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Texture analysis on normal brown bread to functional brown bread incorporated barley and flaxseed for aged person

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Abstract
The present study was carried out in the laboratory of department of F.S.T BBAU University, Lucknow and some part of analysis was done in RFRAC, Lucknow. Value added product namely brown bread were developed using barley and flaxseed flour in different sample T1,T2 ratio (50:20) analysis on texture analysis method most people accepted T2 sample fictional Brown bread hardness 88.54,adhesiveness 88.24,chewiness 91.11 is more than normal brown bread. Supplies a significant portion of the nutrients required for growth, maintenance of health and well-being. It is an excellent source of proteins, vitamins, minerals, and fiber and complex carbohydrates. Barley is important sources of dietary fiber, vitamins, and minerals**.** Flaxseeds are a rich source of micronutrients, dietary fiber, manganese, vitamin B1, and the essential fatty acid alpha-linoleic acid, also known as ALA or omega-3.the developed value added product using barley and flaxseed flour could be recommended for aged person.

Keywords: wheat bran, barley, flaxseed, dietary fiber, cereals

Introduction

Man learned the art of brown bread making more than 4000 years ago. Though not always in the same form or as we know it today, brown bread has been a popular staple food for ages. The nearly ubiquitous consumption of brown bread places it in a position of global importance in international nutrition. (Kumar *et al*., 2014) [9] Bread products vary widely around the world, as do their production techniques. Basic ingredients are cereal flour, water, yeast or another leavening agent, and salt. The consumption of brown bread andother baked goods such as biscuits, doughnuts and cakes produced from wheat flour isvery popular, but the low protein content of wheat flour, which is the most vitalingredient used for the production of different kinds of baked goods has been majorconcern in its utilization. (Zinani *et al*., 2012) brown Bread as a daily food is of high interest, therefore its production and distribution deserves improvement. Based on available data, food fibers are considered useful substancesfor human consumption.Good brown bread can be made from dough to which adequate amount of yeast is added. The dough is allowed to fermentand kept at desirable temperature for an appropriate periodof time This can be eliminated by adding bleaching agents such as benzoyl peroxide. (Jeffrey hamelman 2004) [6]. Wheat is rich in catalytic elements, mineral salts, calcium, magnesium, potassium, sulfur, chlorine, arsenic, silicon, manganese, zinc, iodide, copper, vitamin B, and vitamin E. Wheat is also recommended to treat sterility. Since germinated wheat comprises 2 or 3 times more vitamin B than common wheat; the seeds are used for useful for treating gastrointestinal conditions, skin diseases, respiratory illnesses, and cardiovascular ailments. (Dewettinck *et al*., 2008) [2]. Wheat is also known to help balance cholesterol levels and protect the heart.cereals are add in the brown bread barley and flaxseed. Barley (Hordeumvulgare L.), a member of the grass family is major cereal grain grown in temperate climates globally. It was one of the first cultivated grains, particularly in Eurasia as early as 13,000 years ago. Barley has also been used as animal fodder, as a source of fermentable material for beer and certain distilled beverages, and as a component of various health foods. It is used in soups and stews, and in barley bread of various cultures. Barley grains are commonly made into malt in a traditional and ancient method of preparation. In a 100 gram serving, raw barley provides 352 calories and is a rich source or more of the Daily Value, of essential nutrients, including protein, dietary fiber, the B vitamins, niacin and vitamin B6, and several dietary minerals. (Joel Ndife, Abdurrahman 2010) [7] Highest nutrient contents are for manganese and phosphorus. Raw barley is 78% carbohydrates, 1% fat, 10% protein and 10% water Wheat bran is a concentrated source of insoluble fiber. Fiber intakes are generally lower than recommendations, and the health benefits it may provide in terms of the prevention of diseases such as colon and breast cancers, cardiovascular disease, obesity and gastrointestinal diseases. Flax plant (Linumu sitatissimum). Flax seeds are an excellent source of Omega-3 fatty acids, iron, zinc, copper, calcium, protein, potassium, magnesium, foliate, soluble fiber and even boron. They are a very good source of dietary fiber, vitamin B1, and copper. They are also a good source of the minerals magnesium, phosphorus, and selenium. Omega – 3 fatty acid are prevent the macular degeneration disease in ageing people. Flax seed is a super food, so packed with nutrients and fiber that it's worth including in the diet every day. I can't imagine oatmeal without it and it's the perfect addition to green and fruit smoothies. Its delicious sprinkled on rice, potatoes or yogurt, too. An ingredient that makes agood thing even better. Traditionally, human inspectors have been the only option for evaluating these quality parameters, grading and rejecting

samples with unacceptable defects. With the advent of computer vision technology together with the falling cost of processors, the responsibility for baked food inspection is shifting to an intelligent machine. The use of digital vision systems has helped to reduce the number of manual inspectors and allows the possibility of automating. Texture analysis is the science used by food technologists to objectively measure the subjective mechanical characteristics of finished foods, their intermediate components and functional ingredients .In simple terms, we use instruments to measure how a food feels when we eat it or performs during processing or handling. The mechanical properties of bread are a function of the crumb structure. Different mechanical and rheological parameters have been used to describe the viscos-elastic character of the breadcrumb.

Object

Texture Anaysis on Normal Brown Bread to Functional Brown Bread Incorporated Barley and Flaxseed for Aged Person.

Methodology

The present study was conduct in the laboratory of department. of F.S.T, BBAU University, Lucknow and some done part of analysis were done in RFRAC, (Regional Food Analysis & Research Centre Lucknow, Allahabad Central University.

Sample Preparation

Table 1: Three sample are taken for experiment in this study.

Sample	Ingredients	Ratio of Sample
T1	Wheat flour+barleyflour+flaxseed flour	200+50+50
T2	Wheatflour+barleyflour+flaxseedflour	200+20+20
T3	Control	300gm

Functional Brown Bread Preparation

Ingredient

200 plain wheat flour , 20gm fresh yeast , 100ml Luke warm milk,100ml water, 50gm powdered suger, 50ml refined oil, tea spoon salt,for every sample and concentrations of barley flour (50%, 20) flaxseed flour (50%,20%)of wheat flour.

Technique

- Sieve the flour and make well in the center.
- Put the yeast in the center.
- Sprinkle over one tea spoon salt and powdered sugar.
- Mix the amount of barley and flaxseed with different sample amount (50%, 20%).
- Leave it for 15minutes.
- Put the smooth dough in different container according treatment.
- After 15 minutes sugar and knead with milk Luke warm.
- Knead to very soft dough and give punches to the dough.
- Put the dough in place 30 minutes.
- Take out dough and give punches and again keep in warm place for 30 minutes and take out again give.
- Smooth the dough and put in a bread tin (loaf tin and keep in warm place for 10 – 15 minutes.
- Preheat the oven at 200 C for 5 minutes.
- Bake for 30 to 40 minutes at 200 °C.

Nutritional Characteristics

Proximate composition the crude protein, carbohydrate, vitamin, ash and dietary fiber wee determined according to the AOAC methods on triplicate samples of the brown bread.

Texture Analysis

Textue analysis determined the cohisevness, adhisiveness, chewiness of functonal brown bread.

Statistical Analysis

The data was analyzed using a ANOVA test and chi – square test.

The test was perfomed to show the significant differenc in the values of different texture contents of normal or existing refined wheat fliur brown bread & experimental comprrition between normal brown breadnand functional brown bread.

Result and Discussion

Texture analysis method and tests-

Graphical Representation of Texture Analysis on Normal Bread

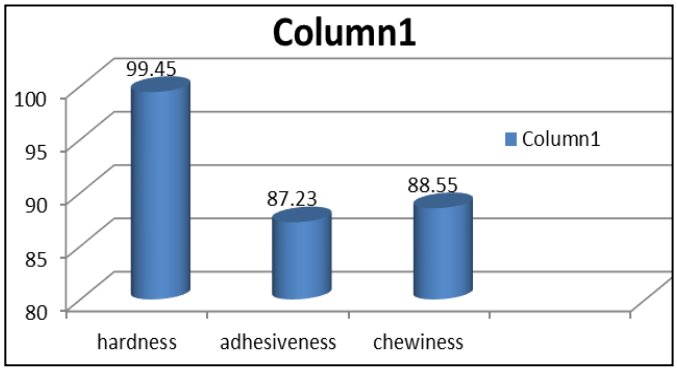

Fig 1

Graphical Representation of Texture Analysis Functional Brown Bread

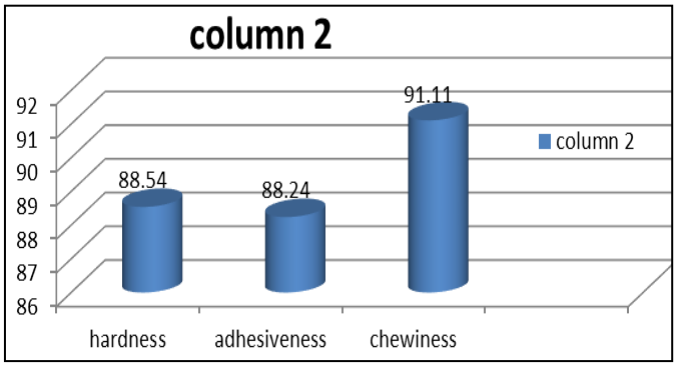

Fig 2

Comparative Graphical Representation of Normal Brown Bread and Functional Brown Bread

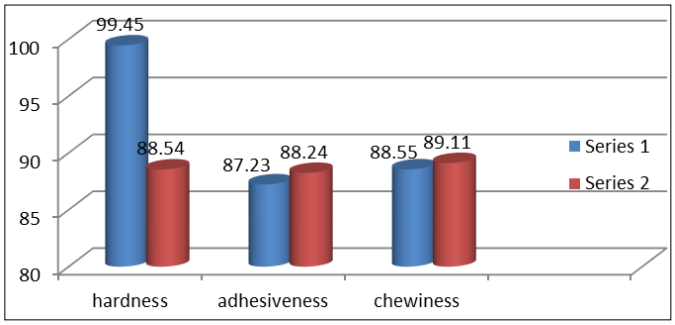

Fig 3

Summary and Conclusion

Functional are produced by experimental design Response surface methodology, and then by applying bread making techniques like baking with the ingredients used are wheat refined flour, different percentage of barley & flaxseed flour and (50%, 20%) Baker's yeast powder, and are mixed together in different proportion and in different loaf tins, after fermentation the baking are done in oven at 200C0 for 30-40 minutes, then loafs are taken out and all the samples are cut into slices in different containers, each of samples have somehow different. But the sample 2 containing 50% flaxseed flour and 20% dry barley flour in 200% texture analysis is define functional brown bread is more highly accepted than normal brown bread.

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