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## Development of antiobesity herbal premix and its sensory evaluation

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**Abstract**

Obesity is considered as one of the leading health problems in both India and world, which is the mother of all diseases. In the world of the nutrition, preventing obesity is typical and challenging due to ill eating practices or bad lifestyle habits. Natural herbs are purely natural in nature, as it is not containing any synthetic food items. The purpose of the study is to develop antiobesity herbal premix and assessment of Total dietary fibre content. Basically the premix was made from five major herbs namely Tulsi, Ginger, Cinnamon, Cardamom and Stevia. The premix was standardized on different ratio i.e., T1, T2, T3 and T4. The premix was standardized through sensory evaluation by trend panel members on 9-point hedonic scale. The best-selected premix was T2. Herbal premix can be beneficial for obesity and also for Diabetes Mellitus and Cardiovascular diseases.

**Keywords:** Obesity, natural herbs, total dietary fibre, diabetes mellitus

**Introduction**

In public health and clinical health obesity is preventable and common disease. For the development of various non-communicable disease, obesity is considered one of the risk factor resulting premature death and disability. It has been seen that in both developing and loved countries obesity gained a global epidemic in all the age groups currently. Obesity is generally defined as accumulation of excessive fat in adipose tissue that impaired health of an individual (Garrow 1988) [3].

The best method suggested by some experts for assessing obesity in which best and easiest way is body mass index. It can be calculated by weight divided by height into square. The unit of BMI is kg/m<sup>2</sup>. If an individual lies between BMI  $\geq 30$  and 25 and 29.9 kg/m<sup>2</sup> will be considered as high waist circumference and in high risk factor with cardiovascular risks (National Institutes of Health 1998) [8]. Hence, obesity can be treated by various natural herbs are as follows:

**Tulsi**

In the family lamiaceae (Tribe *Ocimeae*), Tulsi is considered an aromatic shrub which originated in north Central India and throughout eastern world (Bast *et al.* 2014) [2].

Tulsi is famous by various names such as “The Queen of Herbs,” “Mother Medicine of Nature,” “elixir of life” and “The Incomparable One” that possess both type of properties as spiritual and medicinal Within Ayurveda (Singh *et al.* 2010) [11].

**Ginger**

Ginger is considered as one of the most common dietary condiments in the family of Zingiberaceae as *Zingiber officinale* (Surh *et al.* 1999) [12]. Gingerol (1-[4'-hydroxy-3'-methoxyphenyl]-5-hydroxy-3-decanone) is the bioactive components from the rhizomes of ginger that exerts various physiological and pharmacological Properties.

According Kaul and Joshi in 2001 reviewed inn his study that ginger is safe to consume in the diet (Kaul and Joshi 2001) [5] and therapeutic use (Wilkinson 2000a) [15].

**Cinnamon**

In modern and traditional medicine cinnamon is gained popularity not only in cooking but for therapeutic use (Sangal 2011, Vangalapati *et al.* 2012) [1, 6]. Overall, 250 species are identified among the cinnamon genus all over the world. Cinnamaldehyde and trans cinnamaldehyde are the main constituents present in Cinnamon (Yeh *et al.* 2013) [4]. It is merely used in aroma industry and also incorporated in perfumes foods and medicinal product (Huang *et al.* 2007) [13].

### Cardamom

Cardamom (*Elettaria cardamomum*) is the family of Zingiberaceae. Cardamom have two subspecies such as *Elettaria* and *Amomum* in which green or true cardamom as *Elettaria* and black white, or red cardamom stands for *Amomum* (Mays *et al.*, 2014) [7].

It is originated in Nepal, India, Bhutan and also available in Asia, including India, China, Bhutan, Vietnam, Malaysia, Korea, and Japan by the name as “Queen of Spices” as expensive spice followed by saffron and vanilla, respectively (Mays *et al.* 2014) [7].

### Stevia

*Stevia rebaudiana* is tall, sessile and oppositely arranged leaves that possess sweetening compounds with *S. rebaudiana* being the sweetest of all. It is also considered as honey leaf. Paraguayan Guarani Indians was used to dry the leaves for using in tea and also chew the leaves as medicine in the traditional method as “sweet treat”. It can be safe for daily consumption in drinks not occasionally but many times in a day with no side-effects but dried leaves cannot be acceptable

in domestic cooking as leaves green color (Rajbhandari and Roberts 1985, Tsanova *et al.* 1991) [9, 14].

### Methodology

#### Locale of the study

The present study was conducted in the department of Food Science and Nutrition, CCAS, MPUAT, Udaipur city.

#### Procurement of sample

Ingredients required for preparing herbal premix and nutri health food products was procured from the local market of Udaipur city.

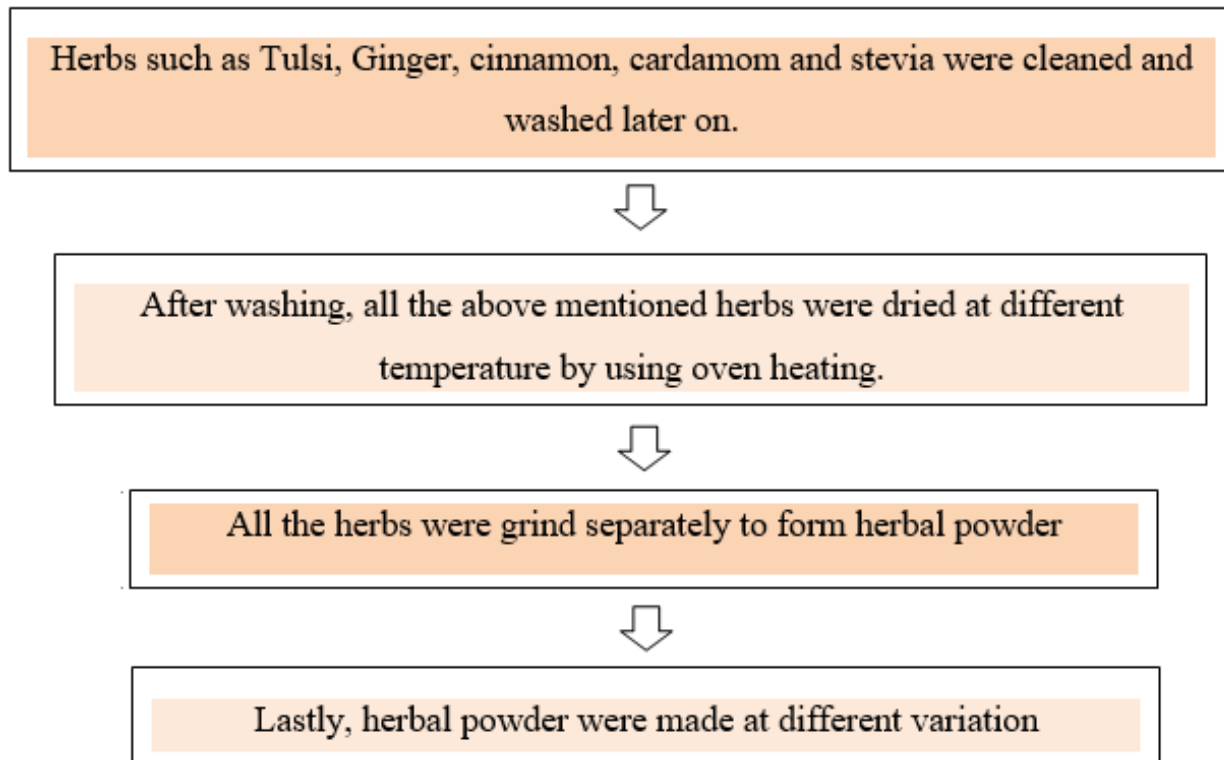
#### Standardization and preparation of herbal premix and products using tulsi, ginger, cinnamon, cardamom and stevia

Standardization of the premix was prepared at different ratios. The best selected premix was used for the product development at different levels such as 5%, 10%, 15%, 20% and 25% and 30%.

**Table 1:** Standardization of herbal premix

S. No.	Ingredients	T1	T2	T3	T4
1.	Tulsi	30	20	25	20
2.	Ginger	20	20	25	20
3.	Cinnamon	20	20	20	25
4.	Cardamom	20	20	20	25
5.	Stevia	10	20	10	10
6.	Final Weight of Premix	100	100	100	100

### Method of preparation



### Sensory evaluation

The acceptability of gravies were evaluated by a panel of 10 judges using 9-point Hedonic Scale (Ranganna, 1986) [10] to test the liking or disliking of products. Semi -trained panel did the evaluation. The panelist asked to record the level of liking or disliking by giving marks for various characteristics of the

products. The samples were rated on 9-point Hedonic Scale for quality attributes according to following grade descriptions and scoring.

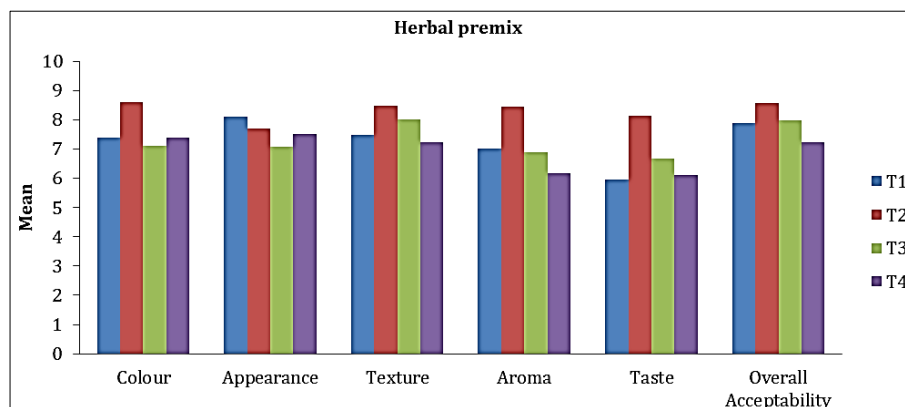
### Statistical analysis

One Way ANOVA has been used for the statistical analysis.

## Result and Discussion

**Table 2:** Mean acceptability scores of herbal premix

	Sensory evaluation of premix											
	Colour		Appearance		Texture		Aroma		Taste		Overall acceptability	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
T1	7.40	0.60	8.10	0.52	7.46	0.70	7.00	0.72	5.96	0.60	7.90	0.20
T2	8.60	0.43	7.70	0.80	8.46	0.58	8.43	0.47	8.13	0.66	8.56	0.32
T3	7.10	0.52	7.06	0.56	8.00	0.62	6.90	0.26	6.66	0.50	7.96	0.73
T4	7.40	1.13	7.50	0.10	7.23	0.37	6.16	0.89	6.10	1.11	7.23	0.30
F-value	2.493		1.783		2.656		6.671		5.134		4.575	
p-value	.134		.228		.120		.014*		.029*		.038*	



**Fig 1:** Mean acceptability scores of herbal premix

In the above table, Herbal premix was prepared in different variation as T1, T2, T3, T4 and T5 which further sensory evaluated on the basis of color, appearance, texture, aroma, taste and overall acceptability of the product in which T2 was highest acceptable in the color ( $8.60 \pm 0.43$ ), texture ( $8.46 \pm 0.58$ ), aroma ( $8.43 \pm 0.47$ ), taste ( $8.13 \pm 0.66$ ) and overall acceptability ( $8.56 \pm 0.32$ ) followed by T1 in appearance ( $8.10 \pm 0.52$ ). Hence, significant difference was observed in all the attributes.

### Conclusion

In this study, Obesity is one of the leading disorders in both India and world due to high consumption of processed foods and inactivity, more screen time. Thus, there are various preventive measures to tackle obesity by the natural ways such as herbs and herbal product, which gained popularity in today's world that considered as safe to consume without any side effect. There are various herbs such as Tusli, Cinnamon, Cardamom, Stevia and Ginger was used to prepare herbal premix further evaluated in which T2 was highest acceptable and considered as best premix for using in the diet.

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