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## Comparison between the compositions of sprouted chickpea with raw chickpea

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### Abstract

The popularity of chickpea sprouts is bound to increase with growing appeal for “old fashioned food”, as it is carried out without chemical or additives. Sprouting is a traditional practice of consuming chickpea in many countries, especially in Asia. Sprouting is a complex process as potential invasion by pathogenic microorganisms is high at various processing stage. We compared the composition of sprouted chickpea with raw chickpea. As resulted moisture, protein, fat and ash content increasing significantly compared to raw chickpea. The carbohydrate and crude fibre content decreased in sprouted chickpea.

**Keywords:** Chickpea, sprouts, pathogenic, crude fibre

### Introduction

Chickpea (*Cicer arietinum*) is an important pulse crop ranking second in growing area (15.3% of total pulse area) and third in production (14.6% of total pulse production) around the world (Adam Frimpor, 2008). Green chickpea is commonly used as vegetable while dry seed is consumed as such, in the form of dhal and in the form of dried products from its flour. Apart from being a valuable source of protein, consumption of legumes has also been linked to reduce risk of diabetes, obesity, colon cancer and gastrointestinal disorder.

Chickpea can be broadly divided into kabuli (light yellow coated) and desi (dark brown coated) types and used primarily for human consumption (Malhotra, Pundir, Slinkard, Muehlbauer & Singh, 1987) [4]. Generally the physical characteristics of chickpea seeds such as grain size, weight and hull content are important from milling and marketing point of view. Sprouting is the practice of soaking and leaving seeds until they germinate and begin to sprout. Sprouts have been reported to be nutritionally superior to their respective seeds with higher level of nutrients and lower level of anti-nutrients. As the seed imbibe water, the enzymes are activated and biochemical changes take place. Protein breaks into amino acids. Water soluble vitamins such as  $\beta$ -complex and vitamin C are created. Fats and carbohydrates are converted into simple sugars and weight increase as the seed absorb water and minerals. Germination is effective in reducing phytic acid, flatulence causing oligosaccharides (namely stachyose and raffinose) and polyphenols thereby increasing protein digestibility and improving sensory properties. It is reported sprouting improved protein/ amino acid digestibility by decreasing the anti-microbial factors (Schulze *et al.* 1997, Rubio *et al.* 2002) [7, 6].

### Material and Methods

The experiments were carried out in the department of Food Technology, Guru Jambheshwar University, Hisar during the year 2009-10.

Raw Material: - Chickpea (*Cicer arietinum*) were procured from the local market of Hisar.

### Methods

- Sorting and washing – Raw chickpea were sorted to remove foreign material and damaged/ and aborted seeds and then washed under running tap water.
- Soaking- Washed chickpea were soaked overnight (24hrs) in potable water in glass container.
- Sprouting- Chickpea were soaked in required amount of water after 48hr germination. In between sprinkle the chickpea with potable water is must.

### Results and Discussion

The comparison of raw and sprouted chickpea (24hr) is resulted below

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Raw chickpea and sprouted chickpea were analysed for proximate composition and data expressed on dry matter basis.

**Table 1:** Proximate composition of raw and sprouted (24h) chickpea

Nutrients	Raw Chickpea	Sprouted Chickpea
Moisture (%)	10.42±0.2	78.22±0.50
Carbohydrate (%)	57.8±0.5	52.5±0.26
Protein (%)	22.6±0.4	29.5±0.23
Fat (%)	4.32±0.1	5.02±0.03
Crude Fibre (% DM)	2.7±0.1	2.0±0.08
Ash (% DM)	2.23±0.2	3.15±0.5

The moisture content in raw and sprouted seeds as 8.65 and 85.22 respectively. The raw chickpea seeds were having carbohydrate content 57.8% while decreased to 52.5% during sprouting. The protein content in raw chickpea was 22.6% which increased to 29.5% in the sprouts. The fat content in raw chickpea was 4.32%, which increase to 5.02% in the sprouts. The crude fibre in raw chickpea was 2.7%, which decreased to 2.0% in the sprouts. The ash content however was 2.23% in raw chickpea, which increased to 3.15% in the sprouts.

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