

Nutrient Composition of Specialized Preparations using Sesame Seeds Commonly Consumed in Himachal Pradesh, India

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INTRODUCTION

Dietary habits of population in different regions of the world vary widely depending upon locally available foods. Different cooking methods / techniques are always in use to retain the nutrient contents in the food preparations (Narsingha Rao et al., 1989). These preparations may include different items from food groups such as cereals and pulses, fruits and vegetables, milk and milk products, nuts and oil seeds, egg meat and fish, sugar and jaggery. Out of these, nuts and oil seeds are one of the leading agricultural crops of the world for the production of edible oil. Fats and oils, whether the source is animal, vegetable, or marine in origin, represents the highest source of energy per unit weight that man can consume. In many societies, even today, the fatty food is still considered the choice morsel and offered to the honoured guest. Fat from nuts and oil seeds provide palatability to a diet, retards stomach emptying time and supplies per unit weight more than double the energy furnished by either protein or carbohydrates (Gopalan, 1984). Presence of fat, the main constituent from nuts and oil seeds, in the diet is important for the absorption of fat-soluble vitamins like vitamin A and carotene present in the diet. Nuts and oil seeds based diet can meet more than 50% of the individuals essential fatty acids need of an adult. Like other plant sources, the protein of the sesame (*Sesame indicum*) is the richest source of methionine and tryptophan and can supplement to a marked extent the protein of legumes and cereals. With this consideration in mind the present investigation was undertaken with the following objectives:

- Standardization and preparation of different recipes using sesame seeds locally consumed in Himachal Pradesh.
- Chemical analysis of prepared recipes based on sesame seeds on dry matter basis and fresh matter basis.

METHODOLOGY

Collection of Information Regarding Locally Consumed Preparations and Procurement of Raw Materials: The information was collected from 120 housewives regarding commonly consumed preparations, their method of preparation and ingredient used. The selected preparations based on sesame seeds were then prepared in the laboratory. The ingredients required for the study/ investigation were procured from local market.

General Description

The general description of preparations using sesame seeds commonly consumed in Himachal Pradesh is presented in Table 1. In the preparations namely *Bhugga*, *Gachak-til*, *Til ke laddu*

Table 1: General description of food items commonly consumed in Himachal Pradesh. (Based on oil seeds i.e. sesame seeds)

S. No.	Name of Recipe	Description of recipes	Ingredients used	Wt. of ingredients (g)	Cooked weight (g)	Cooked vol. No.
1.	<i>Bhugga</i>	Mixture containing <i>til</i> , jaggery, groundnuts & dry fruits	Sesame seeds (<i>Til</i>) Jaggery Groundnut Raisins Almond	150 150 50 25 10	310	500
2.	<i>Gachak-til</i>	Made from sesame and jaggery	Sesame Jaggery Sugar Ghee	50 50 50 25	175	4
3.	<i>Tilcholi</i>	Prepared from <i>til</i> , groundnuts, rewadi and soaked rice	Groundnuts Revani Rice Flacks Sesame Rice Ghee	75 75 75 75 100 75	430	500
4.	<i>Til ke laddu</i>	Laddu prepared from sesame seeds and jaggery	Sesame Jaggery Ghee	75 100 2	175	8

the sweetening ingredient used was jaggery whereas in *Tilcholi* the ingredient used was Rewadi [Preparation of til (sesame seeds) either with sugar or jaggery]

Chemical Analysis of Cooked Samples: The different locally consumed recipes like *Bhugga*, *Gachak-til*, *Tilcholi* and *Til ke laddu* based on sesame seeds were standardized and prepared in laboratory. After determining the moisture content, freshly cooked samples were dried at $50 \pm 5^\circ \text{C}$ in a drier, powdered and stored in polyethylene bags for further analysis. The powdered samples were then analyzed for crude protein, crude fat, total ash, crude fibre (AOAC, 1990) and mineral contents (Piper, 1950) using standard methods. Carbohydrates content was calculated by differential method and energy was calculated by multiplication method.

also found in *Tilcholi*.

Nutrient Composition on Dry Matter Basis: The nutrient composition of the recipes based on sesame seeds (percent on dry matter basis) is presented in Table 3. The minimum protein content was found as 7.95 percent in *Tilcholi* and maximum in *Bhugga* 12.86. *Til ke laddu* contained the maximum fat content i.e. 26.96 percent whereas *Tilcholi* contained the minimum 17.57 percent. The highest amount 4.10 percent of mineral content was found in *Bhugga* and minimum 1.92 percent in *tilcholi*. *Tilcholi* also contained the minimum amount of crude fibre (0.40 percent) and maximum amount (1.18 percent) in *Bhugga*. The carbohydrate content ranged from 56.71 percent in *til ke laddu* to 64.89 percent in *Gachak-til*. The energy content varied from 473 Kcal in *Bhugga* to 5.5 Kcal in *til ke laddu*. Calcium

Table 2: Nutrient composition of recipes based on sesame seeds commonly consumed in Himachal Pradesh (% on fresh matter basis)

Name of recipes	Moisture (g)	Protein (g)	Fat (g)	Ash (g)	Crude fibre (g)	CH ₂ O (g)	Energy (Kcal)	Calcium (mg)	Iron (mg)
Bhugga	5.80	12.14	17.74	3.86	1.11	57.99	440	216	11.74
Gachak-til	7.50	9.44	19.37	2.94	0.72	60.02	452	155	9.83
Til choli	9.01	7.23	15.97	1.75	0.36	65.59	435	81	8.99
Til ke laddu	12.20	9.90	23.67	3.43	1.00	49.79	453	105	10.09

Table 3: Nutrient composition of recipes based on sesame seeds commonly consumed in Himachal Pradesh (% on dry matter basis)

Name of	Protein (g)	Fat (g)	Ash (g)	Crude fibre (g)	CH ₂ O (g)	Energy (Kcal)	Calcium (mg)	Iron (mg)
Bhugga	12.86	18.83	4.10	1.18	63.03	473	230	12.47
Gachak-til	10.21	20.94	3.18	0.75	64.89	489	168	10.63
Til choli	7.95	17.57	1.92	0.40	72.16	479	90	9.89
Til ke laddu	11.27	26.96	3.91	1.15	56.71	515	120	11.50

RESULTS AND DISCUSSIONS

Nutrient Composition on Fresh Basis: Percent nutrient composition of recipes based on sesame seeds as percent on fresh basis is given in Table 2. The fat, crude fibre and energy content was found to be maximum in *Til ke laddu* as 23.67g, and 453 kcal respectively, whereas minimum amount of moisture and maximum mineral content was observed in *Bhugga* as 5.80g and 3.86g respectively. *Til Ke laddu* had the highest value of moisture content (12.02%). *Tilcholi* contained the lowest (1.75g) amount of minerals. The highest amount (65.59g) of carbohydrate and lowest amount of fat (15.96g) and crude fibre (0.36g) was

contents ranged between 90 mg to 230 mg in *tilcholi* and *Bhugga*, whereas iron content was found to be minimum 9.89 in *tilcholi laddu* and maximum 12.47mg in *Bhugga*.

It may be concluded that the above mentioned recipes being good source of fat and energy, if incorporated in daily diets of vulnerable section of population would prove to be useful in combating energy malnutrition.

KEY WORDS Food Products. Nutrients. Energy. Himachal Pradesh.

ABSTRACT The study was undertaken to standardize, prepare and determine the nutrient content of some specialized preparations using sesame seeds commonly consumed in Himachal Pradesh. The preparations included,

Bhugga, Gachak til, Tilcholi, and Til ke laddu. The nutrients such as crude protein, crude fat, total ash, crude fiber, carbohydrates, energy, calcium and iron were analyzed using standard methods.

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