



ISSN (E): 2277- 7695  
ISSN (P): 2349-8242  
NAAS Rating: 5.03  
TPI 2021; 10(3): 168-169  
© 2021 TPI  
www.thepharmajournal.com  
Received: 27-12-2020  
Accepted: 12-02-2021

#### Poonam Sharma

Associate Professor, Division of Food Science & Technology, Sher-e Kashmir university of Agricultural Sciences and Technology of Kashmir, Shalimar, Jammu and Kashmir, India

#### Syed Zameer Hussain

Associate Professor, Division of Food Science & Technology, Sher-e Kashmir university of Agricultural Sciences and Technology of Kashmir, Shalimar, Jammu and Kashmir, India

#### Sajad Mohd Wani

Associate Professor, Division of Food Science & Technology, Sher-e Kashmir university of Agricultural Sciences and Technology of Kashmir, Shalimar, Jammu and Kashmir, India

#### Tawheed Amin

Assistant Professor, Division of Food Science & Technology, Sher-e Kashmir university of Agricultural Sciences and Technology of Kashmir, Shalimar, Jammu and Kashmir, India

#### Afsah Iqbal Nehvi

Associate Professor, Division of Food Science & Technology, Sher-e Kashmir university of Agricultural Sciences and Technology of Kashmir, Shalimar, Jammu and Kashmir, India

#### Corresponding Author:

#### Poonam Sharma

Associate Professor, Division of Food Science & Technology, Sher-e Kashmir university of Agricultural Sciences and Technology of Kashmir, Shalimar, Jammu and Kashmir, India

## Utilization of broken walnut kernels for development of walnut chikki

Poonam Sharma, Syed Zameer Hussain, Sajad Mohd Wani, Tawheed Amin and Afsah Iqbal Nehvi

#### Abstract

Chikki is an easy to make candy recipe made with lots of nuts and jaggary. We mostly consume peanut chikki during winter season. It's the Indian version of nut brittle and most loved ready to eat snack product. It provides protein, carbohydrates and fats, vitamins and minerals. Nowadays, the demand for functional foods is increasing at fast pace. This popular snack is a good vehicle to transfer some essential nutraceuticals into needy and health conscious consumers. Jammu and Kashmir is the main contributor to India's walnut production. Walnuts is loaded with many health benefits. Jaggary is an unrefined sugar obtained from raw, concentrated sugarcane juice. An attempt has been made in this investigation for utilization of broken walnut kernels for development of walnut jaggary chikki. The sensory evaluation judged best was at T3 with overall acceptability of 3.87 followed by T1 with overall sensory score of 3.80. Sensory evaluation was judged by the panel of semi trained experts for organoleptic evaluation.

**Keywords:** Walnut jaggary, chikki, broken walnut kernels, value added products

#### Introduction

Walnuts are most often eaten on their own as a snack but can also be added to salads, pastas, breakfast cereals, soups and baked goods. The nuts are rich in unsaturated fatty acids, proteins, carbohydrates, dietary fibre, vitamins and minerals. Consumption of nuts help to reduce blood cholesterol levels and in preventing coronary heart diseases, due to which nuts are regarded as functional/health foods. They are also used to make walnut oil expensive culinary oil frequently used in salad dressings.

Walnuts from J&K state are exported as whole in shell or in kernel form to various Indian and foreign markets which generates revenue of more than 700-800 crores annually. Walnut trade occupies an important place in rural economy of Jammu and Kashmir State. Walnut processing provides employment opportunities to a large section of population. The J&K state has been designated as walnut export zone by APEDA as the state has the monopoly of growing quality walnuts. As per WTO agreements global competition in walnut trade has to meet quality standards of the buyer countries.

In shell walnut quality depends on shell colour, shell thickness, suture seal, kernel size, kernel colour, taste, flavour fungal infection, rancidity etc. After harvesting of nuts, adoption of non-scientific traditional practices of dehulling, washing, sun drying, nut cracking, kernel drying, packaging and storage are responsible for poor quality of whole nuts or walnut kernels. The poor quality nuts with stain marks on surface are not appealing. Similarly kernel colour, texture, and rancidity problems lower the quality grade of the produce which fetches poor price in the market and as such the income level of producers is declined.

Thus for sustainable rural income, production and sale of good quality walnuts is of paramount importance. Qammer N.A. and Baba S.H. (2018) [2] reported that modernized supply chain involves huge investment and emphasized upon linking walnut production growers with marketing through value addition.

#### Material and Methods

The present study was carried out in the Division of food science and technology at Sher –e-Kashmir University of science and technology Kashmir. Broken walnut kernels were procured locally. Walnut jaggary chikki were developed using different composition viz; T1 (110 g jaggery and 200 g walnut kernels) T2 (125 g jaggery and 200 g walnut kernels), T3(100 g jaggery and 200g walnut kernels). Sensory evaluation was judged by the panel of semi trained experts on a 5 point scale.

The samples were stored for 90 days at ambient temperature and proximate composition analysis.

### Result and Discussion

Recent studies have shown that eating plant based products is on the rise. These products provide option to consumers some of them are lactose intolerant, gluten intolerant or vegan. Newer walnut products are being developed to meet the consumer needs for nutritious foods. Flavored walnut kernels are available in many Asian countries as healthy snacks.

Poonam Sharma *et al.* (2019) [1] studied the utilization of broken walnut kernels for development of value added products viz. roasted walnut kernels, brown sugar coated candid walnuts and honey glazed walnut walnuts. The sensory evaluation judged best was at T3 (80C for 10 min) for roasted walnut kernels. The sensory evaluation was judged best at T5 (50:100) for brown sugar coated candid walnuts. The sensory

score judged best T5 (50:50) for honey glazed walnut product. Seyit Mehmet Sen and Turan karadeniz (2015) [5] reported that walnut should be consumed from the childhood with 20-30 gm per day in order to increase heart and brain health.

Walnut is much prized as dessert and dry fruit and has proved to be nutritionally valuable food (Tapsell 2010) [6]. They can be considered a super food because it contains a full complement of vitamins B complex, minerals and folic acid.

The data given in the Table1 depicts the sensory evaluation judged best was at T3 with overall acceptability of 3.87 followed by T1 with overall sensory score of 3.80. The organoleptic sensory score 3.80 of the developed walnut chikki were rated good for acceptability of the product on sensory scale. Similar studies reported by Zameer *et al.* (2015) [4] revealed that walnut kernels incorporated rice based extruded and stored for LDPE bags for three months were found organoleptic acceptable.

**Table 1:** Organoleptic evaluation of walnut jaggary chikki from broken walnut kernels

Sample code	Appearance	Colour	Texture	Flavor	Overall acceptability
T1	4.0	3.88	3.38	4.12	3.80
T2	3.5	2.89	2.88	3.62	3.22
T3	4.25	3.38	3.75	4.37	3.87

After sensory evaluation by a panel of semi trained judges, the physio-chemical composition of the developed walnut chikki are summarized in Table 2. The percentages of moisture content, protein content, fat content, ash content, dietary fibre content and carbohydrate content were found to be 5.20, 11.40, 46.70, 1.55, 1.72 and 35.15 respectively. Walnut are a good source of nutrients which play an important role in the maintenance of good health due to its rich nutritious content for protecting heart health, some type of cancers, diabetes Type 2, antidepressant and hepatic-protective property. Walnut and walnut oils are essential in reducing or managing stress in a wonderful way.

**Table 2:** Proximate composition of walnut chikki developed from broken walnut kernels

Parameters	Walnut Chikki
Moisture%	5.20
Protein(gm)	11.40
Fat (%)	46.70
Ash (%)	1.55
Dietary fibre%	1.72
Carbohydrate(gm)	35.15

Walnut is being incorporated into traditional cuisine in Kashmir as well as to develop new items for addressing local and global demand. There is a need to develop the walnut product that appeal to consumers and create new marketing opportunities for growers and popularity of value added walnut products.

### References

1. Poonam Sharma, Naik HR, Syed Zameer Hussain, Abdul Rouf. Development and popularization of broken walnut kernel products in The Pharma Innovation Journal 2019;8(4):475-476.
2. Qamar NA, Baba SH. Analysis of modernized value chain of walnut in Jammu and Kashmir In Economic Affairs 2018;63(1):165-174.
3. Syed Zameer Hussain, Bibi Afsana, Tawheed Amin. Utilization of broken rice and walnut kernels for

development of nutritious snacks using extrusion technology in The pharma Innovation 2017;6(10):91-101

4. Syed Zameer Hussain, Bibi Afsana, Rather AH. preparation and storage studies of walnut kernel incorporated rice based snacks in International Journal of Basic and Applied Biology 2015;2(6):449-451.
5. Seyit Mehmet Sen, Turan Karadeniz The nutritional value of walnut A review paper in Journal of hygienic Engineering and Design UDC634. 2015;51:68
6. Tapsell LC. Health benefits of walnut composition ACTA Horticulture 2010;861:409-416.