

Preparation of Hard Cough Candy by using Dry Mahua Flowers

^[1]Shamika H. Sawant, ^[2]Jyoti R. Vishwakarma, ^[3]Suhana S. Kulavoor

^[1,2] Students of Guru Nanak Khalsa College of Arts, Science and Commerce (Autonomous), Matunga

^[3] Lecturer at MSc. Nutraceuticals,

Guru Nanak Khalsa College of Arts, Science and Commerce (Autonomous), Matunga

Mumbai-400 019, India

ABSTRACT

Mahua (*Madhuca longifolia*) belongs to family Sapotaceae, is known for its sweet flowers which possess a lot of ethnic values among the tribal people for the development of various fermented and non-fermented food products. The availability of the flowers is high in the season which lasts for 2-3 months. The Mahua flowers are dried and then consumed by the people. Many pharmacological studies proved that it acts as anti-ulcer, anti-inflammatory, antioxidant, anti-diabetic and also has non-toxic effect even after consumption of larger doses. In India, pollution is increasing day-by-day hence, throat infections are also increasing. Daily consumption of drugs can have side effects on health of an individual. Nowadays candies, are experiencing a renewed popularity. Hence, Mahua candies are the cough drop candies/Hard Candies that can be consumed by any age group. Mahua, fructose, honey, ginger, Nutriose fiber is used for the preparation of candies and its method is discussed in this thesis project. The selection criteria for using herbal plants and preservatives are mentioned, proximate analysis, packing, testing, storage, dispensing of candies have been reviewed in the thesis. The present study showed the product was liked by all the participants.

Keywords: Mahua, Candy, Cough, Nutritional and Sensory Evaluation.

INTRODUCTION

Functional foods are dietary items that, besides providing nutrients and energy, beneficially modulate one or more targeted functions in the body, by enhancing a certain physiological response and/or by reducing the risk of disease. Functional foods are ingredients that offer health benefits that extend beyond their nutritional value. Some types contain supplements or other additional ingredients designed to improve health. A food or part of a food that allegedly provides medicinal or health benefits, including the prevention and treatment of disease is known as Nutraceutical. A nutraceutical may be a naturally nutrient-rich or medicinally active food.

It plays a significant role in modifying and maintaining normal physiological function that maintains healthy human beings. The principal reasons for the growth of the nutraceutical market worldwide are the current population and the health trends. Nutraceuticals are found in a mosaic of products emerging from the food industry, the herbal and dietary supplement market, pharmaceutical industry, and the newly merged pharmaceutical/agribusiness/nutrition conglomerates. It may range from isolated nutrients, herbal products, dietary supplements and diets to genetically engineered “designer” foods and processed products such as cereals, soups and beverages. Nutraceuticals covers most of the therapeutics areas such as cold and cough, sleeping disorders, digestion and prevention of certain cancers, osteoporosis, blood pressure, cholesterol control, pain killers, depression, diabetes. So, we developed such a product that can be prepared using natural ingredients and will be used for curing throat infections and cough problems which can be easily consumed.

Hard Cough candies / Mahua candy are small sweets that are supposed to be taken by mouth and dissolved slowly, in order to help soothe a sore throat due to the common cold or influenza. These sweets are prepared using natural ingredients that help relieve cough. The medicines present in these sweets help soothe and lubricate the irritated throat tissues. Many people refer to cough drops as throat lozenges, due to their shape. Most of the cough drops are not suitable for consumption of children as they have pharmaceutical drugs into it.

Hard Cough candies are very effective in relieving sore throat irritation and help relieve the symptoms of flu and the common cold.

Hence, there is a need of product like “**HARD COUGH CANDY**” that contains natural ingredients and less sugar which can be safe for all the age groups. Mahua Flowers, Ginger, Lemon are commonly used in our kitchens and are advantageous for Human health.

Madhuca Longifolia, commonly known as Mahua, belongs to the family Sapotaceae considered as to be the cooling agent, carminative, Galactagogue and astringent. It is also known as mahuwa, mahwa, mohulo, Iluppai, vippa chettu. Mahua flowers are

rich source of sugars which is responsible for its sweet taste and can be utilized to make indigenous or modern alcoholic beverages. Mahua flowers contains good amount of Vitamin-C which is responsible for its antioxidant activity.⁹ Mahua flower contains carotene which is precursor of Vitamin-A. Flowers also contain good amount of minerals like Calcium and Phosphorus. Few amounts of proteins and fats are also present in mahua flowers. Various researches have been done to find out medicinal properties of mahua flowers like anthelminthic, antibacterial, analgesic, hepatoprotective, antioxidant, and anticancer.

Zingiber officinale, also known as ginger, cooking stem, canton. It belongs to the family Zingiberaceae. Widely cultivates in Tropical Asia. Its root is used as herbal remedy for a wide range of conditions such as nausea, vomiting, coughs, spasms, general pain, indigestion, colic, abdominal chills, colds, influenza, peripheral circulatory problems, spasmodic pain, rheumatism, menstrual cramps, and sprains. The rhizome is used as food flavouring and in beverages.

Citrus Limon, alternatively known as Lemon, belongs to family Rutaceae, Varieties of lemons are Tropical Meyer, Lisbon, Eureka. They are high in Vitamin C, it improves digestion, supports heart health, it is also promoted as weight loss food, prevents kidney stones, reduces risk of cancer.

Nutriose (Roquette Fiber), a plant-based fiber derived from wheat, maize or pea, with a neutral taste and It helps in growth of specific gut microbiota for a diversified gut, it is a soluble fiber which dissolves quickly even at low temperature and also can be stable while heat treatments.

Fructose, Fructose is a natural sugar that is present in fruits, fruit juices, certain vegetables, and honey. Hence, fructose sugars can be part of a healthful diet, it has a low Glycemic index and results in moderate release of insulin to the bloodstream.

MATERIALS

- 1) Mahua flower pulp
- 2) Corn syrup
- 3) Ginger juice
- 4) Honey
- 5) Lemon juice
- 6) Fructose
- 7) Nutriose (Roquette Fibre)
- 8) Citric Acid

METHOD OF PREPARATION

- 1) For Mahua Pulp:

The Dried flowers were taken and cleaned to remove dirt, stones and other particles

Take the clean flowers and soak them for about 24 hours

Take the soaked flowers into mixer grinder and make into a paste.

2) For Making Mahua Candy

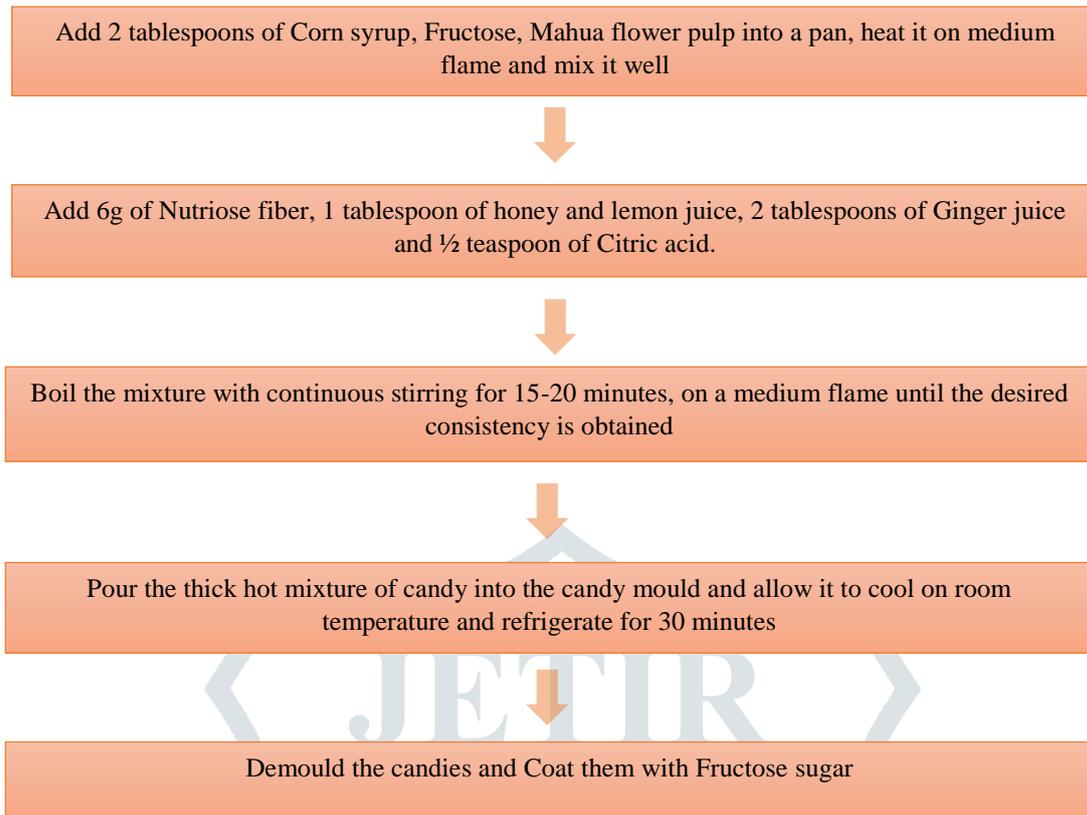
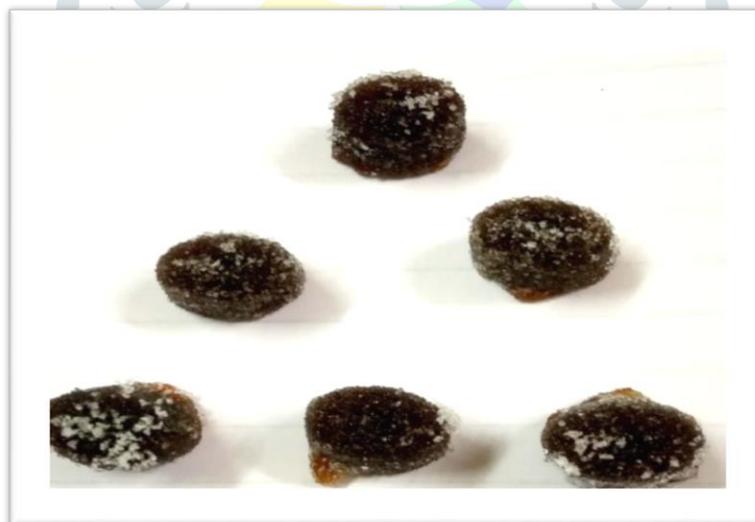
**PRODUCT FORMULATION TRIALS**

Figure No. 1 Hard Cough Candy / Mahua Candy

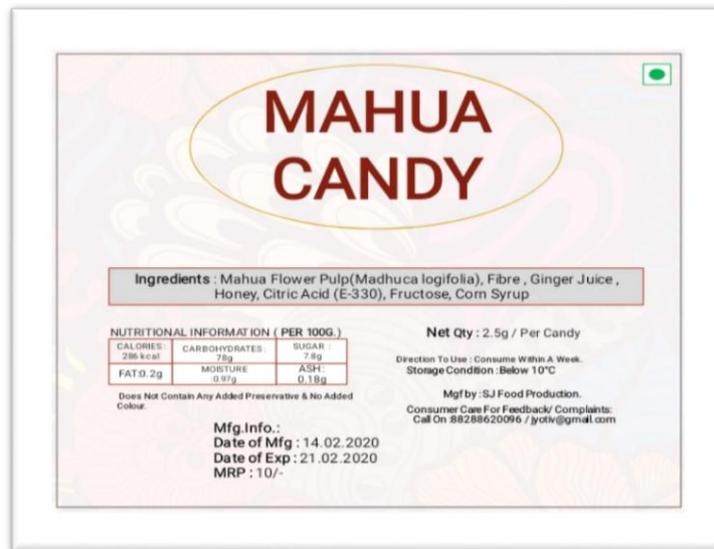


Figure no.2 Label of the Mahua Candy/ Hard Cough Candy

NUTRITION CONTENT

As per new norms of FDA and FSSAI, it is mandatory to have nutritional value analysis displayed on food container. Hence same was carried out for Candies. The result for 100 gm sample is as follows

Table no.1 Nutrition content

Sr.no	Nutrients	Values
1	Moisture	0.971%
2	Ash	0.19%
3	Total fats	0.219%
4	Protein	14.5 g
5	Carbohydrate	84.13 g
6	Total Energy Content	396.491 g

SENSORY EVALUATION

The sensory evaluation of different organoleptic characteristics i.e., colour, appearance, taste, texture, flavour, mouthfeel, and overall acceptability were carried out by semi trained panellists by method of hedonic scale with “10 as Like Extremely and 1 as Dislike extremely”. The average score was calculated for individual organoleptic properties. Sensory evaluation is carried out by 20 evaluators for various quality attributes on following scale

Table no.2 Sensory evaluation

Attribute	Rating Score
Colour	8.1
Odour	8.0
Appearance	9.2
Taste	8.5
Flavour	8.0
Texture	7.9
Mouthfeel	8.7
Overall Acceptability	8.9



Figure no.3 Radar Chart of Sensory Evaluation

SHELF LIFE STUDIES

The shelf life study was started from the second day of making of the product. Mahua candy was stored under refrigerated condition for 4 weeks in its packaging material. The product was observed at frequent intervals for any change in appropriate colour, odour, texture, taste and moisture. The observations are as follows:

Table No. 3 Shelf Life Studies

Day	Observation
Week 1	No change in color, odor, texture and taste
Week 2	No change in color, odor, texture and taste
Week 3	No change in color, odor, texture and taste
Week 4	No change in color, odor, texture and taste

EVALUATION OF MICROBIAL ANALYSIS

Determination of bacteria and moulds helps in the analysis of sample quality after the production, harvesting, manufacturing and storage practices. This is done using the Total Plate count method. In this method, the sample is serially diluted so as to reduce the concentration of microorganisms. This is followed by spread plate technique which is used to determine the number of microbes present per gram of sample. It has an advantage of not requiring previously prepared plates and is often used to assay bacterial or fungal contamination of food products. Here Nutrient Agar is used to enumerate bacteria whereas Sabouraud’s Agar is used to enumerate fungus and moulds.

Table No.4: - Observation Table For NA

Days	Dilutions used	Colony count (cfu/mL)
Day 3	10 ⁻³	1
	10 ⁻⁴	3
	10 ⁻⁵	0
Day 5	10 ⁻³	0
	10 ⁻⁴	0
	10 ⁻⁵	0

Table No.5: - Observation Table For SAB

Days	Dilutions used	Colony count (cfu/mL)
Day 3	10 ⁻³	0
	10 ⁻⁴	0
	10 ⁻⁵	1
Day 5	10 ⁻³	1
	10 ⁻⁴	0
	10 ⁻⁵	0

Result: - The shelf life of Candy can last up to 2 months while storing in refrigerator.

CONCLUSION

The mahua cough candy was prepared by adding all the ingredients and Its proximate analysis and Organoleptic response was carried out in which the product showed great acceptance from panellists and also shelf life studies predicted that it can be stored for 28 days under certain prescribed conditions.

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