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JANGAL JALEBI (*Pithecellobium dulce)*: A neglected and lesser known fruit

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Abstract

Pithecellobium dulce is one of the important lesser known fruits of Indian origin. In Rajasthan, it is mainly available in Ajmer, Udaipur and Mount Abu districts, belonging to the family of *Leguminosae* (subfamily *Mimosoideae*), locally known as *Jangal jalebi* and with English name as Manila Tamarind. *Pithecellobium dulce* is a small to medium sized, evergreen, spiny woody legume tree with a height of about 18 m. Its fruit contains pulp in a pod, with characteristic flavour and taste. The pulp (aril) around the seed has white and pink colours and is highly perishable, which turns brown once peel is removed. In the present study an effort has been made to estimate nutrient content of fresh and blanched pulp of the fruit. The findings revealed its mean protein content to be 12.47g and 11.68g/100g in fresh and blanched fruit samples, respectively, indicating reduction in protein content on blanching. The mean fat content (0.24g/100g) retained on blanching to 0.42g/100g. Mean fiber and ash contents also showed retention on blanching. The content of the two nutrients was 1.30g/100g for fiber and 2.41/100g for ash in un-blanched fruit sample, which were found to be 3.42g and 4.85 g/ 100g, respectively on blanching. The carbohydrate content did not show much change on blanching.

Keywords: *Jangal Jalebi*, Nutrient content, *Pithecellobium dulce*

Introduction

In nature there are many underutilized fruits of promising nutritive value, which can nourish even the increasing human population. In India, various types of underutilized foods are available seasonally but are not utilized to the extent they should be in spite of their higher nutritive value. Looking into the prevalence of high level of macro and micronutrient malnutrition among the vulnerable sections, utilization of underutilized foods can be explored to overcome nutritional disorders. They have remained underutilized due to lack of awareness. Use of wild fruits as a food has decreased due to improvement and hybridization in commercially cultivated fruits. Any scientific evidence for the health benefits of such wild fruits in addition to their nutritional value would be a value addition to the plants producing such fruits.

Pithecellobium dulce is one such fruit, which is not very popular and can be investigated for its nutritive value. It belongs to the family *Leguminosae*, mostly grown in India for hedges, street trees and for ornament because of its handsome foliage and curious pods. It is locally called as

'*Jangal jalebi'*, also known as '*Vilayati babul'* in Hindi and 'Manila tamarind' in English.

The seeds of *Jangal jalebi* are stated to be eaten raw or in curries and seed oil is used for edible purposes and for soap manufacture (CSIR, 2003).The fruits are edible and have been consumed for various ailments in a traditional manner. These fruits are linear, curved legumes (pods) that range in length from 10 to 13 cm. The pod splits along both margins. The fruits turn from green to white or reddish brown when they ripen. The pod fragments can be eaten raw or made into a drink for its nutritive as well as therapeutic values but still most of the chemical constituents of the pods are remained unexplored and underutilized (Murugesansugumaran, 2008). The fruit is highly perishable because of its high moisture content thus, it is necessary to preserve it. Sometimes, processing of fruits involves blanching, which is a heat treatment, given to limit or put a stop to both enzymatic and microbial activities.

Today, consumers are becoming increasingly conscious of the health and nutritional aspects of their food basket. There is tendency to avoid chemicals and synthetic foods and preference for nutrition through natural resources. Various researches have reported therapeutic and nutritive value of locally available fruits which are lesser known and can satisfy the demands of the health-conscious consumers. Hence, there is a need to concentrate research efforts in diversification and popularization of such underutilized fruit crops. This study was therefore under taken with an objective to examine the fruit of *Jangal jalebi* for its proximate nutrient composition and determine effect of processing, i.e. blanching. This work has provided necessary information and has also provided basis for their wider utilization.

Materials and Methods

Collection and preparation of sample

Jangal jalebi fruit pods were procured from the Horticulture Centre of Ajmer. The pulp (aril) was isolated manually from brown peel and black seeds of the fruit. This pulp was then divided into two lots – one lot of fresh pulp was dried in hot air oven at 60˚C for 6-7 hours. The dried pulp was then ground to a fine powder, using mechanical blander (Rangana, 2010) and stored in a clean air tight container. The second lot of the pulp was subjected to processing and the processing technique used was 'blanching'. The clean and isolated pulp was blanched in a water bath at 90˚C for 5 minutes and then cooled in cold water (10-12˚C) for 2 minutes (Yan et al., 2010). The blanched pulp was then dried in hot air oven at 60˚C for 6-7 hours and then ground to fine powder using a mechanical blander and stored in air tight container.

Nutrient analysis

Nutrient analysis to determine proximate composition of two samples of the fruit *Jangal jalebi* was carried out using standard procedures given by AOAC (2005). The Kjeldahl method was used for total nitrogen determination, which was estimated using a Kjeltec System. Thereafter, protein was calculated from total nitrogen obtained, using a factor of 6.25. Soxhlet extraction method was used to measure fat content of *Jangal jalebi* fruit, using petroleum ether as a solvent. Crude fiber was obtained after acid-alkali treatment of the samples with diluted acid and alkali. Moisture was determined from sample weight loss on oven drying. Ash content was estimated after heating the sample at 500˚ C in Muffle Furnace. Carbohydrate was calculated by difference, *i.e.* by subtracting from 100 the sum of values for protein, fat, fiber, moisture and ash. All the samples were analyzed in triplicate for various nutrients and mean values were calculated.

Table 1: Proximate nutrient content of *Jangal jalebi* fruit (Fresh and Blanched) in dry weight basis. (Mean ± SD)

S. No.	Nutrients	Fresh sample	Blanched
1.	Moisture (g/100g)	6.72±0.83	7.87±0.96
2.	Fat (g/100g)	0.24±0.62	0.42±0.48
3.	Fiber (g/100g)	1.3±0.18	3.42±0.52
4.	Ash (g/100g)	2.41±0.21	4.85±0.35
5.	Protein (g/100g)	12.47±0.43	11.68±0.87
6.	Carbohydrate (g/100g)	76.87±1.71	71.76±1.08

Results and Discussion

Estimation of proximate composition of fresh and blanched samples of *Jangal jalebi* revealed mean moisture content of the fresh sample to be 6.72g/100g and that of processed sample to be 7.87g/100g (Table 1). Blanching process caused increase in the moisture content of the fruit. On the other hand, retention was observed in the fat content of fruit sample on blanching. The mean fat content of fresh sample was 0.24g/100g, which reduced to 0.42g/100g on blanching. This is in line with the work of Akande (2014) who reported an increment in fat content of negro pepper seed when subjected to blanching process. Retention was also observed in fiber content (3.42g/100g) of blanched sample was found to be higher in comparison to fresh fruit sample (1.30g/100gm). Retention of fiber on blanching is advantageous since fiber performs important role of promoting soft stools (Akande et al., 2014). Higher content of ash (4.85g/100g) too, was observed on blanching whereas; its mean content in un-blanched fruit sample was 2.41g/100g. This shows that mineral retention could be enhanced by applying blanching process (Akande et al., 2014).

The mean protein content of fresh sample of *Jangal jalebi* was found to be 12.47g/100g. The blanching technique caused a reduction in its content (11.68g/100g). This could be attributed to leaching out of soluble components of protein into the blanching water since the broth was discarded, which would have led to loss of some protein (Adeparusi, 2001). Mean carbohydrate content of fresh was 76.87g/100g and blanched samples was 71.76g/100g (Table1).

Conclusion

Jangal jalebi an underutilized edible fruit was evaluated for its nutritional composition. The fruit contained considerable amount of protein and carbohydrate and can be looked at as an alternative food source for human consumption.

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