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Formulation and organoleptic evaluation of Aonla ginger high boiled sweets

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Abstract

A confection is a group of sweet and carbohydrate rich products which primarily includes sugar (sucrose) and liquid glucose. The candies developed with these ingredients are energy dense and poor source of nutrient values as well as functional properties. The fruit candies are becoming more popular because higher acceptability, minimum volume, higher nutritional value and having longer shelf life. To utilize aonla fruit which having higher functional properties. Aonla is very rich in vitamin C content and polyphenols which helps in cough, cold and throat infection. The candy was developed with aonla and ginger has significant acceptability of sensory evaluation parameters appearance, color, taste, texture, flavor and overall acceptability than control candies.

Keywords: candy, Aonla, ginger, functional food

Introduction

Confection is a group of sweet and carbohydrate rich products which primarily includes sugar (sucrose) along with optional addition of chocolate, nuts, fruits, vegetables or gums, possessing texture from hard to soft delicacies. Its popularity and demand have opened a huge business possibility worldwide at a tune of US\$ 200 billion in 2014 with an annual growth rate of 2 % during last five years (Sehwag and Das, 2016). Today, with modern technology and continued growing interest in sweets, large candy companies are competing to come up the most interesting and new products on the market, thus complicating these simple procedures of the past candies in the shape of baby's facifiers, leggo building blocks, candy hair that grows on top of plastic head as well as rocket ships and nuggets have appeared in candy stores in the past few years, in addition to the old favorites. (Manjula and Suneetha, 2014).

The basic raw material of hard candy, sugar refined from the juice of the sugarcane, had been known since ancient times but had been prohibitively expensive until production of sugarcane in the New World colonies made refined sugar available at an affordable price. (Kitt, 2008).

Traditionally, candy has been consumed as a treat for enjoyment. However, consumers today are expecting better nutritional value and healthful benefits from foods, including candy. Hard boiled candy is the flavored medicated dosage forms intended to be sucked and held in the mouth or pharynx containing one or more medicaments usually in the sweetened base. Hard boiled candy are intended to relieve or pharyngeal symptoms, which are commonly caused by local infections and also for systemic effect provided the drug is well absorbed through the buccal linings or when it is swallowed (Kini *et al.*, 2011).

Confectionery has a major future role to play in the fast food market, as the benefits of its "portability", long shelf life without refrigeration and its ability to provide control of calorie intake and balance nutrition, together with beneficial additives are promoted. Confectionery products with specific additives etc. with health benefits, added to conventional confections – often called nutraceutical or functional foods. Hence to improve the functional properties of sugar candies, the current study was carried out by developing functional candies with addition of fruit pulp.

Fruit candies are becoming more and popular because of high acceptability, minimum volume, higher acceptability, minimum volume, higher nutritional value and longer shelf life. These additional advantages of being least thirst provoking and ready to eat snack. In the present study aonla was selected for addition, because to utilize the aonla fruit which is having functional properties (Manjula and Suneetha, 2014).

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Aonla, a member of family *Euphorbiaceae* and sub family *Phyllanthioidae*, is native to India, Ceylon, Malaya and China (Mishra *et al.*, 2010). Aonla is quite hardy, a prolific bearer and highly remunerative even without much care. It can be grown easily on calcareous and slightly saline as well as alkaline soils, where common fruit crops do not thrive (Pareek and Kitinoja, 2011).

Aonla fruit is having, antiscorbutic, diuretic, laxative, and alternative antibiotic properties used in treating jaundice and cough. Aonla is one of the richest sources of vitamin C and of polyphenols, and these polyphenols are considered to have a high medicinal value. As a result, the fruit has acquired an important therapeutic role in the ayurvedic and Unani systems of medicine. (Goyal *et al.*, 2008).

Zingiber officinale Roscoe (Zingiberaceae), commonly known as ginger, is indigenous to tropical Asia, probably to southern China or India. The rhizomes of the plant have a powerful aroma and are extensively used as a spice and as medicine. Ginger is mentioned in the earliest recordings of Chinese herbals and is firmly entrenched in the culinary and medicinal practices of natives of Asian countries. (Semwal *et al.*, 2015)

It is the underground rhizome of the ginger plant with a firm, striated texture. It is among the oldest cultivated horticultural crops and is a common food additive in a number of foods and beverages. It is valued for its volatile components especially the aromatic compounds which give a spicy, pungent and pleasant smell and for its medicinal properties and is therefore a constituent of many pharmaceutical preparations (Masuda *et al.*, 2004).

The aroma of ginger is contributed by its steam volatile essential oils while pungency is mainly due to phenolic ketones known as gingerols and shogaols. Gingerols are the major pungency components of the fresh ginger while their dehydration products, shogaols are formed during extended storage or thermal processing. Gingerol homologues 6-, 8- and 10-gingerol account for about 75, 8 and 11%, respectively, of the total pungency fraction of fresh ginger (Chen *et al.*, 1986).

Materials and Methods

The present study was carried out in the department of Food Trade and Business Management, College of Food Technology, Vasanttrao Naik Marathwada Krishi Vidyapeeth, Parbhani, Maharashtra. The study was arrived to develop product prepared from combination of aonla and ginger rhizome. The round shape, light green to yellowish color of aonla and light brown to dark brown ginger rhizome were procured from the local market of Parbhani. Liquid glucose and other ingredients, sugar, clove, turmeric and honey were brought from the confectionary and local stores of Parbhani market.

Organoleptic evaluation of candies

Organoleptic evaluation of candies for color and appearance, flavor, texture, overall acceptability was carried out. For this 10 semi-trained panelist were evaluated and 1 to 9 point hedonic scale was used for rating the quality of aonla ginger candies.

Methods

Standardization of formula for preparation of aonla ginger candies

For standardization of formula various combination were used and acceptable product selected for further utilization. Aonla

and ginger juice were added with clove, turmeric, citric acid, honey and water and prepare hard crack consistency. All other ingredients were kept constant throughout treatments.

Table 1: Standardization of formula for preparation of aonla ginger hard boiled candy

S. No.	Ingredients	Quantity (g/100g)				
		T ₀	T ₁	T ₂	T ₃	T ₄
1.	Ginger	20	05	10	15	20
2.	Aonla	00	20	30	40	50
3.	Sugar	70	70	70	70	70
4.	Liquid Glucose	30	30	30	30	30
5.	Clove	01	01	01	01	01
6.	Turmeric	0.5	0.5	0.5	0.5	0.5
7.	Honey	03	03	03	03	03
8.	Water	50	50	50	50	50

Preparation of Candies

The process for preparation of hard boiled candy was followed by (Manjula and Suneetha, 2014). Select fully ripen aonla fruit and ginger rhizome; aonla fruit were washed and blanched for 10 min. fruit were passed through heavy grinder to get soft pulp. Mix the pulp, sugar, citric acid, clove, cardamom, turmeric and honey. Heat the content about 160⁰ C for 15-20 min. The prepared poured in molder, cool in a 45⁰C and packed in polythene bags. In the hard boiled candy aonla was admixed in aonla pulp by 20,30,40,50 and 60 percent level and added other ingredients by recipe. Fig Flow Sheet for preparation of Aonla ginger hard boiled candy

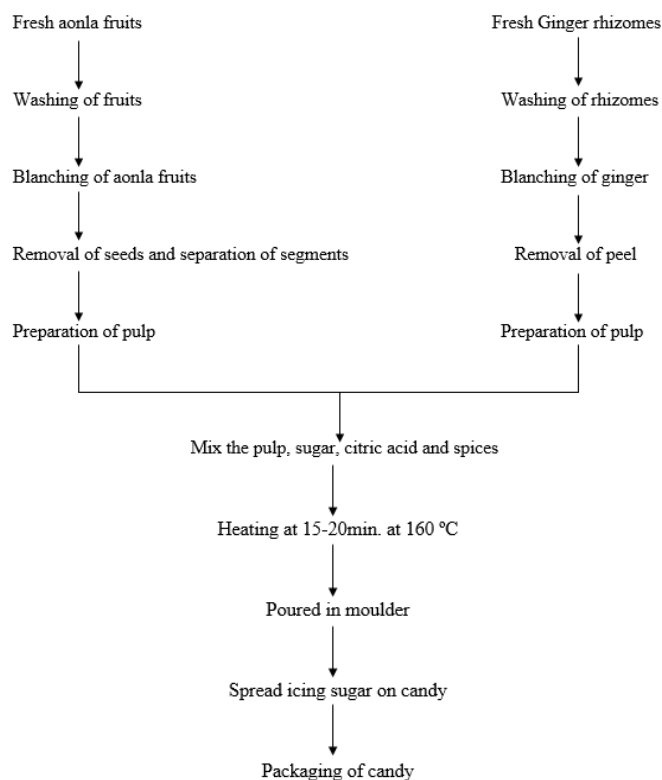


Fig 1: Processing technology for preparation of hard boiled candy

Results and Discussion

Sensory evaluation of candies

The sensory evaluation were carried out of aonla ginger hard boiled candy data with respect to color, appearance, taste, flavor, texture and overall acceptability are depicted in Table No. 2.

Table 2: Mean sensory values for the Aonla ginger hard boiled candy

Samples	Appearance	Color	Flavor	Texture	Overall acceptability
T ₀	8.9	9.0	8.5	8.5	8.7
T ₁	8.6	8.8	7.0	8.5	8.2
T ₂	9.0	8.7	8.4	8.6	8.6
T ₃	8.0	7.5	8.5	8.0	8.0
T ₄	7.5	7.0	8.9	7.5	7.7
SE ±	0.183	0.284	0.285	0.177	0.186
CD at 5%	0.577	0.897	0.900	0.557	0.586

*Each value is average of three determinations

Where, T₀- (00:20), T₁- (20:05), T₂- (30:10), T₃- (40:15), T₄- (50:20).

The present data indicated in above table 2. Showed that aonla ginger hard boiled candy with 30:10 aonla to ginger received highest sensory score (8.6) in case of all sensory attributes followed by hard candy having (20:05) scored (8.2) compared to test of the samples. The sample T₂ was varied significantly over of treatment whereas T₀, T₁ and T₃ was spastically as per with each other.

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