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Acceptability and nutrient composition of developed herbomix

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ABSTRACT

In last few years there has been an exponential growth in field of herbal medicine thus bringing people more nearer to mother nature and play an important role to keep people healthy. In present study, herbomix was prepared by utilizing different herbs as Amla (*Emblca officinalis*), bottle gourd (*Lagenaria siceraria*), safflower petals (*Carthamus tinctorius*) and tulsi leaves (*Ocimum sanctum*). Three variations were prepared using different amounts of ingredients and was evaluated for their organoleptic characteristics. The variation I recorded the highest score for acceptability. Proximate composition and trace elements of highly accepted herbomix were determined.

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Key words : Herbomix, Acceptability, Nutrient content

INTRODUCTION

Herbs are most often defined as any part of a plant that is used in the diet for its aromatic and medicinal properties. Herbs have been prized for their pain relieving, healing, abilities and curative properties. Phytochemical is a natural bioactive compound found in plants such as vegetables, fruits, medicinal plants, flowers, leaves and roots that work with nutrients and fibres to act as defense system against diseases (Krishnaiah *et al.*, 2007).

The action of herb is strongest when they are fresh, also it can be used in the form of decoction, tea, powder and pills. Most exciting development in the field of herbs are the use in allopathy, household remedies, removal of CO₂, cooling the atmosphere, cure from ailments and also bringing people more nearer to the mother nature. In last few years, there has been an exponential growth in field of herbal medicine and these drugs are gaining popularity in both developing and developed countries because of their natural origin and less side effects.

Along with this medicinal properties, herbs are used for many other purposes including beverages such as tea, dyeing, repellents, fragrances, cosmetics, smoking and

industrial uses. The demand for plant based medicines health products, pharmaceuticals, food supplements, cosmetics are increasing due to growing recognition that the natural products are non toxic, have less side effects and easily available at affordable prices.

In India different herbal plants used for medicinal purposes are Ashwaganda (*Withania somnifera*), Bottle gourd (*Lagneria siceraria*), Curry leaves (*Murraya koenigii*), Amla (*Emblca officinalis*), Garlic (*Allium sativum*), Safflower (*Carthamus tinctorius* L.), Noni (*Morinda citrifolia*), Bael (*Agel marmelose*), Tulsi (*Ocimum sanctum*), Mint (*Mentha arvensis*), Ginger (*Zingiber officinale*), etc.

In present study, four different herbs belonging to different families *viz.*, Amla, bottle gourd, safflower petals and tulsi leaves were utilized for the development of different variations of herbomix and evaluated for their acceptability. The nutrient content of highly accepted herbomix was analyzed.

MATERIALS AND METHODS

Three variations of herbomix were developed using

Amla (*Emblica officinalis*), bottle gourd (*Lagenaria siceraria*), safflower petals (*Carthamus tinctorius*), tulsi leaves (*Ocimum sanctum*), honey and jaggery. Developed variations of herbomix were evaluated for organoleptic characteristics. Further highly accepted herbomix was analysed for nutritive content.

Preparation of herbal foods powder/ juice:

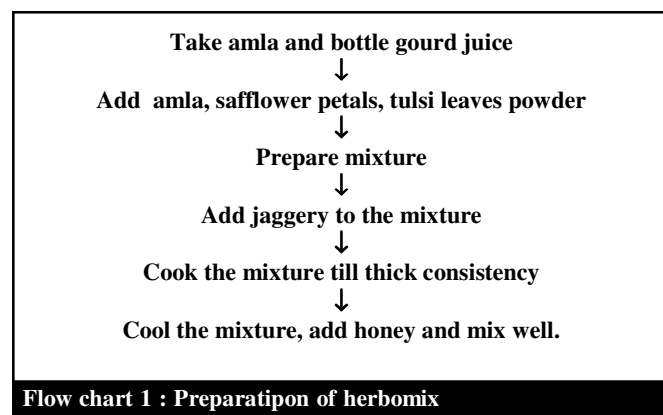
Amla, bottle gourd, safflower petals and tulsi leaves were collected in one lot. Safflower petals and tulsi leaves were dried in the shade, while amla was dried in mechanical drier and fine powder was prepared. Also the fresh juice of amla and bottle gourd was extracted in grinder and strained through muslin cloth.

Development of herbomix:

Three variations of herbomix were developed by utilizing amla, safflower petals powder, tulsi leaves powder in varying amounts while the constant amount of amla juice, bottle gourd juice, honey and jaggery was used in all three variations of herbomix. The detail description of development of herbomix has been given in Table 1.

Preparation of herbomix:

Measured quantity of amla, bottle gourd juice, safflower petals, tulsi and amla powders were mixed. In the prepared mixture jaggery was added and cooked till required consistency. The description of method of preparation of herbomix is given in flow chart 1.



Sensory evaluation:

Evaluation of herbomix for acceptability test was carried out following ranking method (Ranganna, 1979). The variations of herbomix were served to thirty trained judges to score for different sensory characters namely, colour, texture, taste, flavour and overall acceptability at room temperature with the help of score card. The highly accepted herbomix was selected for nutrient analysis.

Nutrient analysis:

The nutrient content of highly accepted variation of herbomix was analyzed. Moisture free sample was used for analysis. The proximate composition (moisture, total protein, fat, fibre and total minerals) was carried out as per procedures prescribed by A.O.A.C(1975). Carbohydrate content was calculated by difference methods. Calcium was estimated by EDTA method. Trace elements (iron, copper, zinc and manganese) were estimated by Atomic Absorption Spectrophotometer (Perkin R. Elmer Model-3110).

The values for all nutrients were averages of triplicate value on dry weight basis. Moisture was expressed on fresh weight basis.

RESULTS AND DISCUSSION

The mean values of organoleptic scores for the acceptability of herbomix developed by utilising selected herbal foods, amla, bottle gourd, safflower petals and tulsi are given in Table 2.

The mean scores for colour of I, II and III variations of herbomix were found to be 4.3, 4.3 and 3.5, respectively. Variation I and II secured highest score (4.3) than that of variation III (3.5). Statistical analysis revealed that the scores obtained for the colour of herbomix variation I and II differed significantly with variation III. It can be said that among prepared variations of herbomix variation I and II were found to be most accepted with regard to colour.

The scores recorded for the texture of herbomix prepared were between 3.5 to 4.3. The maximum score was recorded by variation I and the minimum score was recorded by variation III. Statistical analysis revealed that

Table 1: Development of herbomix

Herbomix variations	Ingredients used						
	Amla powder (g)	Amla juice (ml)	Bottle gourd juice(ml)	Safflower petals powder (g)	Tulsi leaves powder(g)	Jaggery (g)	Honey (g)
Variation I	1.0	5.0	15.0	0.5	0.5	5.0	5.0
Variation II	1.5	5.0	15.0	1.0	1.0	5.0	5.0
Variation III	2.0	5.0	15.0	1.5	1.5	5.0	5.0

Table 2 : Mean acceptability scores of organoleptic characteristics of developed herbomix

Herbomix variations	Colour	Texture	Flavour	Taste	Overall acceptability
I	4.3	4.3	4.2	4.3	4.4
II	4.3	4.0	3.9	4.1	4.1
III	3.5	3.5	3.2	3.1	3.2
Mean	4.0	3.9	3.7	3.8	3.9
F value	6.5*	4.8NS	20.8**	14.2**	41.2**
S.E. \pm	0.16	0.18	0.10	0.17	0.09
C.D. (P=0.05)	0.56	0.62	0.35	0.59	0.31

the scores obtained for texture of variation I differed significantly with variation III. From the results it can be concluded that variation I was found to be the most acceptable in the context of texture.

The mean scores secured for flavour of herbomix was ranging from 3.2 to 4.2. Variation I secured highest score of 4.2 whereas minimum score of 3.2 was secured by variation III. Statistically significant difference for flavour between variation I and III and also in variation II and III was recorded. On the whole, it can be concluded that variation I was most acceptable in terms of flavour.

The scores registered for the taste were 4.3, 4.1 and 3.1 for variation I, II and III, respectively. The highest score of 4.3 was recorded by variation I whereas, lowest score of 3.1 was secured by variation III. On the whole, it can be said that the variation I was found to be highly acceptable in terms of taste.

The mean scores for overall acceptability of herbomix ranged from 3.2 to 4.4. The maximum score was obtained by variation I (4.4) followed by variation II (4.1) and variation, III (3.2). Statistical result showed that overall acceptability of herbomix of variation I and II differed highly significant than that of variation III. From results it can be said that the highest score for overall acceptability was recorded by variation I. In conclusion of above results, it can be said that variation I was found to be most acceptable in terms of all organoleptic characteristics.

Mamila (2009) prepared four variations of herbal composite utilising amla, safflower, curry leaves, tulsi, mint and evaluated for organoleptic characteristics. The results of sensory evaluation revealed that among developed variations, the variation IV was found to be the most acceptable in terms of all organoleptic characteristics.

Nutritional composition of herbomix:

Proximate composition of herbomix is presented in Table 3. The results of the study revealed that the herbomix contained more amount of total minerals 2.6 g/100g fibre 2.85 g/100g and low level of fat 0.45 g/100g. This might be due to the use of amla, bottle gourd, safflower petals

Table 3 : Proximate composition of variation I (herbomix)

Nutrients	(g/100g)
Moisture	27.41
Protein	3.2
Fat	0.45
Total mineral	2.60
Crude fibre	2.85
Carbohydrate	63.54

and tulsi in preparation of herbomix.

The data pertaining to the trace element content are presented in Table 4. It is clear from the table that highly accepted variation I herbomix provides more amount of calcium and iron. Minerals are important for vital body functions such as acid base and water balance. Vegetables contribute these minerals and enhance their availability in daily life. Adequate amount of supply of trace elements in the diets is of great current interest of nutrition of community because increasing evidence of their marginal or inadequate intake among different segments of population.

Table 4 : Trace elements contents of variation I (herbomix)

Nutrients	(mg/100g)
Calcium	282.00
Iron	10.2
Copper	10.41
Zinc	18.16
Manganese	7.3

Conclusion:

The results have indicated that the panelist graded best to variation I, however the other two variations were also acceptable. Moreover, the nutritive analysis of variation I showed that developed herbomix is rich in calcium (282mg/g) and iron (10.2mg/g). So, it can be concluded that variation I can be utilized as a healthful product. Furthermore, the herbs utilized in the preparation of herbomix are the source of active principles having

antioxidant property and chemicals like phenols, polyphenols and flavonoids which play an important role in modern health care.

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