

Nutritional Analysis of Chyawanprash

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ABSTRACT

Ayurveda a great life science provides many Novel concepts like Rasayan,Vajikaran. Chyawanprash, is one of the Rasayan, used as antiageing process and is being used since ages, but still the standardization is lacking , The present study is aimed to standardize Chyawanprash for estimation of Nutritional components present in it by sophisticated analytical tools. The study shows that it contains maximum Iron which is, in fact, more than recommended daily allowances and Fat is less than 0.1% and other nutritional components as per table 2. This validates the claim that it can be given to patients with heart diseases. Vitamin C present in Raw *Amlaki* was 447 mg/100 gm, which substantially reduced after processing which was reduced to 7.25 mg/100 gm. Phosphorous detected was 77 gm/100 gm. There was no presence of heavy metals detected. Hence these parameters and the developed methods may be considered as a tool for assistance to the scientific organization and the manufacturers in developing standards for Chwawanprash.

Keywords: Nutritional Analysis, *Chyawanprash, Rasayan,Vajikaran, Amlaki*, anti-ageing

1. INTRODUCTION

Ayurveda the life of science mainly emphasis on wellbeing by achieving youth, vigour and immunity in body by adopting Routine lifestyle mentioned in Ayurveda and intake of certain food supplements which are known as *Rasayana*¹.Chyawanprash is one of the *Rasayana* mentioned along with *guduchi* etc², which falls under *kutipraveshik* method for *Rasayan* intake³⁻⁵ which imparts immunity, strengthens body, anti-ageing⁶, Aphrodisiac⁷⁻¹¹. Chyawanprash is used since ages, but the nutritional value is not estimated till date.

2. AIM AND OBJECTIVES

1. To incorporate sophisticated instruments and methods for achieving purity of Chyawanprash.
2. To standardize and analyze the in-process drug with following parameters - Duration, Temperature, pH.
3. To assess the result obtained and to validate the claims made.

4. To assess nutritional assay for Macro and Micronutrients

3. MATERIAL AND METHODS 12

3.1. Ingredients

Figure 1: Ingredients of Chyawanprash Avaleha (Drugs used for Decoction)



2.1 Patala



2.2 Arani



2.3 Gambhari



2.4 Bilwa



2.5 Arani



2.6 Gambhari



2.7 Mudgaparni



2.8 Mashaparni



2.9 Kantakari



2.10 Pippali



2.11 Karkatashrungi



2.12 Bala



2.13 Bhumyamalaki



2.14 Haritaki



2.15 Guduchi



2.16 Draksha



2.17 Vasa



2.18 Riddhi



2.19 Jivanti



2.20 Karchu



2.21 Jeevak



2.22 Rishabhak



2.23 Musta



2.24 Kakanasa



2.25 Mudgaparni



2.26 Mashaparni



2.27 Vidari



2.28 Punarnava



2.29 Kakoli



2.30 Kshir Kakoli



2.31 Kamal



2.32 Meda



2.33 Mahameda



2.34 Ela






2.35 Agarar

3.2. Method of preparation

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5 Kg Amala were weighed and washed. Raw drugs (1824 gm) were weighed and soaked in 12 L of water overnight. Next day *aamla* were tightened in a cotton cloth and were immersed in decoction (as in *Dola yantra*). Then the decoction was boiled till it reduced 1/8th. Seeds and fibres of cooked *aamla* were removed and were mashed into pulp. This pulp is then roasted in cow *ghee* till it leaves oil,

at 40°C for about 2-3 hours. Once pulp starts leaving oil, pour decoction and *sharkara* into it and heat it till *avleha* consistency is achieved. Finally, powdered *prakshep dravyas* were added and after cooling *madhu* was added. The obtained formulation is known as *Chyawanprash*. Duration for preparation: 4 days, pH: 3-4.

Various stages of preparation	Representative image
Bharjana Sanskara (Amalaki & Goghrita) – Initial Stage	
Bharjana Sanskara (Amalaki & Goghrita) – End Stage [Ghee and Kalka get separated]	
Final Product (Chywanprash Avaleha)	

3.3. Standardization and Analytical Study:

- A. In process standardisation.
B. Finished product- standardisation.

A. STANDARDIZATION OF RAW DRUGS

The study drugs used were identified and authenticated by pharmacognosy and then subjected to study.

B. FINISHED PRODUCT STANDARDISATION

Chyawanprash was sent for its nutritional analysis at Microchem Silliker (Navi Mumbai, Ghansoli). Result obtained as following:

Table 1: Results obtained after Nutritional Analysis of Chywanprash

Parameters	Value	Unit of Measures
Moisture	24.26	%
Ash	5.21	%
Protein	(N×6.25)1.15	%
Fat	<0.1	%
Carbohydrates	69.28	%
Dietary fibres (soluble & insoluble)	12.09	%
Vitamin A	22.7	ug/100g
Vitamin C	7.25	mg/100g
Vitamin E	1.79	mg/100g
Calcium	72.22	mg/100g
Iron	8.14	mg/100g
Phosphorous	76.81	mg/100g
Magnesium	36.79	mg/100 g
Potassium	30.10	mg/100 g
Selenium	Below limit of quantification	mg/kg
Mercury	Below limit of quantification	mg/kg
Lead	Below limit of quantification	mg/kg

4. OBSERVATIONS AND RESULTS PHARMACEUTICAL STUDY-

Pharmacognostical evaluations shows *Dashmool* and *Ashtavarg* which are not genuine still they are being used by traders.

500 g *Amala* were weighed and washed. Raw drugs were weighed and soaked in 12 L of water overnight. each *Amala* weighed ~10gm. Then the decoction of 12 L was boiled till it reduced 1/8th i.e. 1.5 L *Amala* gets softened.

- pH of decoction: 4.
- Temperature- Flame while making decoction was: 263°C, decoction: 120°C.
- The pulp roasted in butteroil till it leaves oil, at 40°C for which duration was about 2-3 hours.

- Once pulp starts leaving oil pour decoction into it and heat it till *avleha* consistency is achieved.
- After that finally powdered *prakshep dravyas* were added and after cooling

madhu was added. Duration for preparation— 4 days pH –3-4

TABLE 2 ANALYTICAL STUDY DATA OF FINISHED PRODUCT (CHYAWANPRASH)

Sr. No.	Nutrients analyzed in chayanprash	Chyawanprash/ 100 gms as per analysis	Nutrients/day as per FDA ranging from children to adult	Dose in per 40 gms of chyawanprash	Deficient
1.	Protein	1.15%	50 gm/day (0.6g/Kg/d) i.e. 10-14% of Calories	20 gm	30 gm
2	Carbohydrate	69.28 %	300 gm/day 55% of Calories should come from carb.	27.712 gm	272.28 gm
3	Fat	<0.1%	65gms/day 35% of Calories should come from Fat. Saturated/unsaturated - >10% Poly/monosaturated - >10%	0.04 gm	64.96 gm
4	Vit A	22.7mcg/100 gm	500 IU Age 1-8 yrs - 1000-1300 IU Adult - 3000IU (M) 2300 IU (F)	30.264 mcg = 9.0792 IU	490.9 IU
5	Vit E	9 mg/ 100 gm	30 IU Age 1-8 yrs – 13-16 IU Adult – 33 IU (S), 22 IU(M)	7.16 mg = 7160mcg = 10.68 IU	20.68 IU
6	Vit C	5mg/ 100gm	60 mg Age 1 -8 yrs – 25mg Adult – 90mg (M), 75mg (F)	29 mg	31 mg
7	Calcium	72.22 mg/100 gm	1000mg 700-1000 mg (Children) Adult – 14yr- 1100mg/d 70yr – 1000mg/d	300 mg	700 mg
8	Iron	8.14 mg/ 100gm	18 mg Age 1 -8 yrs – 7-10mg Adult – 8mg (M), 18mg (F)(19-50 y), 8mg (F)(51+ y), 27 mg (Pregnant), 9mg (Lactation)	32.56 mg	More of 14.56 mg
9	Dietary fibre	12.09 %	25gms/day	4.836 gm	5 gm

10	Phosphorus	76.81mg/ 100gm	1000mg/day	30.724 mg	969.28
			Age 1-8 yrs – 460-500mg		
			Adult – 700mg		
11	Magnesium	36.79 mg/100 gm	420 mg/day	14.716 mg	405.28s
			Age 1-8 yrs – 80-130mg		
			Adult – 400mg (M) (19-30yr), 420mg (M) (30+), 310mg(F) (19-30 yrs)		
12	Potassium	302.10 mg/100gm	Age1-8 yrs – 3-3.8mg/day		
			Adult – 4.7gm/d, 5.1gm/d (Lactation)		
			Age 1-8 yrs – 80-130mg		
13	Selenium	Below limit of quantification	55 microgram/day		
			Age 1 -8 yrs – 22-30mcg/day		
			Adult – 55mcg/d 70mcg/d (L) 60mcg/d (Preg)		
14	Mercury	Same as above			
15	Lead	0.48 mg/kg			

* Institute of medicine of National Academy of Sciences, Nov 30, 2010. Daily Values from NIH, Food labelling guide, FDA, 2013.

The present research drug in 40 gm of sample contains the following nutritional quantity in comparison to Food drug and admission led Recommended Daily Allowance (RDA).

Chyawanprash taken in an advisable dose will match for protein, Vitamin C, Dietary fibre, Calcium deficit for 100 mg, Abundance of Iron as per RDA. It is deficit in Magnesium and Phosphorous by 375.8 mg and 907.8 mg respectively.

Potassium was deficit by 2.7 gm. Selenium and Mercury was below limit of quantification and Lead was 0.48 mg/kg

5. DISCUSSION

The study entitled nutritional Assay of in Chyawanprash has 3 main sections - Pharmaceutical study, Standardization and analytical study .Pharmaceutical study-Chyawanprash was prepared using standard text *sharandhar*.. Before the preparation of Chyawanprash the raw drug was analysed for pharmacognostical evaluation .Finished product was analysed for the presence of nutritional component in it. The chart below enlists the same.

TABLE 3 -TEST REPORT OF NUTRITIONAL COMPONENTS OF CHYAWANPRASH

Sr No	Parameter name	Result	Unit of measurement	Method
1	Moisture	24.26	%	IS: 6287-1985(R 2005)
2	Ash	5.21	%	FSSAI MAN 5
3	Protein	(NX6.25)1.15	%	AOAC 2001.11
4	Fat	<0.1	%	IS:6287-1985
5	Carbohydrate	69.28	%	AOAC 986.25
6	Dietary fibre (soluble & insoluble)	12.09	%	AOAC 991.43
7	Vitamin A	22.7	µg/100g	AOAC 2001.13
8	Vitamin C	7.25 (Finished product) 446.72 (Raw Amla)	mg/100 g	AOAC 2012.22 AOAC967.21
9	Vitamin E	1.79	Mg/100 g	AOAC 997.03
10	Calcium	72.22	Mg/100 g	AOAC 985.35
11	Iron	8.14	Mg/100 g	AOAC 985.35
12	Phosphorous	76.81	mg/100 g	MC/SOP/INS/21
13	Magnesium	36.79	mg/100 g	AOAC 985.35(19 th Ed)

Iron present is maximum i.e. more than recommended daily allowances and Fat is less than 0.1%. This validates the claim that it can be given to patients with heart diseases. Vitamin C present in Raw *Amlaki* was 447 mg/100 gm, which substantially reduced after processing which was reduced to 7.25 mg/100 gm. Phosphorous detected was 77 gm/100 gm. There was no presence of heavy metals detected.

CONCLUSION

The present work was carried out to assay the nutritional value of Chyawanprash. The result obtained as set to develop standard operating process for method of preparation of Chyawanprash and the nutritional assay of the food components were compared with Recommended daily allowance with that of Food drug and administration. The result indicates the presence of nutrient as per **Table 3**. Method of food component detection was done by using standard AOAC.

Hence these parameters and the developed methods may be considered as a tool for assistance to the scientific organization and the manufacturers in developing standards. The present work is a small step towards development of standard operating process of Chyawanprash a standard assay of nutritional component present in it.

This will also help to produce uniform standard products, which will restore in the faith of the claims made in Ayurvedic systems.

SUMMARY: yawanprash sample was prepared in the Laboratory according to the standard text. Pharmacognostical evaluation was done by expert. The data analysis revealed most of the materials are not available, instead their alternative herbs are used (Table 2). Chemical analysis was done using various parameters viz fat, carbohydrate, calcium, iron, listed in Table1. The

chemical analysis for the evaluation of nutritional components showed maximum percentage of iron etc, as per Table 1. In-process standardization showed the duration, temperature pH. All these parameters of Table 1, Table 2 and Table 3 together can be used successfully for analysis of Chyawanprash and can be used as a food supplement required per day, will serve as a basis for fixing standardization parameter.

6. REFERENCES AND SHORT

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Conflict of Interest: Non

Source of funding: Nil

Cite this article:

"Nutritional Analysis of Chyawanprash."

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Ayurline: International Journal of Research In Indian Medicine 2020;4(5):01- 10