



Formulation, Proximate composition and Quality Parameters of selected Non Traditional leafy vegetables Paratha

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Abstract: Instant investigation was performed to elucidate the dietetic significance and utilization of non-traditional leafy vegetables not commonly consumed viz., Purslane paratha, Mustard Paratha and lamb's quarters. Thenutritional values and mineral composition of such vegetable species were also evaluated. Indietetic analysis carbohydrates, fats, moisture, fiber and protein contents respectively were determined. Significant differences were observed in the sensory attributes (taste, aroma, texture and overall acceptability) of non-traditional leafy vegetables.

Keywords: Non-traditional, nutritional analysis, sensory evaluation, vegetables.

1. **INTRODUCTION**

Food is a basic need of mankind's. The healthy and nutritious food, which is good in savor and have benefits of eaten. Leaf concentrates can be a better nutritional component to prevent anemia (Mathur *et al.*, 1989). Parathas are the most popular dish of every age of people made by different way cooked on tava (pain) with shallow frying. Finely ground whole meal flour is used. Parathas can be eaten in morning breakfast or as evening tea snack. Paratha can also be eaten with butter, pickles, murrabba, lassi, yoghurt and ketchup or with curries (vegetable and meat). Some of the people make roll and eat it with tea, often dipping the paratha. Mainly filling for parathas is crush or mashed potatoes and spiced followed perhaps by pulses. Numerous other substitutes exist such as leaf vegetables, radishes, cauliflower and paneer. Non-traditional leafy vegetables are healthy and best substitute of food source which may be consumed as meal and fresh due to their essential nutrients (Nesamvuni *et al.*, 2001). A huge amount of nutrients are found in these vegetables which chemicals that an organism require in moderate quantity to regulate the body's mechanism, where there are deficiencies in them can leads to hostile the health (Bernard, 1999). Mostly the wildvegetables grown without agricultural contaminants; Though, their effects is still unknown on human health (Luczaj, 2010; Pieroni *et al.*, 2002; Abbasi *et al.*, 2013). The use of culinary herbs and wild vegetables are wide spread in some regions of the world, wherever these species are recognized as principal healthy food (Afolayan and Jimoh, 2009; Steyn *et al.*, 2001; Abbasi *et al.*, 2013). Nontraditional vegetables are rich in vitamins E and C and polyphenols therefore their addition in our daily diet

play vital role in the prevention of age-related diseases and cancer (Hoyoku *et al.*, 2005).

Vegetables are consumed by sub urban and rural people in Pakistan and this food is count as safe and healthy diet (Hussaina and Ilahi, 1991). In current study there is more concert on food nutritive value as well as it promote the forever growing populace and insufficiency of vital nutrients might be enhanced by food vehicles and fortifications. Whole cereals, milk products, pulses and vegetables are considered as a balance diet. Such type of diet gives enormous amount of required amino acid, carbohydrate, dietary fiber, energy, minerals and protein. Agriculture in growing pressure produce higher quantities of food, nourish as well as biofuel on some degree of land resources on behalf of the predictable nine billion inhabitants on the earth through 2050 (God, *et al.*, 2010). It is estimated that as the world population increase as 40% the agricultural production also increases by 70% by 2050 (Bruinsma.2009).

The local inhabitants use wild vegetables since many years ago, no methodical research has been done according to our literature survey, so far to estimate the nutrient content in these vegetables (Abbasi *et al.*, 2013). Non Traditional leafy vegetables can supply a mean of improved food nutritive value. So, the aim of present study was undertaken to know the effect of addition of non-traditional leafy green leaves on the nutritive value of parathas as food for human and also designed to evaluate the nutritional content of non-traditional vegetables consumed by the sub-urban and rural people of lower Sindh, Pakistan.

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2. MATERIALS AND METHODS

2.1. Collection of leafy vegetables

Non - traditional leafy vegetables (Purslane, Lambs quarters and Mustard greens) were collected from agricultural fields in 3 kilometer radius of Sindh Agriculture University, TandoJam in autumn 2015. The samples were packed in labeled polyethylene bags and brought to the experimental laboratory of Institute of Food Sciences and Technology, Faculty of Crop Production, Sindh Agriculture University, Tandojam for further processing.

2.2 Preparation of Vegetable Paratha

The vegetables were washed thoroughly to remove dirt and other extraneous material. Next, these vegetables air dried, not edible parts such stem, stalks, etc were discarded and edible leaves were chopped into pieces and blanched. The blanched vegetables were used for paratha preparation. The recipe and ingredients used are given in (Table 1), the flowchart for steps involved in paratha preparation is depicted in (Fig.1) and the pictorial view of vegetables, the processing procedure and the final product (paratha) is represented in (Fig. 2).

Table 1. Ingredients used in preparation of parathas

Ingredients	<i>paratha</i> Purslane	<i>(bathu) Paratha;</i> Lambs quarters	<i>Paratha</i> <i>Mustard</i> <i>green</i>
Green leaves	250g	250g	250g
Wheat Flour	250g	250g	250g
Green chillies	7g	7g	7g
Garlic	5g	5g	5g
Salt	5g	5g	5g
Cooking oil	30 ml	30 ml	30 ml
Final Product	450	450	450
No of servings	4 persons	4 persons	4 persons

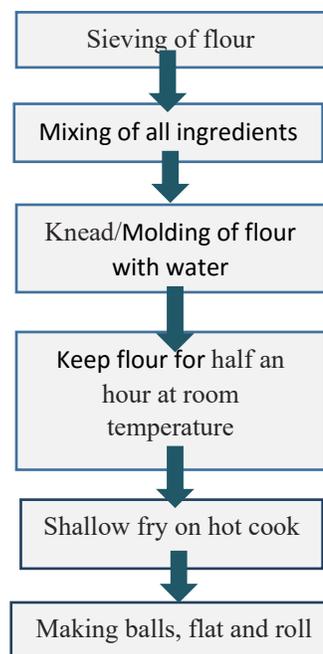


Fig. 1. Flowchart for steps involved in paratha preparation

2.3 Proximate composition

The moisture, carbohydrates, crude fat, crude protein, crude fiber and total mineral content of fresh parathas were assessed according by method of (AOAC, 2005).

2.4 Quality Parameters

The 9 point hedonic scale was used for quality parameters Color, Taste, Aroma, Texture and Overall acceptability of the paratha of fresh leafy nontraditional vegetables (Larmond, 1977). The developed products were served and coded to Judges Panel who were well-known with organoleptic assessment to sensory attributes (i.e. appearance, color, flavor and taste) score, where the most acceptable is 9 and zero being the least.

3.4. Statistical analysis

All analyses were performed in triplicate and the data is presented as mean \pm standard deviation. The attained data of present methodology was subjected to one way analysis of variance procedure with Duncan multiple range at $p=0.05$ using SPSS 18.0 statistical software Steel *et al.* (1997).

a. Pictorial view representation of vegetables		
		
Purslane (<i>Portulaca oleracea</i>)	lamb's quarters (<i>Chenopodium album</i>)	Mustard greens <i>Brassica juncea</i>
b. Representations of processing procedure of cooking		
		
Blanching process	Dough	Dough rolling
c. Pictures of cooked parathas		
		
Purslane paratha	Lamb's quarters paratha	Mustard paratha

Fig. 2. Pictorial view of vegetables, the processing procedure and the final product (paratha)

4. RESULTS AND DISCUSSION

4.1 Proximate composition

The obtained nutritive values of different non-traditional leafy vegetable parathas were presented in (Table 2). The Moisture content significantly varied in different vegetables parathas found in the range from 30.81 -39.06%. The fat and carbohydrate contents in different parathas were significantly varied in the ranged from 35.01 – 40.03%. The protein content were found ranges from 20.30-23.11 and fiber was found in purslane, mustard and lamb's quarters vis1.13%,1.01 and 1.11. On the other hand, the total mineral content

were also varied significantly in *Lamb's quarter* Paratha, *Purslane* Paratha and *Mustard* paratha were found to be 2.30, 3.4 and 3.17%, respectively.

4.2 Quality Parameters

The organoleptic analysis scores of Quality Parameters of parathas of different leafy vegetable results are presented in (Table 3). The *Purslane Paratha* secured much like scoring 8.7 regarding overall acceptability, whereas *Mustard* and *Lamb's Quarters* parathas scored 7.3 and 6.3 points each and were liked moderately by the panelists.

Table 2: Proximate composition of selected leafy vegetable paratha (wet basis)

Vegetables Paratha	*Moisture %	Carbohydrates %	Fats %	Protein (%)	Fiber (%)	Total mineral %
Purslane paratha 1	37.06b	35.10a	4.11b	20.30a	1.13b	2.30a
lamb's quarters paratha 2	30.03a	40.03b	4.05b	23.11b	1.11ab	3.17b
Mustard paratha 3	38.06b	33.12a	3.15a	21.3ab	1.01a	3.40b
F-Statistics at df=2	18.514	11.595	24.090	5.217	4.216	45.053

*Values followed by the same letter are not significantly different at 0.05 LSD

Table 3: Organoleptic evaluation of Quality Parameters of selected leafy vegetable parathas

Vegetable Paratha	Color	Taste	Aroma	Texture	Overall acceptability
Purslane paratha	8.0±0.03c	8.3±0.027b	6.7±0.014c	8.3±0.029c	8.7±0.032c
Lamb's quarters paratha	6.0 ± 0.01a	7.0 ± 0.02a	5.7±0.01a	6.3±0.012a	6.3±0.010a
Mustard paratha	7.0±0.02b	6.7±0.015a	6.3±0.012b	7.3±0.023b	7.3±0.024b
F-Statistics at df=9	55.246	36.579	17.813	50.854	70.928

*Values followed by the same letter are not significantly different at 0.05 LSD

5.

CONCLUSION

The present study indicated that non-traditional leafy vegetables parathas can be consumed as a good quality source of fat, Carbohydrate, minerals, fiber and protein contents may be incorporated in the daily diets of susceptible sections of population. Such type of leafy vegetables attained potential nutritional information and promoting knowledge about high functional values of selected non-traditional leafy vegetables could be addressed some challenges and balanced diets of rural households and possibly also in urban households. Increasing production of new value added products and informing people how to prepare vegetables to gain maximum nutritional value will help ensure low-cost nutrients and enhance the food/ nutritional security.

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