



## International Journal of Home Science

ISSN: 2395-7476  
IJHS 2017; 3(3): 297-299  
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www.homesciencejournal.com  
Received: 20-07-2017  
Accepted: 21-08-2017

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### To develop enrich dietary fibre pizza base and their standardization

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#### Abstract

Pizza may be regarded as one of the popular snacks food and their palatability and appeal make them ready to eat snacks. Pizza as a, fast food are unhealthy, hunger satisfying food, which are easy to make and easy to consume. Pizza contains high level of refined sugar, white flour, polyunsaturated fats, salts and numerous food additives but lacking in protein, vitamin and fibers. Fenugreek leaves are enriched with mineral like potassium, calcium, and iron, vitamin c. Fenugreek leaves are rich source of soluble dietary fibre content and it is used in functional food, traditional food, Nutraceutical as well as in physiological utilization such as anticancer, antibacterial, antiulcer, anthelmintic and anti-diabetic agent. Lotus-stem is high in dietary fibre and highly recommended for pregnant women. The fibre in lotus stem is useful to keep the digestive system healthy. The present study was conducted to provide a vegetable rich source dietary fibre such as Nelumbo Nucifera (lotus stem) or Fenugreek- leaves (*Trigonella foenum-gracum*) are act as helpful in natural fortified food item for making pizza base. Which are converted to healthy functional food .It can be proved to be healthy dietary fibre pizza for children, Type 2Diabetes patient or other life style diseases. The dietary fibre pizza base (flatbread) is developed by taking wheat flour and different percentage of fenugreek leaves and lotus stem and are mixed up and fermented and bakery yeast and then taken (8-10 minutes in oven at 200°C of different sample and enriched dietary fibre pizza base. Develop product was evaluated on various parameter, sensory evaluation & Nutritional analysis. sensory evaluation of prepared product was carried out using 9 point hedonic scale out of the four. Hence highest acceptable product was put forth for nutritional analysis & percentage of dietary fibre respectively.

**Keywords:** Enriched dietary fibre pizza base, fenugreek leaves, lotus stem nutritional analysis

#### Introduction

Pizza is a flatbread generally topped with tomato sauce and cheese and baked in an oven. It commonly topped with a selected of meats, vegetables and condiments.

pizza are a value added item made from flour. Amongst processed cereal products in India, noodles have a share of about 45% in terms of output and constitute the largest segment in this sector of the processed food market.

The role of dietary fiber in offering protection against diabetes and heart disease is well established for this reason interest has arisen in increasing fiber in the diet. Fiber offers manifold health benefits particularly to diabetics by lowering blood sugar levels, reducing insulin requirement. Improving glycemic control and lowering serum cholesterol and triglyceride values in diabetic individuals. Dietary fibers therapeutic and prophylactic beneficially effect is being evidenced to influence carbohydrate and lipid metabolism as soluble fiber. Whereas as insoluble fiber is associated with gastro intestinal effect such as increased softness and volume of feces. It may also lower the risk of colorectal cancer by reducing the concentration of carcinogens in the lumen.

Fenugreek (*Trigonella toenum graecum L.*), a leguminous herb is cultivated extensively in India and is used for culinary and medicinal purpose. Fenugreek is widely found presently in the Mediterranean countries, Argentina, France, India, North Africa, and the United States as a medicinal, food, condiment, dye and eat as plant. Fenugreek is normally famous as safe for human consumption as a spice and as a plant extract. It is also known as methi or Classical fenugreek. The fresh leaves and sprouts of fenugreek are consumed as greens & the fresh or dried leaves are used to flavor other dishes. Young fenugreek leaves are cooked as a vegetable curry and are also dried and used to flavor vegetable dishes. Fenugreek leaves are enriched with minerals like potassium, calcium and iron.

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Fresh leaves comprise 3 to 5% of protein. Fenugreek leaves are enriched with Vitamin C. The Vitamin K from fenugreek greens is comparable to spinach.

Lotus stem is high in dietary fibre and highly recommended for pregnant women. The fibre in lotus stem is useful to keep the digestive system healthy.

Researcher reports revealed that. Lotus stem was found to be an excellent source of protein and vitamin C, while it is a good source of fiber and Iron. As compared to the available literature, the carbohydrate content of lotus stem (13.4 g) found to be low compared to root (17.2 g). Lotus stem is a rich source of protein (14.6 g) when compare to root (2.6 g). pizza are a value added item made from flour. Amongst processed cereal products in India, pizza.

Baked products have proved to be acceptable carriers of fiber from various sources. Pizza may be regarded as one of the popular snack food and their palatability and appeal make them ready to eat snacks. The present study was therefore conducted to explore the possibility of incorporating fresh fenugreek leaves and lotus stem in pizza base.

### Materials and Methods

Fresh fenugreek leaves and lotus stem (kamal kakadi) were taken for nutritional enrichment of pizza base.

#### Processing of fenugreek leaves

The fresh fenugreek leaves (kashuri methi) were processed to remove dirt and other field damaged portion. The clean and fresh fenugreek leaves were separate the leaves from the stem. And chop them the fenugreek leaves were wash in water to remove the seed from the leaves. Then water was drained and fenugreek leaves were spread in trays and dried in a sun up to 0.86gm moisture level. It as set aside for two days and make the to get dried in room temperature

#### Processing of lotus stem

The fresh lotus stem (kamal kakadi) were processed to remove dirt and other field damaged portion. The clean and fresh lotus stem were chopped into small pieces with knife and blanched in hot water at 100 °C for three minutes containing 2% salt .Then water was drained and lotus stem were spread in trays and dried in a sun up to 5-10% moisture level at 33±2 °C for 9 hours. After cooling to room temperature, the dried mushrooms were ground into powder in a grinder then they were sieved and packaged in polythene bags and stored at room temperature for further use in the preparation of pizza base

### Product Development

#### Treatment for the preparation of vegetable dietary fibre

T<sub>1</sub>. Whole wheat flour + 10% fenugreek leaves+10%lotus stem  
T<sub>2</sub>. Whole wheat flour + 15% fenugreek leaves +10%lotus stem

T<sub>3</sub> whole wheat flour+20% lotus stem +15% fenugreek leaves

T<sub>4</sub>. Whole wheat flour (Control)

#### Pizza making procedure

The enrichment of dietary fibre pizza base were prepared by mixing the whole wheat flour with specified amount of fenugreek leaves powder or lotus stem powder yeast sugar and salt olive oil as mentioned in the treatments. Take part (1/10th of total requirement) of lukewarm water. Add a part (about 1/5th of total requirement) of sugar in it. Add the crumbled yeast and allow to rest aside (for about 5 to 10 min.) till it disintegrates and starts to float on the water. Add sufficient flour to make thin paste and whisk it to incorporate

some air. Leave it for 10 to 15 min. during which the paste will arise that helps in vigorous yeast action. Dissolve salt and left over sugar in remaining water and strain to remove extraneous matter. Add this water in to flour, roughly mix, add the yeast– paste and knead well to prepare smooth dough. Add shortening at the last stage of mixing and made clear dough. Cover the dough with wet cloth and keep it aside for a stipulated time at 26.6 °C (800°F) and 75 Rh. for bulk fermentation. Press out the gas produced after 2/3 of bulk fermentation time. That is known as knock back. Divide the dough in to 100g pieces, round and relax for 10 to 15 min. Sheet each pieces into round shape like a chapatti of 0.5 to 1.0 cm (1/4 to 1/2”) thickness, 12 to 14 cm (5 to 6”) diameter, place on a baking sheet and dock with a fork. Allow proofing for 15 to 20 min with baking temperature (250 °C), time (8-10) and diameter (15-18 cm.) in such a way that bottom gets light brown colour and top surface remains almost white or slightly brownish.

Organoleptic evolution of enrichment vegetable dietary fibre pizza base were carried out by a panel of teachers. The organoleptic characters viz., colour and appearance, texture, taste and overall acceptability of dried fenugreek leaves or lotus stem and enrichment of pizza base, whereas colour and appearance, texture, taste and overall acceptability of dietary fibre pizza base were evaluated on five point hedonic scale (Ranganna, 1986). The mean score given by judges were used for statistical analysis.

### Result and Discussion

All the experimental pizza bases prepared from different formulations were organoleptically evaluated after 8 hr. by a panel of 15 trained judges, using a 9-point hedonic scale (Amerin *et al.*, 1965). For the assessment of pizza base quality crust colour, crumb colour, crumb taste, crumb aromas, crumb elasticity, over acceptability characteristics were selected samples.

The results are expressed in terms of average acceptability scores.

**Table 1:** Nutritive value of fenugreek leaves (Kashuri methi)

Nutritive value	Fenugreek leaves
	Amount (per 100 gm)
Protein	4.4 gm
Dietary fibre	2.3 mg
Vitamin C	5.2 mg
Fat	1.0 gm
Calcium	395 gm
Moisture	86.0 gm

**Source:** Nutritive value of fenugreek leaves by CFTRI (central food technological research institute by 2006.

**Table 2:** Determination of Lotus stem (kamal kakadi) on the basis of nutritional value

Nutritive value	Lotus stem
	Amount (per 100 gm)
Carbohydrate	13.40 gm
Protein	14.60 gm
Fat	0.30 gm
Fibre	5.04 gm
Iron (mg)	1.65 mg
Vitamin C (mg)	20.07 mg
Moisture (%)	13.48 gm

**Source:** The nutrients content of lotus stem was analyzed and compared with RDA given by ICMR.

**Table 3:** Determination of whole flour on the basis of nutritional value

Nutritive value	Amount (per 100 gm)
Total Energy	339 kcal
Total Carbohydrate	72.6 gm
Protein	13.7 gm
Total Fat	19 gm
MInerals	060 gm

Source: Nutrient data for this listing was provided by USDA SR-21

### Ratio of ingredients for four samples are taken in different ways

**Table 3:** Ratio of Ingredients

Treatments	Sample preparation	Ratio of Ingredients
T <sub>1</sub>	Wheat flour+ fenugreek leaves + lotus stem	80:10:10
T <sub>2</sub>	Wheat flour+ fenugreek leaves + lotus stem	70:15:20
T <sub>3</sub>	Wheat flour+ fenugreek leaves + lotus stem	65:15:20
T <sub>4</sub>	Whole wheat flour (Control)	Control

**Table 4:** Nutritional value of dietary fibre pizza base

Nutritional value	Dietary fibre pizza base
	Result
Dietary fibre	3.62%

Source: RFRAC, Lucknow

\*Discuss with the table Nutritional value of pizza base (RFRAC, Lucknow)

### Summary and Conclusion

Dietary fiber has been reported to have several physiological effects depending upon physical and chemical properties of individual fiber sources.

Increasing fecal bulk, improving bowel function, reducing level of plasma cholesterol and reducing glycemic response to a meal are major beneficial effects attributed to adequate consumption of dietary fiber.

Dietary fibre percentage in dietary fibre pizza base was higher (3.62%) as compared to Refined wheat flour pizza (2.3) in 100 gm sample weight. From the above observations, it can be concluded that acceptable pizza base can be prepared by replacing wheat flour. With fresh fenugreek leaves /Lotus stem nutritional Enrichment to serve as a snack for all the age. It is strongly recommended that dietary fibre pizza base could be prepared by fresh Fenugreek leaves / lotus stem at level of 20% with good overall acceptability as wells enhanced dietary fibre.

### Recommendations and Suggestion

- Dietary fibre pizza should be advertised among community.
- The dietary fibre pizza base should be given to life style diseases and to see health benefit for it.
- It is also good for type 2 diabetes patients, constipation and other life style diseses good amount of protein and dietary fibres.
- It should be used daily to overcome deficiency of nutrients

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