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Sensory Evaluation and Cost Analysis of Products made from Locally Available Vegetable Tindora (Ivy Gourd)

S. M. Prasad¹, S. Nashrin Nihara, K. M. Noorul Rahmani, S. Rahumath Shini and A. S. Sumaya²

¹Head and Assistant Professor and ²Assistant Professor

Department of Nutrition and Dietetics (UG and PG)

Sadakathullah Appa College (A), Tirunelveli, Tamil Nadu, India

Abstract

This abstract explores the potential benefits of value-added products made from ivy gourd (*Coccinia grandis*). Ivy gourd, a tropical vegetable, possesses nutritional and medicinal attributes. The study explains about Ivy gourd powder incorporated diversified food products like pancake, boba and paneer. This ivy gourd powder extract is rich in antioxidants. Evaluation of sensory attributes and cost analysis will contribute to understand the viability of these products in promoting health and culinary diversity. This research aims to enhance the utilization of locally available ivy gourd, offering sustainable alternatives food to school going children.

Keywords: Ivy Gourd, Pancake, Boba, Paneer, Henoic Scale, Sensory Evaluation

Introduction

Vegetables are rich in vitamins and minerals and also therefore termed as protective foods. Vegetables supply many nutrients besides adding variety to the diet. Ivy Gourd (Kundru) is a herb used for food and medicinal purposes. There are different ivy gourd species, including *Coccinia indica*, *Coccinia cordifolia*, and *Coccinia Grandis*, and they are said to have potent anti-inflammatory and antioxidant effects that can help prevent or treat many health conditions, ranging from diabetes and high cholesterol to high blood pressure and obesity. Ivy gourd fruit and leaves are also used as a vegetable in India and other Asian countries. Ivy gourd vegetable grows to about 4 inches a day. It has attractive flowers. The appropriate dose of ivy gourd depends on several factors such as the user's age, health, and several other conditions.

Methodology

This article describes the materials and methods used during the course of this study. These trials were carried out in the department of nutrition and dietetics, Sadakathullah Appa College (autonomous), Tirunelveli during the academic year from 2022-2023.

Selection of Raw Materials

The main raw material Tindora (Ivy gourd) needed for the study was purchased from palayamkottai, Tirunelveli. After repeated washing it was shaded dried for two weeks and have been grounded into fine powder.

Selection of Other Ingredients

The other ingredients used for the study such as wheat flour, cinnamon powder, brown sugar, milk, almonds, raisins, baking soda, baking powder, agar agar, lemon juice, salt, coconut oil were purchased from a local super market near Tirunelveli and stored for research purpose.

Pre-Treatment Employed

The raw materials after collecting have been grounded to a fine texture. The collected flour was stored in an airtight container. It will stay fresh in the pantry for 2 to 3 months and in the freezer for up to 6 months. Most vegetables are cooled and kept at chilling temperature before preservation vegetables.

Material Used for the Study

Electronic Weighing Balance: Electronic weighing balance of AY-220 was used to weigh the sample in terms of grams and milligrams.

Mixer: Mixer model of 2K-458 was used to grind the dry tin do rain to a fine texture.

Siever: Siever was used sieve the grounded flour to fine texture.

Stove: Prestige stove was used for the cooking purpose. It was kept at medium flame during food preparation.

Formulation of the Product

Formulation of Indora Powder in Corporated Pan Cake

Ingredients used for preparing pan cake was shown in Table 1, while methodology for preparing pan cake was shown in fig 1 and the prepared sample were exhibited in fig 2 below.

Table 1 Ingredients used for Making Pancake

S. No.	Ingredients	Amount
1	Tindora Powder	25 g
2	Wheat Flour	50 g
3	Brown Sugar	5 g
4	Milk	35 ml
5	Baking powder	2 g
6	Baking soda	1 g
7	Almond	5 g
8	Raisins	5 g
9	Cardamon	5 g

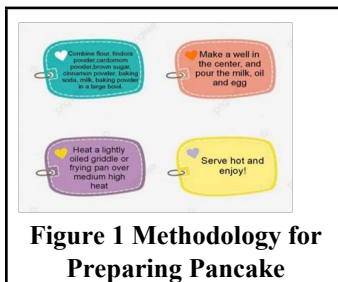


Figure 1 Methodology for Preparing Pancake



Fig 2 Prepared Pancake

Formulation of Indora Incorporated Boba

Ingredients used for preparing boba was shown in table 2, while methodology for preparing boba was shown in fig 3 and the prepared sample were exhibited in fig 4 below.

Table 2 Ingredients used for making Boba

S. No.	Ingredients	Amount
1	Tindora Juice	20
2	Agar Agar	5
3	Coconut Oil	½ Litre
4	Salt	2



Figure 3 Methodology for preparing Boba



Figure 4 Prepared Boba

Formulation of Tindora Incorporated Paneer

Ingredients used for preparing paneer was shown in table 3, while methodology for preparing paneer was shown in fig 5 and the prepared sample were exhibited in fig 6 below.

Table 3 Ingredients used for Making Paneer

S. No	Ingredients	Amount
1	Tintora Powder	25 g
2	Milk	1 litre
3	Lemon	10 ml



Figure 5 Methodology for preparing Paneer



Figure 6 Prepared Paneer

Results and Discussion

The results of the study are consolidated and presented under the following heads.

Sensory Evaluation of the Prepared Product



Figure 7 Sensory Evaluation of Pancake



Figure 8 Sensory Evaluation of Boba



Figure 9 Sensory Evaluation of Paneer

The formulated product was organoleptically evaluated by using numerical card to estimate the acceptance by 5 judging panel members. The panel members were asked to evaluate the product for appearance, flavour, taste, texture & overall acceptability. The formulated and standardized product for sensory evaluation and the mean score obtained is given below

Sensory Analysis of the Prepared Product

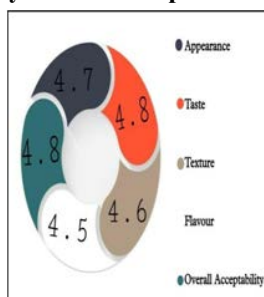


Figure 10 Sensory Analysis of Pancake

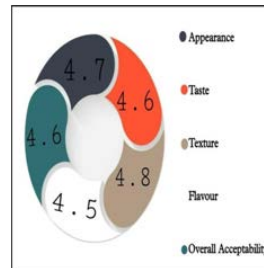


Figure 11 Sensory Analysis of Boba

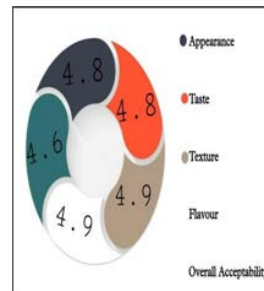


Figure 12 Sensory Analysis of Paneer

From figure 10, it was concluded that the overall acceptability scored was 4.8, while for flavour it has obtained a value of 4.5, taste 4.8, texture 4.6, and the last values 4.7 goes to appearance.

With reference to figure 11, the highest score recorded for the sensory analysis for the prepared product is flavor 4.8 for flavor and the lowest score is given for flavor 4.5. However for taste and texture the value is noted as 4.6 and 4.8 respectively. The remaining marks are distributed for overall acceptability 4.6

With regard to figure 12, the lowest score recorded for the sensory analysis for the prepared product is flavor 4.6 for overall acceptability and the highest score is given for flavor 4.9.

Cost Analysis

Tindora Pancake

This shows the cost analysis for tindora pancake. The cost for the preparation of tindora pancake is 65 rupees, miscellaneous cost is 5 rupees and packing cost is 5 rupees. Hence the total cost is 75 rupees.

S. No	Ingredients	Quantity	Amount
1	Tindora Powder	25g	-
2	Wheat Flour	50g	15
3	Brown Sugar	5g	15
4	Milk	35g	10

5	Baking Powder	2g	5
6	Baking Soda	1g	5
7	Almond	5g	5
8	Raisins	5g	5
9	Cardamon	5g	5
Total			65

Tindora Boba

This Analysis shows the cost for the preparation of tindora boba. The cost for the preparation of tindora boba is 50 rupees, miscellaneous cost is 5 rupees and packing cost is 5 rupees. Hence the total cost is 60 rupees.

S. No	Ingredients	Quantity	Amount
1	Tindora Juice	20g	-
2	Agar Agar	5g	15
3	Cold Oil	1/2L	30
4	Salt	2g	5
Total			50

Tindora Paneer

This Analysis shows the cost for the preparation of tindora paneer. The cost for the preparation of tindora paneer is 35 rupees, miscellaneous cost is 5 rupees and packing cost is 5 rupees. Hence the total cost is 45 rupees.

S. No	Ingredients	Quantity	Amount
1	Tindora Powder	25g	-
2	Milk	1/2 L	30
3	Lemon Juice	10 ml	5
Total			35

Summary and Conclusion

1. Many studies revealed that the samples have no side effects, so considering this statement the

Author Details

S. M. Prasad, Head and Assistant Professor, Department of Nutrition and Dietetics (UG and PG), Sadakathullah Appa College (Autonomous), Tirunelveli, Tamil Nadu, India, **Email ID:** prasadm33@gmail.com

S. Nashrin Nihara, K.M. Noorul Rahmani & S. Rahumath Shini, Department of Nutrition and Dietetics (UG and PG) Sadakathullah Appa College (Autonomous), Tirunelveli, Tamil Nadu, India

A. S. Sumaya, Assistant Professor, Department of Nutrition and Dietetics (UG and PG), Sadakathullah Appa College (Autonomous), Tirunelveli, Tamil Nadu, India

present study was undertaken.

2. The study highlighted the fact that certain value added products can be prepared from this phytonutrient enriched underutilised medicinal plant Ivy gourd.
3. This prepared product can be used even for children, since any type of preservation or artificial additive are not added.
4. The prepared product may be substituted as healthy foods for children.

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