

# NUTRITIONAL QUALITIES AND PHYTOCHEMICAL CHARACTERIZATION OF ROASTED FLAXSEED

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## INTRODUCTION

There is tremendous appeal to the consumer for dietary supplements. Perceived efficacy coupled with low cost, ease of distribution, cultural acceptability and presumed safeties are warranted. Flaxseed consumption may lower both total and LDL cholesterol concentration because of its low saturated fat content, high PUFA and phytosterol and mucilage content. Flaxseed is a good source of omega-3 fatty acids. The reason for choosing flaxseed is to emphasize pharmacological and other applications in the field of cancer treatment & prevention and to express their phytomedicines and functional foods. The phytochemicals which are present in flax seed play a major role in many chronic diseases like cardiovascular disease and diabetes mellitus.

Phytoestrogens are plant constituents that possess either estrogenic or antiestrogenic activity. Traditionally flaxseed have been added in Asian food. Both of them possess rich source of phytoestrogen. There are many complementary therapies available that may help to establish harmony. Scientific research on several of these therapies is underway, but will take a long time. However, any effort that orders and organizes the environment, increase creative endeavour and establishes beauty in one's life will help to increase the harmony within.

## METHODOLOGY

The Nutrient content of the sample (flaxseed seed) were analyze for the following nutrients, the details of which for given below. The nutrients content of flaxseed seed were analyze in order to understand the quantity of nutrients present in the sample which was supplemented to post operative breast cancer patients.

The flaxseed seeds were analyzed for macro nutrients, water soluble vitamin, anti oxidant activity, anti carcinogenic compounds using standard procedure and the methods followed are listed in table I

Table I

## Methods used for Analysis of Sample for Nutritional value, water soluble vitamins, and antioxidant activity & anti carcinogenic compounds.

S.No	Nutrient	Method
1	Macro Nutrients 1.Carbohydrate 2.Protein 3.Fiber 4.Fat	Hedge etal.,(1962) Anthrone method Lowryetal.,(1951)UVSpectrophotometry Raghuramulu et al (2003) Acid Alkali Digestion
2	Water soluble vitamins	HPLC Method
3	Anti oxidant activity	DPPH Method
4	Anti carcinogenic compounds	GC-MS Method

## RESULTS AND DISCUSSION

### Nutritional value, water soluble vitamins, antioxidant activity & anti carcinogenic compounds of Flaxseed

**NUTRITIVE VALUE OF FLAXSEED**  
**TABLE –II**

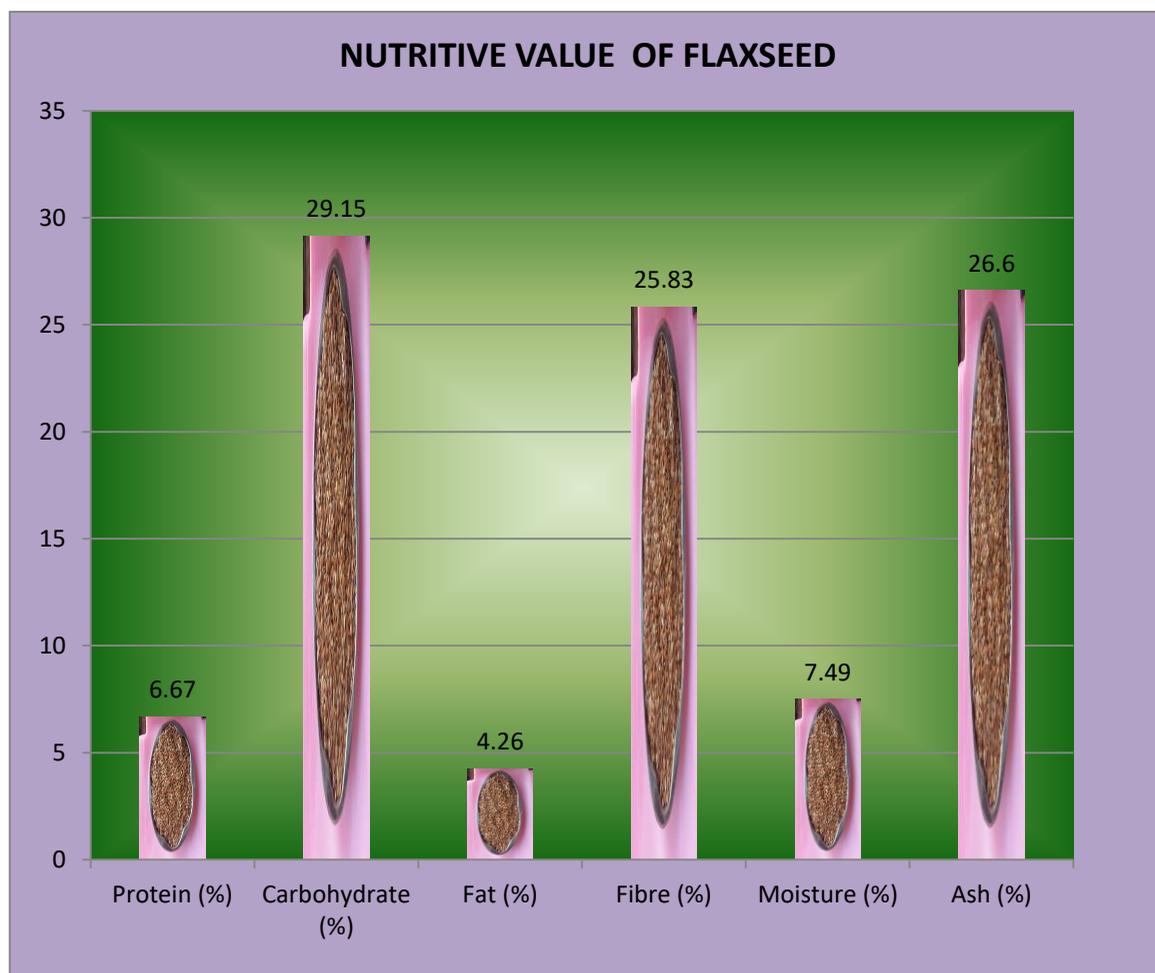
Sl.No.	Parameter Analyzed	Result
1	Protein (%)	6.67
2	Carbohydrate (%)	29.15
3	Fat (%)	4.26
4	Fibre (%)	25.83
5	Moisture (%)	7.49
6	Ash (%)	26.60

The Table –II infer that sample contain high amount of carbohydrates 29.15% followed by fibre 25.83%.The protein content of the sample was found to be 6.67% and fat 4.26%.

On the dry weight basis, flaxseed contain 20% protein, 27% total dietary fiber 41% oil, 4% ash and 8% moisture. Albeit, flaxseed proteins are not complete in nature but the deficiency may be overcome effectively by enrichment with products containing amino acids that form complete proteins, Madhusudhan B (2009)

A typical flax profile is approximately 40% fat, 28% dietary fiber, 21% protein, 4% ash, and 6% carbohydrates. Flax has one of the most nutritious plant protein compositions—one that is very similar to that of soybean protein. The nutrient composition of flax also includes a number of important essential minerals and minor amounts of water- and fat-soluble vitamins ( Hadley,M., Lacher, C., Mitchell-Fetch, J. 1992)

**FIGURE - 1**



**WATER SOLUBLE VITAMINS OF FLAXSEED  
(HPLCmethod)**

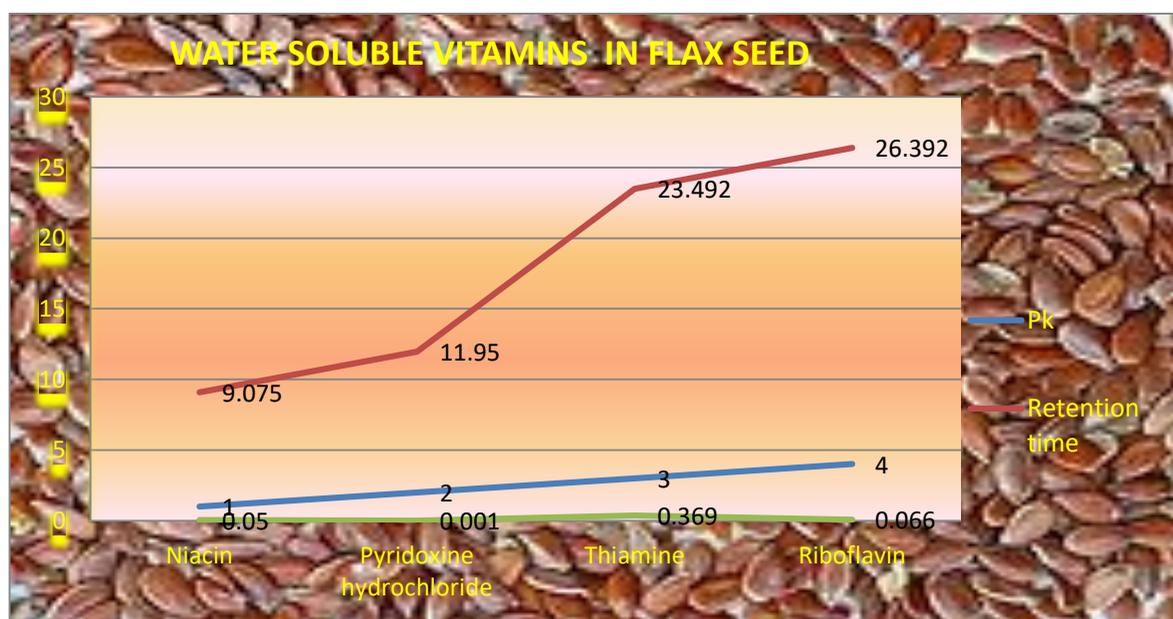
**TABLE - 5**

Name o the vitamin	Pk	Retention time	Concentration(mg/g)
Niacin	1	9.075	0.050
Pyridoxine hydrochloride	2	11.950	0.001
Thiamine	3	23.492	0.369
Riboflavin	4	26.392	0.066

The table –5 shows that water soluble vitamins such as Niacin, Pyridoxine hydrochloride, Thiamine, Riboflavin with its concentrations (mg/g) 0.05, 0.001, 0.369, 0.066 respectively present in the sample –I was determined by HPLC method.

The nutrient composition of flaxseed also includes a number of important essential minerals and minor amounts of water- and fat-soluble vitamins. One tablespoon of milled flax (also known as ground flax or flaxmeal) contains the same amount of magnesium as a banana (34mg) and the same amount of potassium as a slice of toasted typical pumpernickel bread (66mg). Vitamin E is primarily present as gamma-tocopherol and functions as an antioxidant( *Ann Przybyla Wilkes,2007*)

FIGURE - 2



## SUMMARY AND CONCLUSION

- The Flaxseed chosen for study contain 29.15% carbohydrates, 25.83% fibre, 6.67% of protein and 4.26% of fat.
- The vitamin content analyzed by HPLC method shows that 0.05mg/g of Niacin, 0.369mg/g of Thiamine, 0.06mg/g of Riboflavin were present in the sample.

## BIBLIOGRAPHY

- Hadley,M.,C.Lacher,J.Mitchell-Fetch.1992.Fiber in Flaxseed ,Proc. FlaxInst. 54:79-83.
- Madhusudhan B (2009). Potential benefits of flaxseed in health and disease- A prespective, Agro Conspec Sci., 74:67-72