



Bread product fortified with inulin and germinated brown rice for elderly



Nuttanit limlikhitaksorn, Jittranuch Ruamthong, Numfon Rakkhumkaew
Division of Food Science and Nutrition Faculty of Agricultural Product Innovation and Technology Srinakharinwirot University

Abstract

The objective of this research was to develop bread product fortified with inulin and germinated brown rice for elderly. The samples was analysed for chemical, physical and sensory properties. The different ratio of whole wheat flour and germinated brown rice flour (90:10 ,80:20 ,70:30 and 60:40) and different amuont of inulin (5% ,10% and 15%) were tested in this study .

Introduction

At present the elderly tend to increase. The main problems of the elderly's health problems many diseases such as diabetes and hypertension.

Whole wheat flour reduced risk of stroke , type 2 diabetes, heart disease and less inflammation.

Germinated brown rice contains GABA vitamins, minerals, dietary fibers, bioactive components, such as ferulic acid, γ -oryzanol, and gamma aminobutyric acid

Inulin is used as a sweetener with low calories, fat replacer and texture modifier, prebiotic, dietary fiber

Methods

Bread making

- Mix ingredient on medium speed
- Divide the dough size 45 g
- Proof dough for 1 hour
- The oven at 175°C for 15-20 minutes
- Bread product

- To study the optimum ratio of whole wheat flour and germinated brown rice (90:10 ,80:20 ,70:30 and 60:40)
- To study the optimum amount of Inulin (5% ,10% and 15%)

Analysis of bread

- Color measurement
- Moisture content
- Texture properties
- Sensory evaluation

Objective of the study

To develop bread product fortified with fiber and germinated brown rice for elderly.

Refferance

Glibowski, P. 2010. Effect of thermal and mechanical factors on rheological properties of high performance inulin gels and spreads. J. Food Eng. 99, 106–113.

Result & Discussion

To study the optimum ratio of whole wheat flour (WF) and germinated brown rice (GBRF) on qualities of bread product.

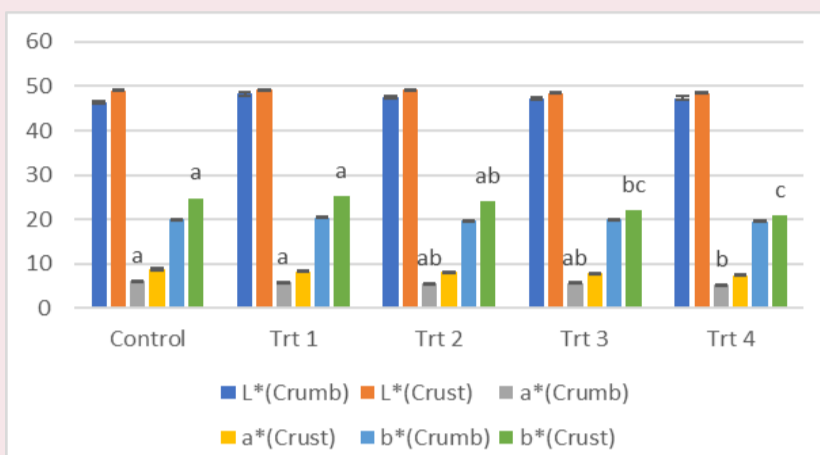


Fig.1. Color of bread product with difference ratio of mixed flour.

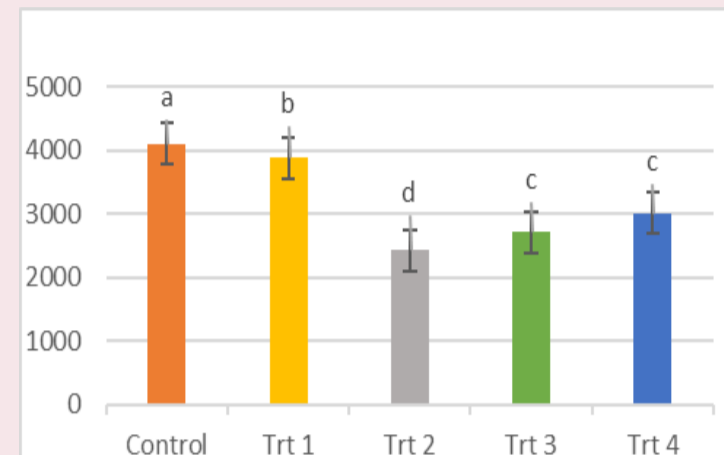


Fig.2. Hardness of bread product with difference ratio of mixed flour.

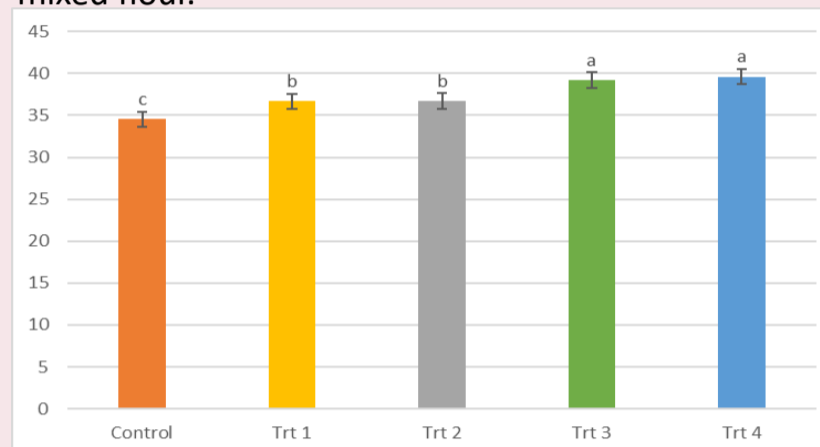


Fig.3. Moisture content of bread product with difference ratio of mixed flour.

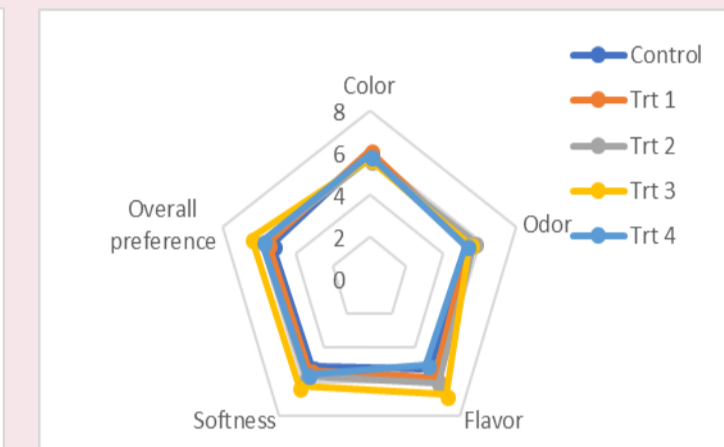


Fig.4. Sensory evaluation of bread product with difference ratio of mixed flour.

Control WF:GBRF (100:0)
Trt 1 WF:GMBR (90:10)
Trt 2 WF:GMBR (80:20)
Trt 3 WF:GMBR (70:30)
Trt 4 WF:GMBR (60:40)

The treatment 3 was most accepted in terms of overall liking compared with control sample.

To study the optimum amount of inulin.

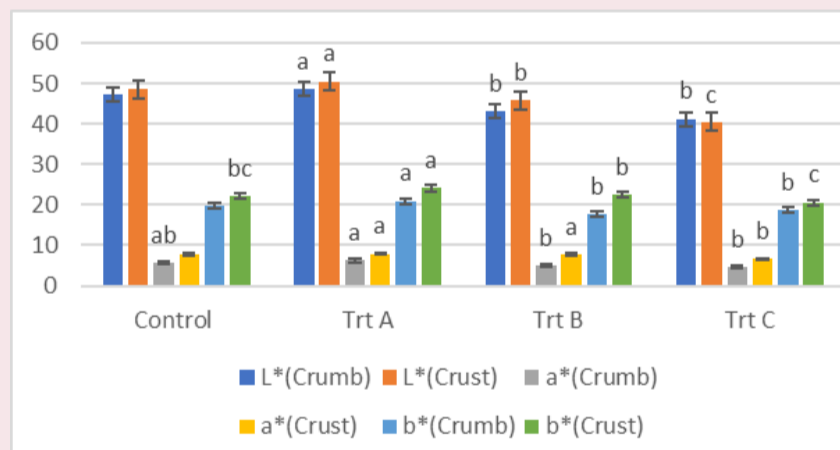


Fig.5. Color of bread product with difference amount of inulin.

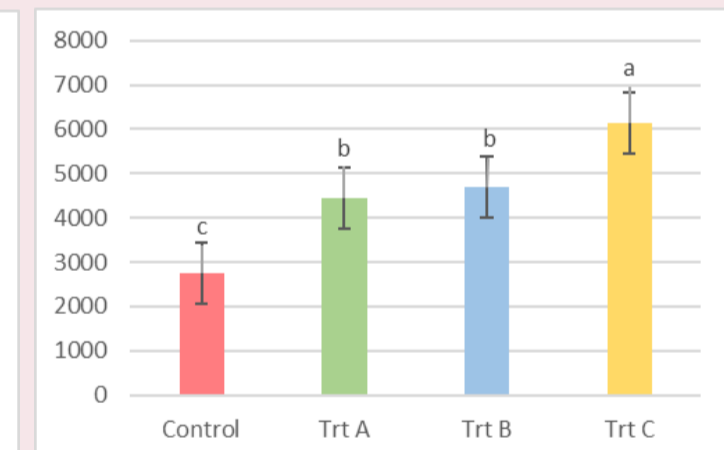


Fig.6. Hardness of bread product with difference amount of inulin.

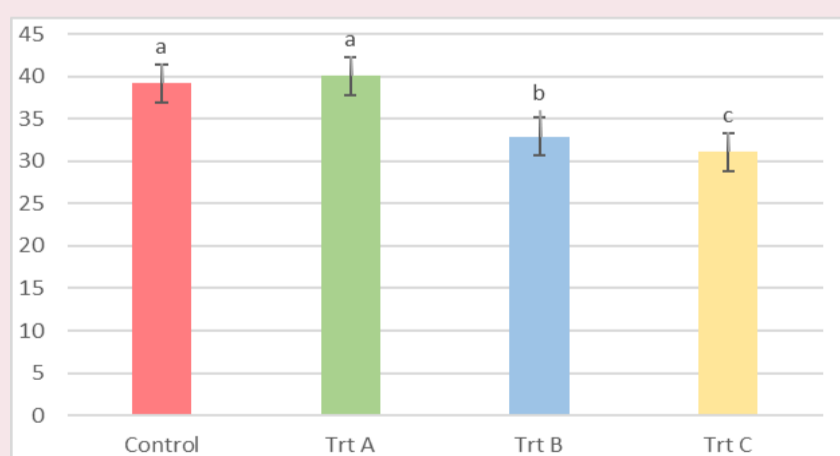


Fig.7. Moisture content of bread product with difference amount of inulin.

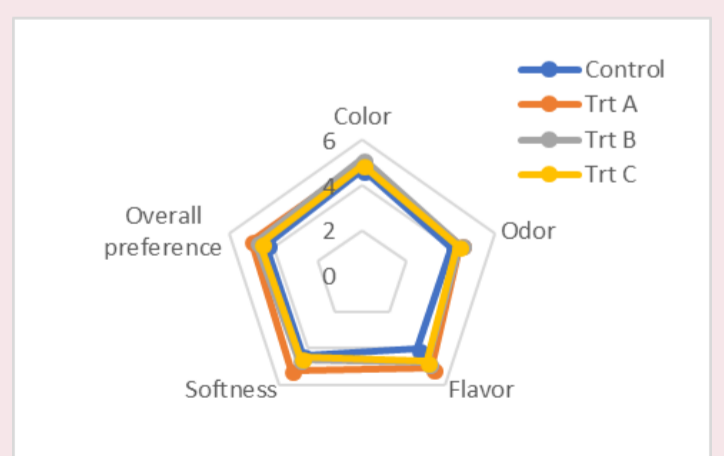


Fig.8. Sensory evaluation of bread product with difference amount of inulin.

Control without inulin
Trt A added inulin 5%
Trt B added inulin 10%
Trt C added inulin 15%

Conclusions

70:30 of mixed flour (whole wheat flour : germinated brown rice flour) and 5% inulin was obtained the highest score of all attributes from sensory evaluation.