

PHYSICAL AND NUTRITIONAL QUALITIES OF BREAD SAMPLES
PREPARED FROM KONJOHA RICE

A Project report submitted in partial fulfillment of practical paper 605 for the award of Bachelor of Science degree in Botany under Dibrugarh University , 2017.

Under the guidance of
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PREFACE

This Project is done by myself Nimisha Baruah under the sincere guidance of prof. Prativa Bora , department of Botany , Bahona College deals with **“PHYSICAL AND NUTRITIONAL QUALITIES OF BREAD SAMPLES PREPARED FROM KONJOHA RICE”** In this project I tried to produce rice bread from konjoha (*Oryza sativa*) for commercial production .

I hope that readers of this project will be obtained with valuable information for the commercial production of rice bread production in Assam . lastly I also seek apology for the mistake that have unwilling creped over during preparation of this project.

CERTIFICATE

This is to certified that Nimisha Baruah a student of B.Sc 6th sem, Botany major , Bahona College, Jorhat . Did the present work and title **“PHYSICAL AND NUTRITIONAL QUALITIES OF BREAD SAMPLES PREPARED FROM KONJOHA RICE”** Under my guidance and supervision . She has completed the work and made it ready for submission in the form of a project report towards practically fulfilled of B.Sc 6th sem. This report is the result of her genuine investigation .

I also certified that the results in corporate in the report are original and to the best of my knowledge . All helps received by her have been duly acknowledge . No part of this project has been produce else where any degree . This report may be accepted for adjudication .



Prof. Prativa Bora

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ACKNOWLEDGEMENT

I feel great pleasure to offer my sincere thanks to Prof. Prativa Bora , Bahona college , Jorhat , Assam for allowing me to carry out the work on **“PHYSICAL AND NUTRITIONAL QUALITIES OF BREAD SAMPLES PREPARED FROM KONJOHA RICE”** as my project work for her constructive ideas and good wishes . I am highly obliged and grateful to hers for her sincere guidance , keen supervision and continuous encouragement .

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Last but not least , I would like to thank the Laboratory bearers of our Department Mr. Joy kanta Bora and Mr. Jiten Bora for their active co-operation in performing the experiments .

Date : 20/5/17....



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DECLARATION BY THE CANDIDATE

I Hereby declare that the thesis "**PHYSICAL AND NUTRITIONAL QUALITIES OF BREAD SAMPLES PREPARED FROM KONJOHA RICE**" submitted to Department of Botany , Bahona College , Jorhat ,assam in fulfillment for the award for the Bachelor of Science Degree and it has not been previously considered for the award of any degree , Diploma , Associateship , Fellowship , or any other similler title or recognition from any University , Institute or other Organization .

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INTRODUCTION

Rice is the staple food which feeds for more than half of the world's populations, and global wise demand is estimated to rise from 6.76×10^8 in 2010 to 68.52×10^8 in 2035. (Khush 2013)

Rice Bread is a type of bread that is made from rice flour (Lies and Fahmy, 2010). It is gluten free (Schott 2011) and therefore will not cause adverse reactions for people with gluten intolerance. The vitamin rice bread is made traditionally with a mixer of wheat and rice flour resulting in an airy and crispy texture (<http://www.postcity.com>) in 2001 a study group at Yamagata University of Japan used molding technology to produce bread made from 100% rice flour (<http://en.wikipedia.org>)

Bread is an important fermented food in which yeast is added to bread dough to ferment sugar, producing carbon dioxide that leaves the dough and causes it to rise. The principle yeast used in bread baking is *Saccharomyces cerevisiae*. Analysis in the dough converts starch to sugars and the yeast metabolises these sugars to carbon dioxide and ethanol. Besides yeasts, some bacteria as *Clostridium* species are used for leavening the bread. After leavening the bread is raised, as carbon dioxide bubbles are trapped in the dough. (Sharma 1989)

Ref:- Sharma 1989 Microbiology .PP.326

MATERIALS & METHOD

MATERIALS :-

- 2 cups warm water (110 degrees F/45 degree C)
- 2/3 cup of white sugar
- 1 1/2 tablespoons active dry yeast
- 1 1/2 teaspoons salt
- 1 /4 cup vegetable oil
- 6 cups bread flour
- Add all ingredients to list

- I. In a large bowl dissolved the sugar in warm water , and than stir in yeast. Allow to proof until yeast resembles a creamy form.
- II. Mixed salt and oil into the yeast. Mix in flour one cup at a time. Knead dough on a lightly floured surface until smooth. Place in a well oil bowl and turn dough to coat . cover with a damp cloth. Allow to rise until doubled in bulk about one hour.
- III. Punch dough down knead for a few minutes , and divide in half . shape in to loaves , and placed into two well oiled 9×5 inch loaf pans. Allow to rise for 30 minutes , or until dough has risen one inch above pans.
- IV. Bake at 350 degrees F (175 degrees C) for 30 minutes.

METHOD :-

- Physical characteristics like dough height , dough weight , colour of the bread , crust taste and flavour were recorded .
- Nutritional characteristics like presence of carbohydrate . protein and fats were recorded.

- **For the presence of carbohydrates the following test were undertaken –**

- I. 5 gm of bread crumbs were dissolved in 1ml water in a test tube and 1 ml of Benedict's reagent was added . the solution was heated for a few minutes and observed for change of colour . (yadav and agarwala 2011).
- II. 5 gm of bread crumbs were dissolved in 1ml water in a test tube and 3-4 drops of iodine were added and observed for change of colour . (yadav and agarwala 2011).

- **To test the presence of proteins:-**

5 gm of bread crumbs were dissolved in 1ml water in a test tube and 2 ml of Million's reagent was added for development of precipitate and change of colour. (yadav and agarwala 2011).

- **To test the presence of fats :-**

5 gm of bread crumbs were dissolved in 1ml water in a test tube , 1gm of sudan red was added for the change of colour. (fac-psu.edu.sa).

RESULTS

The results obtained from the study of rice bread prepared from konjoha (*Oryza sativa*) are depicted in the following tables :-

I. Physical characteristics of rice bread :-

characteristics	
Taste	Sweet & Salty
Colour	Brownish
Dough height before baking	2 cm
Dough height after baking	4 cm
Dough weight before baking	131.51 gm
Dough weight after baking	115.14 gm
flavour	Rice flavour (kon joha)

II. Nutritional characteristics of rice bread :-

Nutrients	Occurence
Starch	+
Glucose	+
Proteins	-
Fats	-
Flavonoids	-
Gum	-

+ indicates present

- Indicate absent

PHYSICAL CHARACTERISTIC OF WHEAT BREAD :

TABLE 3

CHARACTERISTICS	OCCURENCE
TASTE	SWEET
COLOUR	BROWN
DOUGH HEIGHT BEFORE BAKING	1cm
DOUGH HEIGHT AFTER BAKING	2cm
DOUGH WEIGHT BEFORE BAKING	123.917 gms
DOUGH WEIGHT AFTER BAKING	108.14 gms
FLAVOUR	ABSENT

TABLE 4: NUTRITIONAL CHARACTERISTICS OF WHEAT BREAD :

NUTRIENTS	OCCURENCE
STARCH	+
GLUCOSE	+
PROTEIN	+
FATS	+
FLAVONOIDS	-
GUM	-

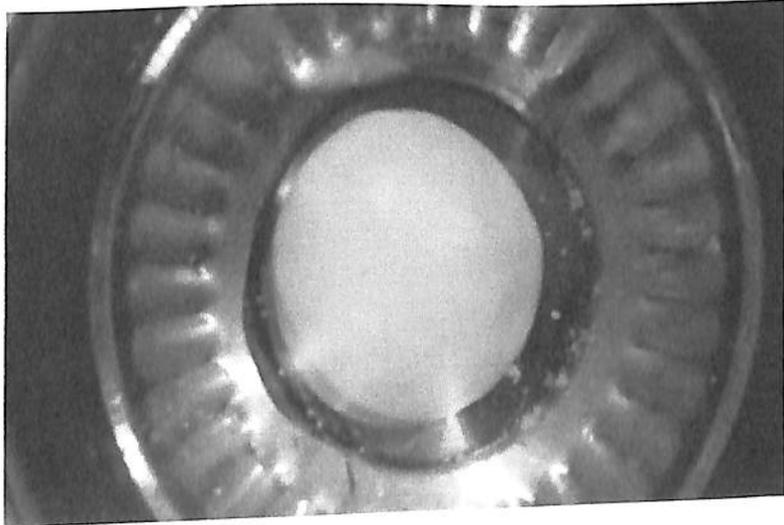
+ indicates present

- Indicate absent

PICTURE GALLERY



➤ 1.



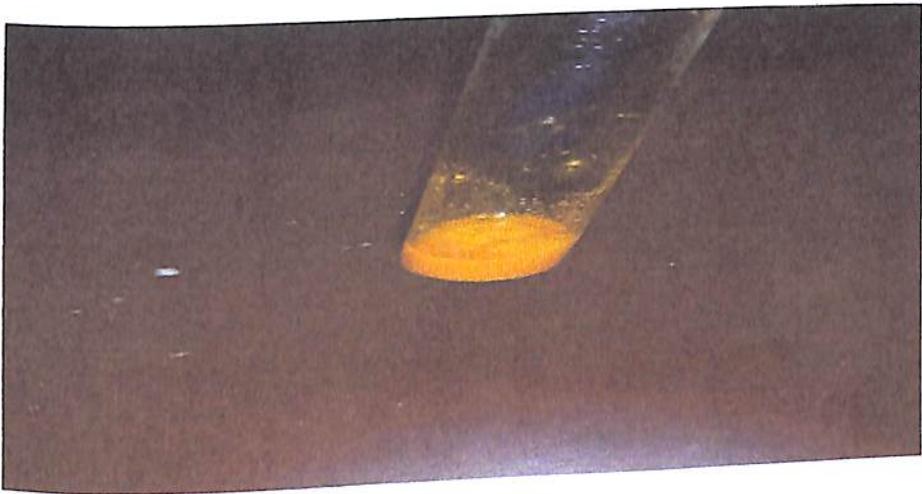
➤ 2

1. Rice powder (konjoha)
2. Rice dough (konjoha)

➤ 3



➤ 4



➤ 5

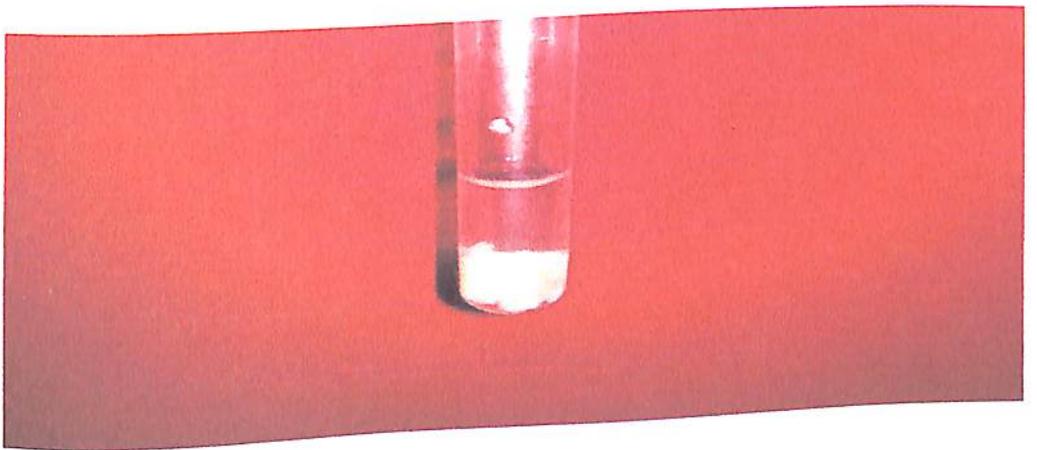


- 3. Starch Present
- 4. Glucose Present
- 5. Protein Absent.

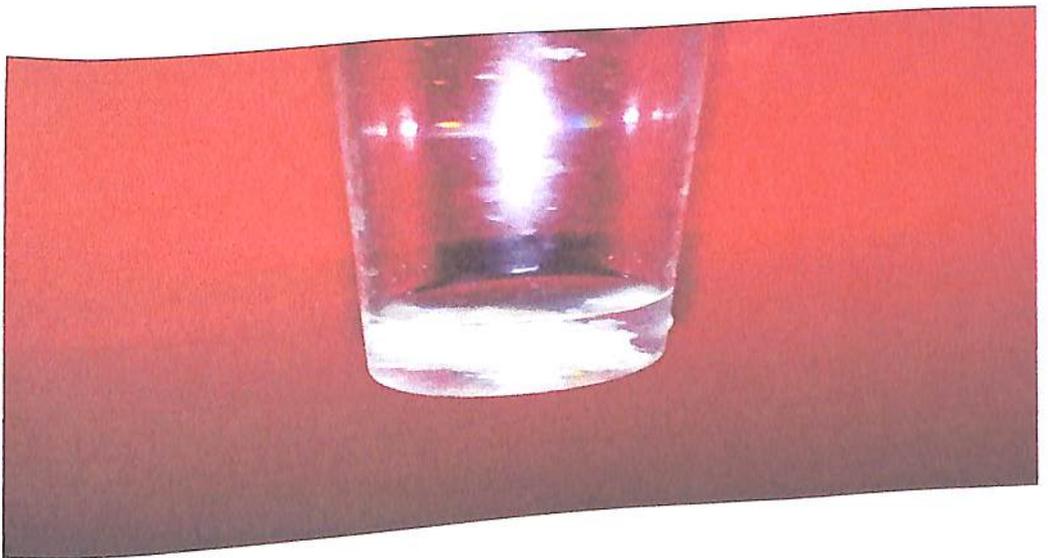
➤ 6



➤ 7



➤ 8



6. Fat Absent

7. Flavonoid Absent

8. Gum Absent.



➤ 9

9. Rice Bread.

DISCUSSION

In our study we obtain a dough height of 2 cm before baking and a height of 4 cm after baking . The dough weight was 131.5 gm before baking and 115.14 gm after baking . starch damage was also not observed when analysis of the nutritional contents was not carried out.

Similarly, Yano *et al*, (2016) obtained rice breads of high specific volume which was around 4cm³ /gm . Their group also observed low starch damage (<5g/100g).

CONCLUSION

From the above study it was observed that rice bread prepared from konjoha (*Oryza sativa*) possessed dark brown colour and tasted good . it can therefore be used for commercial production . the study also proved that commercially available baker's yeast can be used for production of rice bread. The rice bread was also more filling then wheat bread . however further research is required for better manufacturing process to improved the physical and nutritional characteristics of rice bread.



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