

Nutritional Values and Health Benefits of Chickpeas and Hummus

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ABSTRACT

There are two types of farmed chickpeas, Desi and Kabuli. The Desi (Microsperma) type has pink flowers, anthocyanin pigmentation on the stem, and a thick coloured seed coat. The Kabuli (Macrosperma) type has white flowers, no anthocyanin pigmentation on the stem, white or beige seeds, ram's head-shaped, thin seed coat and smooth seed surface (See Moreno and Moreno).chickpeas has various phenolic compound. flavonoid is one of the main group of phenolic compound found in grains legumes .Consumers of chickpeas have been shown to have higher nutrient intakes of dietary fibre, polyunsaturated fatty acids, vitamin A, vitamin E, vitamin C, folate, magnesium, potassium, and iron as compared to non- consumers. Desi and Kabuli chickpeas are being used worldwide . Traditional hummus is a nutritious dip or spread made from pureed chickpeas cooked with tahini, olive oil, lemon juice, and spices.

Keywords:-*desi Chana, Kabuli Chana, legumes , beans, vegetable, nutrition*

1.INTRODUCTION

India is the producer of 75% of world's chickpea production. Production of chickpea has increased worldwide by 56%and during in period 2004–2013 in India by 55%. Australia, Pakistan, Myanmar, Ethiopia, Mexico, Canada, USA,Tanzania and Malawi are other chickpea producing countries(Gaur et al. 2016).in human diet proper intake of essential amino acids, pulses are taken with addition of cereals (Reinkensmeier et al. 2015).

Previous studies have shown that kabuli seeds are more nutritive in respect to protein content (Purushothaman et al., 2014), however, desichickpeas are known for higher antioxidant activity (Segevet et al. 2011). Chickpeas seed are high in protein.

Heat treatment also significantly improves the protein quality of legumes, such as chickpeas, since it destroys and/or inactivates many heat liable

Anti-nutritional factors. the nutritional value of the chickpeas has been documented in the numerous publication ; however there are few review that compare to the nutrition of desi (coloured seed coat) and kabuli (white seed coat)

The recommended intake of vegetables in a healthy US diet at the 2000 calorie level is 2.5 cups worth of vegetables per day. This is logical as the plant prefers temperate and semi-arid regions.Note that although chickpeas and hummus have similar nutritional profiles, they are often not nutritionally equivalent.

Health consequences associated with chickpea and hummus consumption

Traditional hummus contains a unique combination of chickpeas, tahini, olive oil, lemon juice, and spices that not only meet your nutritional needs, but can provide additional benefits. As the scientific literature evolves, several studies support hummus/chickpea consumption in relation to weight management, glucose and insulin response, cardiovascular disease, cancer, and/or gastrointestinal health.

1.1 Glucose and insulin response

In a study of 10 healthy subjects who consumed hummus, the postprandial glucose response was one-fourth that of white bread. When hummus containing possible carbohydrates (in the form of white bread) was consumed, blood glucose levels were significantly lower after 45 minutes (note: no differences in blood glucose levels were detected during this time interval prior to 45 minutes).

In her 20-week crossover study of 45 people with high risk factors for cardiovascular disease (CVD), long-term intake of chickpeas significantly improved glycemic control. Men who ate chickpeas or lentils with a pizza meal had a lower blood glucose response compared with men who ate yellow peas with a pizza meal.

1.2 weight control

In general, a diet high in fiber, low in energy density and glycemic load, and moderate in protein is considered particularly important for weight management. Consumers were 53% less likely to be obese and 51% less likely to be hyperglycemic. Similarly, users had lower body mass index (BMI) (26.4 ± 0.5 vs. 28.6 ± 0.1) and waist circumference (92.2 ± 1.3 vs. 97.9 ± 0.3 cm) compared to non-users. To some extent, this may be due to other healthy lifestyle patterns expected in individuals with high intakes of legumes such as chickpeas (NHANES are observational data and causality cannot be assessed)

1.3 cardiovascular

chickpea consumption improved TC and LDL-C control in his 20-week crossover study in subjects with elevated CVD risk factors . NHANES analyzes showed no cross-sectional associations with fasting lipid profiles, blood pressure, or C-reactive protein (CRP) levels in people reporting chickpea/hummus consumption compared with non-consumers. . A recent meta-analysis of randomized controlled trials showed that a pulse diet lowered LDL-C . Systolic blood pressure decreased in overweight and obese people after 8 weeks of pulse recording.

Soluble fiber is known for its beneficial effects on TC and LDL-C, recognized validated biomarkers of cardiovascular disease .Some studies have also shown benefits of increasing vegetable protein intake in relation to CVDThe high fiber and protein content of chickpeas and the presence of enzyme inhibitors or “anti-nutrients” such as tannins in chickpeas may also help partially explain these results.

1.5 Cancer

Butyric acid is an important short-chain fatty acid (approximately 18% of total volatile fatty acids), formed by healthy adults consuming a chickpea diet (200 g/day) . Butyric acid has been widely reported to suppress cell proliferation and induce apoptosis and may reduce the risk of colon cancer. Chickpeas and hummus also contain several other bioactive compounds that have been shown to reduce the risk of certain types of cancer, including lycopene, biochanin A, and saponins . This study suggests that the high concentration of saponins in chickpea flour may be responsible in part for the reported reduction in lesions .

Similarly, dietary inclusion of chickpea seed hull fiber has been shown to reduce the toxic effects of N-nitrosodiethylamine on lipid peroxidation and antioxidant capacity .

1.6 NUTRITIONAL CHART

Chickpeas		
Nutrition Facts		
Serving size 100 g		DV
Calories	164 kcal	8%
Total Carbohydrate	27.4 g	9%
Dietary Fiber	7.6 g	30%
Sugars	4.8 g	
Total Fat	2.6 g	4%
Saturated Fat	0.3 g	1%
Protein	8.9 g	18%
Vitamin A	27 IU	1%
Vitamin C	1.3 mg	2%
Thiamin	0.1 mg	8%
Riboflavin	0.1 mg	4%
Vitamin B6	0.1 mg	7%
Folate	172 µg	43%
Pantothenic Acid	0.3 mg	3%
Choline	42.8 mg	
Calcium	49 mg	5%
Iron	2.9 mg	16%
Magnesium	48 mg	12%
Phosphorus	168 mg	17%
Potassium	291 mg	8%
Zinc	1.5 gm	10%
Copper	0.4 mg	18%
Manganese	1 mg	52%
Selenium	3.7 µg	5%

% Daily values (DV) are based on a 2000 calories Diet.
DV may be higher or lower depending on your calorie needs.

2. MATERIAL AND METHOD

The experiment was carried at breeding farm, College of Agriculture Gwalior (Madhya Pradesh). This region has subtropical, semi-arid climate with hot and dry summers and cold winters with occasional showers. The average rainfall is about 23 mm (October to December, 2018) and 27 mm (January to March, 2018). Five randomly selected plants from each cultivar in each replication were used for recording the observations to estimate the growth and yield parameters among varieties. The data were recorded on eight quantitative traits such as plant height (cm), height of lowest pod bearing branch (cm), number of branches per plant.

3. RESULT AND DISCUSSION

The results of nutritional quality of various chickpea products are discussed below.

3.1 Nutritional quality of roasted chickpea without husk:

The mean energy content of roasted chickpea without husk analyzed in the present study was 369.05 ± 3.83 kcal. The mean contents of protein, total fat and carbohydrate were 21.20 ± 4.61 , 3.95 ± 0.91 and 62.41 ± 4.043 g respectively. Because these samples were without husk so the average Fiber content was 0.85 ± 0.243 g. The average moisture and ash contents were found 9.27 ± 0.054 g and 2.86 ± 0.21 g respectively.

3.2 Nutritional quality of roasted chickpea with husk:

The average energy content of roasted chickpea with husk evaluated in the present study was 371.32 ± 6.047 Kcal. The mean protein content was found to be 21.22 ± 1.937 g while mean carbohydrate content being 6.50 ± 3.285 g. The average fiber and total fat content was 1 ± 0.2479 g and 4.92 ± 1.397 g respectively. The average iron, phytic acid, moisture and ash contents were found to be 9.76 ± 0.565 mg/100g, 165 ± 7.5 mg/100g, 9.17 ± 0.3511 g and 3.19 ± 0.3511 g respectively.

4. CONCLUSION

The information presented in this review demonstrates the potential nutritional importance of chickpeas and their role in improving nutrition and health. Proteins, carbohydrates, minerals, vitamins, DF, folate, beta-carotene. In the present study, four products of chickpea namely roasted chickpea with husk; roasted chickpea without husk, roasted spiced chickpea and chana zor garam analyzed were found high in protein and energy, low in total fat and are ready to eat. Chickpeas and hummus are an easy means to help consumers meet the recommended 1.5 cups of legumes per week. Consuming 4 tablespoons (~100 calories) of traditional chickpea-based hummus per day provides about 2 cups of legumes and about 25 grams of fiber per week.

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