



Development and Evaluation of Dietetic Products Prepared From Bael (*Aegle marmelos*) Fruit

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ABSTRACT

Bael fruit with nutritive and medicinal value was processed into products especially for diabetics patients. The preparation was done using sorbitol a non-nutritive sweetener in place of sugar. These were then analyzed for TSS, pH, Vitamin C, acidity and sugars. The products contained good amount of vitamin C, less acidity and less sugar, beneficial for the patients.

Key Words: Bael, *Diabetes mellitus*, Beverages, Dietetic products, *Aegle marmelos*.

INTRODUCTION

With the advancing of age, *Diabetes mellitus* is one of the prominent metabolic disorders commonly noticed among the people. The incidence of diabetes is increasing all over the world and becoming a problem of significant importance. Diet plays a very important role and restricts a person to a specific diet. This makes the individual devoid of certain sweet products which are palatable and enjoyed from time to time. Moreover, providing a suitable combination of diet with respect to other health problems rising along with diabetes is meant to be a sole responsibility. Bael occupies an important place among the indigenous fruits of India. The importance of its fruit lies in its nutritive and curative properties – a well known fact. It is a concentrated source of riboflavin and ascorbic acid. The pulp although a little acrid bitter but is aromatic and acts as a sweet cooling tonic for heart and brain. The pulp is mildly laxative and simple remedy for dyspepsia, diarrhea and dysentery. Since this fruit is widely grown in the Changer areas of Distt Kangra, Himachal Pradesh generally go waste for the want of technical know-how. Therefore, an effort was made to process bael into dietetic products using sorbitol, a non-nutritive sweetener to provide suitable health drinks and enjoyable items especially for the diabetic patients.

MATERIALS AND METHODS

Bael fruits were procured from the changer areas and was processed into pulp according to Roy and Singh (1979). Thereafter the pulp was frozen to process into different products like squash, ready-to-serve beverage (RTS), jam and toffee, according to FPO specification; except sorbitol was used in place of sugar. The method for the preparation of the products in the form of flow-sheet are shown in Fig. 1, 2, 3 and 4. The prepared products were then analyzed for TSS by using hand sugar refractometer, pH through pH meter, acidity, Vitamin C and sugars by Ranganna (1995).

RESULTS AND DISCUSSIONS

Table (1) shows the nutritive content of bael products. The TSS value obtained for RTS, squash, jam and toffee are 18.5, 48.6, 68.8 and 3⁰ Brix. The values obtained are quite less than that noted by Jauhari and Singh (1971) within the range of 32-36⁰Brix in different bael fruit varieties. This might be due to the presence of sorbitol in the products. However, a close value of 50⁰Brix in bael squash was observed by Roy and Singh (1979). Moreover, the Brix should be high in bael squash as compared to citrus and most other fruit squashes. This is because the fruit is not acidic and mucilage contributes a lot towards the soluble solids of the pulp. The pH values in the RTS and squash was found to be 3.3 and 3.2 respectively

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Fig .1 Preparation of Bael RTS

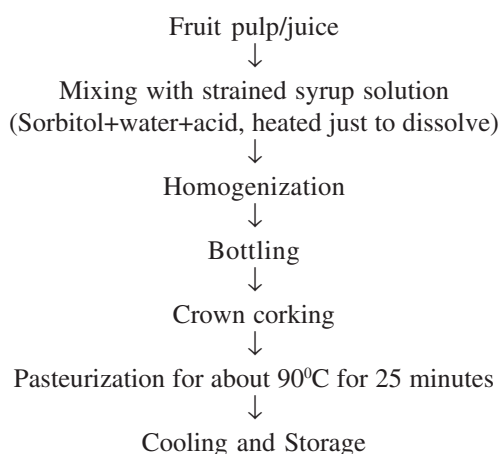


Fig. 2 Preparation of Bael Squash

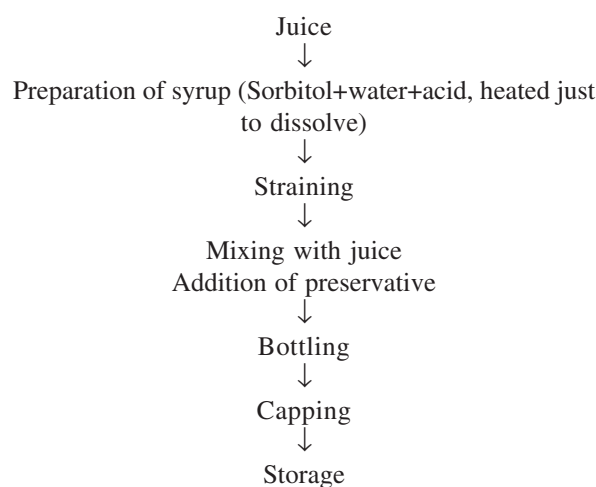


Fig. 3 Preparation of Jam

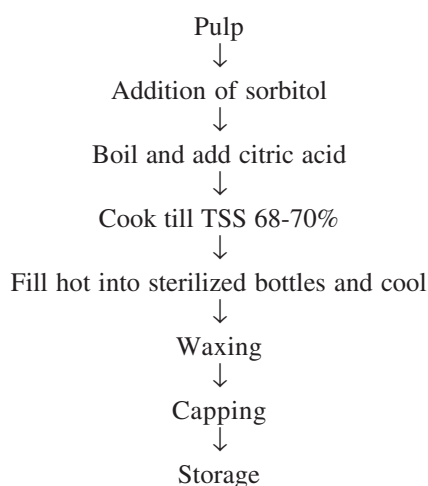
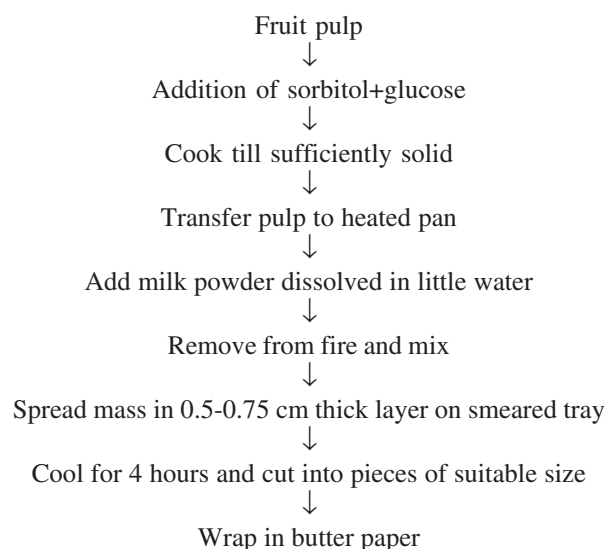


Fig. 4 Preparation of Toffee



showing the acidic nature of the products which can enhance their storage life. Whereas, the value for Vitamin C content was found to be 15.0, 12.0, 21.0 and 31.5 mg/100 g in case of RTS, squash, jam and toffee, respectively. This indicates that the products contain antioxidant property suitable for the oldies. As far as acidity is concerned a range of 0.38-1.15 per cent was obtained. Roy and Singh (1979) prepared bael products ranging in acidity from 0.3-1.5 per cent. Very less amount of sugars were obtained when analyzed. Reducing sugars were found to be less in RTS and squash as compared to toffee and jam.

This might be because sorbitol contains sugar in reduced amount. The values for total sugars ranged from 14.72-50.00 per cent. Generally, fruit toffees are more nutritious than ordinary toffees which are mostly prepared from starch along with other ingredients. Sugar content obtained directs that the products prepared are safe for diabetics and for health conscious subjects. Bael fruit toffee can have additional advantage because of its medicinal properties.

The addition of sorbitol in the processing of bael products proved to be of great importance. The results obtained show that these products

Evaluation of Dietetic Products Prepared from Bael Fruits

Table 1. Nutritive value of Bael Products

Product	TSS Degree Brix	pH	Vitamin C (mg/100g)	Acidity (%)	Reducing sugars (%)	Total sugars (%)
RTS	18.5	3.3	15.0	0.70	3.87	14.71
Squash	48.6	3.2	12.0	1.15	7.48	15.06
Jam	68.3	-	21.0	0.64	27.17	49.02
Toffee	69.0	-	31.5	0.38	27.78	50.00

cannot bring any harm when given to diabetics and can also be prepared in homes as and when required.

CONCLUSION

With changing life style and feeding habits health problems are on the rise. Now, the emphasis is on those foods or processed products that have nutritional value and some therapeutic effect. Toffees, jam and squash etc. prepared from bael have great important for health. Fruit based processed products need to be introduced in the market to cater the growing demand for these natural products.

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