



“A STUDY ON DEVELOPMENT AND FORMULATION OF HERBAL KETCHUP”

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Abstract: Ketchup is a one of the side dishes of all food items. The objective of the study was to prepare ready to eat tasty and healthy herbal ketchup using herbal medicine plants which could be used by all age groups of the people. The herbal ketchup was made by herbal plants, tomato and sweet potato were used for the production. It's made without any preservatives and artificial flavor. Its more nutrients content than normal tomato ketchup. Sensory properties, nutritional composition, physio-chemical properties, cost calculation, packaging and labeling of the herbal ketchup of the selected variation sample was discussed. Sensory score showed that appearance / color ranges from 4 to 4.7, taste ranges from 3.6 to 4.8, consistency ranges from 3.5 to 4.6 and overall acceptability ranges from 3.6 to 4.8 respectively. However, all the sample are accepted but the preferred was variation 3 by the 50 panelist members. Thus, result obtained shows the feasibility of producing quality and nutri enriched herbal ketchup from variation 3.

Key words: chips, fries etc.

INTRODUCTION:

Food processing is the transformation of raw ingredients, by physical or chemical mean into food other forms. Ready to eat foods is most popular in the world and its most acceptable to the all countries. Increase in disposable income and consumer preferences for healthy and convenient food coupled with the rising demand for snacks and fried food products are expected to further boost the demand for ready-to-eat food products.

The ketchup is most important side dishes of the all foods like French fries, potato chips, sandwich and bread toast etc.... This product is made by healthy concept the ingredients are herbal plants like Kuppaimeni, Keelanelli, Karupuravelli, Bermuda grass and tomato and sweetpotato and some spices like cardoman, chillies, pepper, onion etc...

KUPPAIMEENI is good herbal plant and its is one of the skin remedy. It is one of the weed plants and that is contain most important medicinal values for human.

KEELANELLI is one the ayurvedic medicinal plant in the world. It is traditionally balance the body heat and control the blood sugar level and to support the liver function of the body. Phyllanthus niruri linn. is the widespread tropical regions of the countries.

KARUPURAVELLI is a one of the important treatment of breast cancer and consumed the booster of the immune system and it is helps to keep the kidneys health.

BERMUDA GRASS is native to the warm temperate and tropical regions and it is the antiseptic and anti inflammatory nature of the arugampul juice.

This project about formulation of healthy ketchup made by the ingredients like herbal plants like Kuppaimeni, Keelanelli, Karupuravelli, Bermuda grass and tomato and sweet potato and some spices like cardoman, chillies, pepper, onion etc...

The objective of “**A STUDY ON DEVELOPMENT AND FORMULATION OF HERBAL KETCHUP**”

- Formulation and standardization of nutri enriched herbal ketchup
- Organoleptic evaluation and comparison of nutri enriched herbal ketchup
- To evaluate the shelf life of the formulated herbal ketchup and compare with commercial tomato ketchup
- To evaluate the nutrient analysis of nutri enriched herbal ketchup

SELECTION OF INGREDIENTS: Avoid tomatoes with blemishes or dark spots. The tomato should have good weight for its size, feeling heavy. The tomato should be firm, yet soft enough to give into any real pressure. Choose small to medium-size firm sweet potatoes with smooth skin and no bruises or cracks. Look for frozen varieties with less fat and no salt (sodium). Pre-bagged sweet potatoes may be a better buy than individual pieces. Select the flesh and greenish plants. Avoid the dark spots and unfleshed plants.

METHODS:

PRE-PREPARATION: Sweet potato were washed, trimmed, peeled and cut into chunks and boiled. The boiled chunks were pureed using muslin cloth or blender and the sweet potato puree consistency was adjusted to a mash by adding water. The tomato juice extraction involved the heating of tomatoes before breaking in order to inactivate pectolytic enzymes, which would otherwise lower the quality of the juice and reduce the yield.

The herbal plant were cleaned, washed, shredding and blend and take the extract using muslin cloth and it is base of the ketchup preparation.

PREPARATION OF THE PRODUCT: The sweet potato, tomato and herbal plant extract was placed in a cooking pan together with a tied muslin bag containing spices like chopped small onion, cloves, cinnamon and green chillies and the heat was slowly applied to enable the diffusion of the spices from the cloth to the sweet potato, tomato and herbal plant slurry and sugar, chili powder were added before the end of the cooking. The prepared ketchup was bottled, capped, cooled and tasted a week after its processing.

STANDARDISATION OF THE DEVELOPED FOOD PRODUCT:**Table-1**

INGREDIENTS	VARIATION-I	VARIATION-II	VARIATION-III
TOMATO	20	30	40
SWEET POTATO	30	20	10
KUPPAIMENI	15	10	5
KEELANELLI	5	10	15
KARUPURVELLI	10	5	10
ARUGAMPULL	15	5	15
SUGAR	10	10	10

FIGURE-1

SENSORY EVALUATION OF FORMULATED HERBAL KETCHUP**TABLE-2**

CRITERIA	CONTROL	VARIATION-I	VARIATION-II	VARIATION- III
APPEARANCE	7.46±1.034	7.52±0.886	7.74±0.803	8.84±0.370
FLAVOUR	7.16±0.888	7.22±0.736	7.44±0.812	8.6±0.534
CONSISTENCY	7.32±0.843	7.16±0.765	7.28±0.75	8.44±0.611
TASTE	7.24±0.84	7.24±0.715	7.4±0.670	8.64±0.484
OVERALL ACCEPTABILITY	7.24±0.74	7.2±0.670	7.42±.574	8.82±0.38

NUTRIENT ANALYSIS:

The proximate principle includes the nutrients like Energy, Carbohydrates, Fat, Fiber, Protein, Calcium, Iron, Phosphorus, Vitamin-C and the physical properties also analysis like Moisture and Ash. The nutrient analysis is done by the selected three variation in the formulated product.

TABLE-3

PARAMETERS	NUTRITIVE VALUE
ENERGY	115Kcal
CARBOHYDRATES	27g
FAT	0.12g
FIBRE	3.29g
PROTEIN	10g

CALCIUM	56mg
IRON	1.6mg
PHOSPHOURS	70mg
VITAMIN-C	6.27mg
MOSITURE	9.8%
ASH	3.24%

LABELLING OF HERBAL KETCHUP:FIGURE-2



COST ANALYSIS OF THE DEVELOPED HERBAL KETCHUP:

The production cost of the 100g of ingredients in herbal ketchup is displayed in the following table

TABLE-4

INGREDIENTS	QUANTITY	AMOUNT(RS)
TOMATO	40	1
SWEET POTATO	10	0.52
SUGAR	10	0.46
KUPPAIMENI(Acalypha indica)	5	0.2
KEELANELLI(Phyllanthus niruri)	15	2.02
KARPURAVELLI(Coleus ambouinicus)	10	0.52
ARUGAMPUL(Cynodon dactylon)	15	0.37
		TOTAL=5.09

PROCESSING AND PACKAGING CHARGE - 15 NET PROFIT(40%) -15

TOTAL COST= 15+15+ 5.09 = 35.09

TOTAL COST FOR HERBAL KETCHUP=35.09/-SUMMARY AND CONCLUSION:

The shelf life of the selected herbal ketchup was estimated to be 15 days. The cost of the selected herbal ketchup was calculated to be Rs.35.09/100g. The nutrient analysis of the selected herbal ketchup have highest level is to Energy, Calcium and Phosphorus. The sensory characteristics were more acceptable according to the consumer preference which authenticates it would be a healthy and nutritious product for all age group people. The herbal ketchup has been formulated and the nutrient content, physical properties, shelf life and cost were calculated. Thus, from the study it is understood that preparation of formulated products by using ingredients like tomato, sweet potato, sugar, kuppaimeni, keelanelli, arugampul and karpuravelli is commercially viable.

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