



ISSN: 2395-7476
IJHS 2016; 2(3): 01-02
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www.homesciencejournal.com
Received: 01-07-2016
Accepted: 02-08-2016

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Utilization of ashwagandha, ginger and shatavari root powder for the preparation of value added *Cheela*

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Abstract

Value addition of food products by incorporating medicinal herbs is a best way to add their nutritional benefits in the daily diet of humans to combat with various degenerative diseases. The study was carried out with objectives to access the sensory attributes and cost of the prepared value added food product. Three treatments and one control for each products *i.e.* T₁, T₂, and T₃ were prepared by incorporation of medicinal root powder and control (T₀) with 100% besan for *Cheela*. Sensory evaluations for prepared products were done by using the 9-point hedonic scale. Data obtained were statistically analyzed by using analysis of variance (ANOVA), critical difference (CD). In context with organoleptic attributes, T₂ (5% ashwagandha+ 5% ginger+ 10% Shatavari + 80% besan) was most acceptable in comparison with other treatments. Cost of the '*Cheela*' per 100 gm of raw ingredients as the prevailing cost of the raw materials was T₀ is Rs. 7.75 for treatment, T₁ is Rs. 12.05, T₂ is Rs. 16.35 and T₃ is Rs. 20.65.

Keywords: *Cheela*, ashwagandha, shatavari, ginger, sensory evaluation and value addition

Introduction

Ashwagandha (*Withania somnifera*) is a shrub that flourishes in India. Ashwagandha has many beneficial elements, including flavonoids. Ashwagandha contain different natural antioxidants: superoxide dismutase, catalase and glutathione peroxidase which are responsible as a health promoters. It has been used to treat inflammation, fevers and to protect against infection or illness. It has been used to boost the immune system, improve memory and to promote overall wellness. (Mehta, 2013) [2] Shatavari (*Asparagus racemosus*) may constitute a very important component of as feed supplement in the animal diets because of their higher availability of nutrients like protein, crude fiber, ether extract, nitrogen free extract and ash content and minerals like Ca, Mg, Fe, Cu, Zinc etc. Ginger (*Zingiber officinale*) is extensively used around the world in foods as a spice. (Sharma and Sharma, 2013) [3]. Ginger (*Zingiber officinale Rosc.*) has been used as a spice for over 2000 years. Its roots and the obtained extracts contain polyphenol compounds. (Ghosh, 2011) [1]

Materials and Methods

Experimental site: The present investigation was carried out in the Nutrition Research, Laboratory of the Department of Foods and Nutrition, Ethelind School of Home Science, SHIATS, Allahabad.

Procurement of raw materials: Medicinal herbs like Ashwagandha (*Withania somnifera*), Shatavari (*Asparagus racemosus*) and Ginger (*Zingiber officinale*) and other ingredients like besan, refined wheat flour, sugar and vegetables were purchased from local Market of Allahabad.

Details of Treatments

Cheela

T₀ = 100% Besan

T₁ = 90% Besan + 10% (Ashwagandha, Shatavari and Ginger root powder)

T₂ = 80% Besan + 20% (Ashwagandha, Shatavari and Ginger root powder)

T₃ = 70% Besan + 30% (Ashwagandha, Shatavari and Ginger root powder)

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Replication: Control and each of the treatment for each product were replicated three times.

Sensory Evaluation

Sensory evaluation of the food products for their acceptability was done by a panel of 5 judges on the basis of evaluation of attributes like Colour and Appearance, Body and Texture, Taste & Flavour and Overall Acceptability. (Srilakshmi, 2007) [4].

Determination of Cost: The cost of the products was calculated on the basis of price of raw ingredients at rupees/kg.

Statistical Analysis: The data obtained from sensory evaluation were statistically analyzed by using analysis of variance technique (two way classification) (Gupta and Kapoor, 2002) [5].

Table 1: Average sensory scores of control and treated sample of *Cheela*.

Control and Treatments	Color and Appearance	Body and Texture	Taste and Flavor	Overall Acceptability
T ₀	8.0	7.4	8.0	7.9
T ₁	7.7	7.9	7.9	8.0
T ₂	8.7	8.5	8.8	8.8
T ₃	7.9	7.6	7.5	7.7
F-test	S	S	S	S
C.D	0.76	0.17	0.37	0.21

S= Significant, NS = Non Significant ($P \leq 0.05$)

The data illustrated in the above table pertaining to the average sensory scores of different parameters in control and treated samples of *cheela* clearly indicates that in all parameters T₂ had the highest score making it quite obvious that *cheela* made

of incorporation of 5 percent ginger root powder, 10 percent shatavari root powder, 5percent ashwagandha root powder with besan enhanced all parameters and acceptability.

Table 2: Cost of the prepared product namely "*Cheela*"

Ingredients	Actual rate/kg (Rs)	T ₀		T ₁		T ₂		T ₃	
		Amt. (g)	Cost (Rs)	Amt. (g)	Cost (Rs)	Amt. (g)	Cost (Rs)	Amt. (g)	Cost (Rs)
Besan	45	100	4.5	90	4.05	80	3.60	70	3.15
Onion	20	10	0.20	10	0.20	10	0.20	-	0.20
Cabbage	20	10	0.20	10	0.20	10	0.20	10	0.20
Tomato	20	10	0.20	10	0.20	10	0.20	10	0.20
Carrot	30	10	0.30	10	0.30	10	0.30	10	0.30
Rye	20	5	0.10	5	0.10	5	0.10	5	0.10
Refine oil	90	25	2.25	25	2.25	25	2.25	25	2.25
Ginger root powder	300			2.5	0.75	5	1.50	7.5	2.25
Shatavari root powder	600	-	-	5	3.00	10	6.00	15	9.00
Ashwagandha root powder	400	-	-	2.5	1.00	5	2.00	7.5	3.00
Total amount (Rs.)			7.75		12.05		16.35		20.65

Table: 2 shows that the total cost of *Cheela* Per 100g of dry ingredients at the prevailing cost of the raw materials was T₀ is Rs. 7.75 for treatment, T₁ is Rs. 12.05, T₂ is Rs. 16.35 and T₃ is Rs. 20.65. It is therefore concluded that the control T₀ has the lowest cost and T₃ has the highest cost because the incorporation level of medicinal root powder did increase the cost of the prepared products.

Summary and Conclusion: In *Cheela* the sensory scores of T₂ (5% ashwagandha+ 5% ginger+ 10% Shatavari + 80% refined besan) was best regarding the overall acceptability followed by T₁ (2.5% ashwagandha +2. 5% ginger + 5% Shatavari + 90% besan) and there was significant difference between the two.T₂ was found to be more acceptable than T₃ (7.5%ashwagandha + 7.5% ginger + 15% Shatavari + 70% besan) and T₀ (control). Cost of the '*Cheela*' per 100 gm of raw ingredients as the prevailing cost of the raw materials was T₀ is Rs. 7.75 for treatment, T₁ is Rs. 12.05, T₂ is Rs. 16.35 and T₃ is Rs. 20.65.

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