

Nutritive value of safflower and groundnut milk and their products

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ABSTRACT

Milk prepared from safflower seed and groundnut is having health benefits as it contains mono (49.3 mg in groundnut) and polyunsaturated (73.5 mg in safflower) fatty acids which help in lowering blood cholesterol and also they are beneficial to the lactose intolerance subjects. Safflower milk is rich in calcium and mineral content viz 55.30 mg and 0.46 g respectively compared to groundnut milk viz 33.47 mg and 0.23 g. Traditional value added products were prepared viz Halwa, Akkihuggi and Paneer. Nutrients were analyzed and the results showed that safflower carrot Halwa contained fat 16 g, fibre 3.86 g and calcium 281.5 mg. Safflower Akkihuggi was rich in calcium ie 25.1 mg and groundnut Akkihuggi had 16.3 mg of calcium. Safflower and groundnut milk Paneer contains calcium 94.1 mg and 56.8 mg, carbohydrate 5.99 g and 1.53 g and energy 334 kcal and 311 kcal respectively. The study showed that the nutrient contents of safflower and groundnut milk is beneficial to lactose intolerance and cardiovascular subjects.

Keywords: Safflower seed; groundnut; milk; Paneer; paste

INTRODUCTION

Milk is regarded as a complete food. The milk and milk products are out of reach of the vulnerable groups of weaker sections of society due to high cost. This calls for development of low cost substitute for milk and milk products.

Utilization of safflower milk in different products will not only bring down their cost but will also improve their

nutritional security. Such milk will be useful for those people who are allergic to cow or buffalo milk or people suffering from heart ailments as safflower milk contains polyunsaturated fatty acids which help in lowering blood cholesterol (Kashid et al 2007). Safflower petals are used for treatment of coronary heart disease, hypertension, renal thrombosis, gynaecological diseases etc (Sarojini et al 1995). It is also used as substitute for saffron and imparts golden colour to the milk.

Groundnut or peanut (*Arachis hypogaea* L) is commonly called as poor man's cashew nut and is the fourth most important oilseed in the world. It is regarded as king of oilseed crops and has its unique characteristics of higher hydrogenated oil and protein content. Being a leguminous crop groundnut also grows in crop rotation as it fixes atmospheric nitrogen and adds about 100-120 kg of nitrogen in the field per hectare per season. It maintains the fertility of soil and helps in reducing soil erosion. The most important groundnut growing countries are India, China, Nigeria, Sudan and USA.

MATERIAL and METHODS

Material required for the study viz groundnut, safflower seeds, cheese cloth and milk was procured from local market. The safflower milk was prepared as per the method given by Maske (1997). Two hundred grams of safflower seed was weighed and washed with hot water and soaked in water for 16-18 h. Water was drained out, ground with little amount of water and filtered through muslin cloth (seed:water 1:5) so as to have consistency as that of cow milk. For better heat stability and taste sodium hexameta phosphate 0.2 per cent and common salt were added. The milk so obtained was then boiled. The milk prepared had creamy colour, nutty flavour, bitter taste and consistency as that of cow milk.

Groundnut milk was prepared from kernels previously soaked in 1 per cent sodium bicarbonate solution for 16-18 h, drained, washed with tap water, ground and added with 750 ml of water. The mixture was then filtered by cheese cloth, to obtain the groundnut milk. The milk prepared had white colour, beany flavour and consistency of cow milk.

The chemical analysis for moisture, protein, fat, ash and calcium content was carried out according to the method given by Anon (1995).

RESULTS and DISCUSSION

Table 1 presents the chemical composition of safflower and groundnut milk (per 100 ml). The results showed that moisture and fat were found to be higher in safflower milk viz 88.90 per cent and 5.62 g compared to groundnut milk. Groundnut and safflower milk contained higher amount of energy viz 72 and 70 kcal respectively compared to cow milk. The ash content of groundnut milk was significantly lower than that of cow milk and its calorific value was also higher as reported by Isanga and Zhang (2009). This difference was mainly because of higher fat content of groundnut milk. Dhanwade et al (2006) reported similar values for safflower milk. This may be due to lesser constituents present in safflower milk than buffalo milk.

Sunflower and groundnut milk nutritive value

Chemical composition of Paneer from safflower and groundnut milk is presented in Table 2. Safflower milk was found to be high in fat, carbohydrates, energy and calcium viz 28.1 g, 5.99 g, 334 kcal and 94.01 mg respectively. However moisture and protein were found to be higher in groundnut milk Paneer viz 52.74 and 18.6 respectively.

The data given in Table 3 show that safflower Akkihuggi (SAH) showed higher values for moisture, fat, total ash and calcium viz 39.6 per cent, 2.3 g, 0.3 g and 25.1 mg respectively whereas in groundnut Akkihuggi (GAH) protein, energy and carbohydrates were found to be higher viz 3.2 g, 132 kcal, 25.1 g respectively. Inamdar et al (2005) reported that Akkihuggi a rice based product cooked in

Table 1. Chemical composition of safflower and groundnut milk (per 100 ml)

Parameter	Safflower milk	Groundnut milk
Moisture (%)	8.90	87.7
Protein (g)	2.40	3.10
Fat (g)	5.62	4.80
Energy (kcal)	70	72
Carbohydrates (g)	2.62	4.13
Ash (g)	0.46	0.23
Calcium (mg)	55.30	33.47

Table 2: Chemical composition of safflower and groundnut milk Paneer (per 100 g)

Parameter	Safflower milk Paneer	Groundnut milk Paneer
Moisture (%)	50.13	52.74
Protein (g)	14.4	18.6
Fat (g)	28.1	25.6
Energy (kcal)	334	311
Carbohydrates (g)	5.99	1.53
Ash (g)	1.38	1.53
Calcium (mg)	94.01	56.8

safflower seed milk contained energy 76 kcal, protein 2.03 g, fat 2.01 g, carbohydrate 16.02 g, β carotene 272.70 mg, calcium 20.52 mg, iron 0.80 mg, potassium 20.60 mg, copper 0.12 mg and zinc 0.58 mg.

Table 4 shows the nutrient composition of carrot Halwa. By incorporating the safflower paste and groundnut paste carrot Halwa was

prepared. Results revealed that moisture and fat contents were found to be high in both safflower and groundnut carrot Halwa products viz 252.4 per cent, 251.7 per cent, 16.0 g and 17.1 g respectively. Energy was found to be high in groundnut carrot Halwa ie 439 kcal. In safflower carrot Halwa product crude fibre and calcium were found to be higher viz 3.86 g and 303.6 mg respectively. Other nutrients were found to be on par.

Table 3. Nutrient composition of Akkihuggi (per 100g)

Nutrient	Safflower Akkihuggi	Groundnut Akkihuggi
Moisture (%)	39.6	39.2
Protein (g)	3.0	3.2
Fat (g)	2.3	2.0
Energy (kcal)	131	132
Carbohydrates (g)	24.5	25.1
Crude fibre (g)	0.06	0.06
Ash (g)	0.3	0.2
Calcium (mg)	25.1	16.3

Table 4. Nutrient composition of carrot Halwa (per 100g)

Nutrients	SCH	GCH
Moisture (%)	252.4	251.7
Protein (g)	8.4	10.3
Fat (g)	16.0	17.1
Energy (kcal)	423	439
Carbohydrates (g)	61.2	61.0
Crude fibre (g)	3.86	1.78
Ash (g)	3.0	3.1
Calcium (mg)	303.6	281.5

CONCLUSION

The products prepared from safflower and groundnut are useful for those people who are allergic to cow or buffalo milk or are suffering from heart ailments as these contain mono- and poly-unsaturated fatty acids. The main advantage of using safflower milk and groundnut milk is that it does not contain lactose.

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