper can be studied, where

quality of the formulation plays an very important role.

Formulations quality depends on the process of preparation which has important role in disease management but nowadays due to lack of knowledge regarding method of preparation and quality assessment many of the formulations are not in practice and few are less effective .As per the estimates of world Health Or-

ganization (WHO), more than 80% of global population uses plants and plant based medicines for the disease management². Hence it's very important to have information regarding formulation process and quality control; therefore this article is written with updated quality control parameters along with the method of preparation. *Manjishtadi yoga* consists of six ingredients (Table No.)^{1,3}

Table 1: Ingredient, part used and quantity of

SL.No	Drug Name	Latin Name	Part Used	Quantity
1.	<i>Manjishta</i>	<i>Rubia cordifolia</i> Linn	Stem	1
2.	* <i>Vidhari kandh</i>	<i>Pueraria tuberosa</i> Dc	<i>Kandh</i>	2
3.	<i>Kaashmarya</i>	<i>Gmelina arborea</i> Linn	Bark	1
4.	<i>Yashtimadhu</i>	<i>Glycyrrhiza glabra</i> Linn	Root	1
5.	<i>Vatankur</i>	<i>Ficus bengalensis</i> Linn	<i>Shrunga</i>	1
6.	<i>Durva</i>	<i>Cynodon dactylon</i>	<i>Panchang</i>	1

(*Vidharikandha is substitute of Jeevaka and Rishabak)

MATERIAL AND METHODS:

Collection and Authentification of Plant Materials:

The raw drugs of *Manjistaadi yoga* were procured from GMP certified KLE Ayurvedic pharmacy Khasbag Belgaum, Karnataka, In-

dia and authenticated by AYUSH approved Drug Testing Laboratory, KLEU's Shri. BMK Ayurved Mahavidyalaya and Research Centre, Belgaum, Karnataka.

Images of parts of raw drugs used for preparation of *Manjishtadi yoga*



Figure 1: Manjishta stem



Figure 2: Vidarikandha



Figure 3: Yashtimadhu



Figure 4: Gambhari stem

Figure 5: Durva Panchanga

Figure 6: Vatankura

Preparation of Manjistaadi yoga:

All the authenticated drugs were pulverized separately, passed through 120 # sieve and then mixed together in specified proportions to get uniformly blended churna and stored in dry sterile container.



Figure 7: Final product of Manjistaadi Yoga Churna

Thin Layer Chromatography Study:

Stationary Phase: Silica gel GF254 for TLC plates with aluminium sheet support (0.2mm thickness) was used.

Mobile Phase- Toluene: Ethyl acetate (9:1v/v) was selected as solvent system through trial and error method. The developed plates were visualised under short UV (254nm), long UV (366nm) and RF values were recorded.

Physico Chemical Evaluation:

Manjistaadi yoga was subjected to various analytical parameters as follows –

Organoleptic parameters: *Rupa* (colour), *Rasa* (Taste), *Gandha* (odour), *Sparsha* (Touch)⁵, Physico-chemical Parameters: Loss on drying at 110oC⁶. Ash value⁷. Acid insoluble ash⁸. Water soluble extractive⁹. Hydro alcoholic soluble extractive¹⁰

Microbial limit Test was carried out for Fungal and Bacterial study¹¹.

Table 2: RESULTS AND DISCUSSION:

SL. No	Parameters	Manjistaadi Yoga
1.	Foreign matter	Nil
2.	Loss on Drying at 110 ^o C (% w/w)	7.67 %
3.	Total Ash (% w/w)	3.22 %
4.	Acid insoluble Ash (% w/w)	1.77%
5.	Water Soluble Extractive (% w/w)	14.16%
6.	Alcohol soluble extractive (% w/w)	8.48%

Organoleptic characters for finished product of *Manjistaadi Yoga* shows – *Churna* very fine powder form, Beige in color, Aromatic odor, Sweet bitter in *Rasa* as all the ingredients

were having sweet taste, *Manjistaadi Yoga* having characteristic *Gandha* (odor) due to the specific ingredients.

Table 3: Organoleptic Characters Of *Manjistaadi Yoga*

SL.No	Parameters	<i>Manjistaadi Yoga</i>
1.	Colour	Beige
2.	Odour	Aromatic
3.	Taste	Sweet bitter

Table 4: Preliminary Phytochemical Analysis Of *Manjistaadi Yoga*

SL.No	Parameter	Water Extract	Alcohol Extract
1.	Carbohydrates	Absent	Absent
2.	Reducing Sugar	Present	Absent
3.	Non- Reducing sugar	Present	Present
4.	Monosaccharide's	Present	Present
5.	Pentose sugars	Absent	Absent
6.	Hexose sugars	Absent	Absent
7.	Protein	Present	Present
8.	Amino acids	Present	Absent
9.	Steroid	Absent	Present
10.	Glycosides A. Cardiac Glycosides B. Saponin Glycosides C. Coumarin Glycosides	Absent Absent Present	Absent Absent Absent
11.	Alkaloids	Present	Absent
12.	Tannins	Absent	Absent

Table 5: TLC - RF Values Of *Manjistaadi Yoga*

Formulation	Extract	Solvent System	Normal Light	Spots at UV 254	Spots at UV 366
Manjistadi yoga	Alcohol	Toulene : Ethyl Acetate	0.72, 0.78	0.43, 0.5	0.21,0.35,0.43,0.53

Table 6: The Inorganic Components Present In *Manjistaadi Yoga*

SL.No	Parameter	Present/ Absent
1.	Calcium	Absent
2.	Magnesium	Absent
3.	Sodium	Present
4.	Potassium	Absent
5.	Iron	Present
6.	Chloride	Absent
7.	Nitrate	Absent
8.	Sulphate	Present

9.	Carbonate	Present
10.	Phosphate	Present

Table 7: The Results Of Microbial Limit Test Of *Manjistaadi Yoga*

SL.NO.	Microbial test	Limits (as per IP)	Results
1.	E . coli	Absent /100ml	Absent
2.	S . aureus	Absent /100ml	Absent
3.	P . aeruginosa	Absent /100ml	Absent
4.	S . abony	Absent /100ml	Absent
5.	Total bacteria count	30 – 300 cfu/ml	102 cfu /ml
6.	Total fungal count	10 – 100 cfu / ml	10 cfu /ml

DISCUSSION

This particular formulation is named based on its first ingredient i.e.,-*Manjishtha*. As *Jeevka* and *Rushabaka* are not available, *vidarikandha* was used in double quantity, which is mentioned as substitute for *Jeevak* and *Rushabaka* by *acharya Bhavaprakasha*. Among six ingredients of *Manjistadi yoga*- *Vidarikanda*, *Vatankura*, *Manjista*, *Yastimadhu* and *Gambhari* are *Vishahar* in nature. *Mandali visha* (Viper venom) aggravates *pitta* and vitiates the *Rakta*. *Mandali visha* being *Pitta pradhana*, causes more *Rakta dushti* in short span of time compared to other *Visha*.

So the drugs which posses *pitta shamana* property and also prevent bleeding & haemolysis will be the right choice for reversing the haemotoxicity .

Manjistadi yoga has *tikta*, *kashaya* and *madhura* rasa which have *pitta shamak* properties and guru , *snighdha guna* which are opposite to *visha gunas*.

Aqueous and Alcoholic extract of *Manjistadi Yoga* showed presence of Reducing sugars, Non-Reducing, Monosacharides, Protien, Steroids, glycosides, Alkaloids, Sodium, Iron, and Sulphates and Phosphate.

Alkaloid is main chemical constituents in *Durva*, which is proved as hemostastic, anti-oxidant and nephro protection effect (Prathap Kumar Kothapalli at.el, 2014, Prashant Kumar Rai at al 2010, leela hugar at et,2014)^{12,13,14,15}

Glycoside and Steroids present in *manjista*, *vata*, *Vidarikandh*, *Yastimadhu*, *Durva* are proved as nephroprotective , some of them observed as Haemostatic, anti – oxidant, diuretics , anti- inflammatory. (Verma A, et al 2016, Yamini B. Tripathi et al 2002 , Leela Hugar at al. 2014, Farhad Alipour at al 2014, Nidhi Pandey, et al.2010, Mandal S.G et al,2010)^{16,17,18},

Carbohydrate also a constituents in *Gambhari*, *Durva*, *Vata*, *Vidharikandh*, *Manjista*. These entire individual proved as nephroprotective and anti-oxidant. Then may be presence of carbohydrate in *manjistadiyoga* nephroprotective (Yamini B. Tripathi et al 2002, Leela Hugar at al. 2014, Farhad Alipour at al 2014,) ^{17, 13, 19}

Ingredients of *Manjistadi yoga* are proved to have anti-oxidant, anti-inflammatory and anti-cytotoxic properties which may be responsible for its nephroprotective effect.

Alkaloids & Steroid –have antioxidant which can prevent human body from free radicals & Reactive oxygen species.

CONCLUSION

Manjishtadi yoga has alkaloids, steroids, glycosides and proteins in it. Its ingredients have shown organ protective effect, anti inflammatory and anti oxidant effect, thus it can be used in all poisonous conditions where organ toxicity is suspected.

FURTHER SCOPE FOR STUDY

Quantitative analysis of physico chemical and phyto chemical constituents of *Manjishtadi yoga* is to be done.

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