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شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

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شبكة المعلومات الجامعية

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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بالرسالة صفحات لم ترد بالأصل

Utilization of Some Cereal Flours in Bread Making

By

Essam Abdel-Hafez Hussien
B. Sc., Nutrition and Food Science,
Faculty of Home Economics
Helwan University (1988)

Thesis
Submitted in Partial Fullfliment of the requirements for the degree of M. Sc. in Nutrition and Food Science
Faculty of Home Economics

Supervisors

Prof. Dr. Saad A. Hallabo
Professor of Food Science and Technology
Food Science & Technology Departmen
Faculty of Agriculture
Cairo University.

Prof. Dr. Laila A. El- Bedawy
Professor of Nutrition and Food Science
Nutrition and Food Science Department.
Faculty of Home Economics
Menoufia University

Dr. Shadia A. El-Shafie
Associate professor Hotel Studies Department.
Faculty of Tuorism & Hotels
Alexendria University

Menoufia University
(1995)

Approval Sheet

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Approved by

Prof. Dr. .....

Prof. Dr. .....

Prof. Dr. .....

Committee in Charge

Date 29 / 4 /1995

Menoufia University

(1995)

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1 : INTRODUCTION

The eight leading cereals produced in the world are wheat, rice, corn, sorghum, rye, barley, oats and millet. The chemical composition of cereal grains varies widely, depending on environment, soil, and variety (Shellenberger, 1978).

In Egypt, the production of wheat grains does not sufficient for bread industry. So, a great part of wheat is imported to cover the shortage of local production.

Rice grains are used in many food products , such as noodles or in sweetened form snaks, , desserts or roasted to be eaten as a breakfast cereal. Also , rice flour is used in refrigerated biscuit manufacture to prevent sticking , in baby foods as a thickener and in waffle and wafer mixes.(Deopaled et al.,1971).

The rice industry in Egypt is suffering from the presence of a law grade of rice (broken rice) in higher amounts (Kassem , 1994).So the utilization of such by products in bread making may be represent an economical and useful use.

A wheat and rice breads are offered as a substitute for common wheat bread , without diminishing the organoleptic qualities or the nutritional values expected in good wholes some bread. The figure of 30% rice flour replacing

wheat flour is experimentally well founded in the consequence of agro-eceonomical and nutrition considerations (Mosqueda- Suarez 1958).

The majority of corn grains is used for feed. Corn for human consumption is processed by wet and dry corn millers, and the products are used in a wide range of foods.

Barley can be cultivated in a wide range of soils and climates, that do not permit the survival of wheat (Kent - Jones and Amos 1967). Therefore , barley is locally successfully cultivated in the new reclamated landes and deserts causing an increase in the total barley yield.

In Egypt , wheat in the form of bread is the daily stable . The most popular wheat bread is a flat , circular and loaf composed of two layers namely balady bread made from wheat flour 82% extraction rate or shamy bread which made from wheat flour 72% extraction rate. Another type of bread is called fino bread and made also from wheat flour 72% extraction rate.

This study was designated to evaluate the possibility of utilization of broken rice, corn, and barley flours in Egyptian flat bread making. This would be important to many countries such as Egypt which suffer from lack wheat produced and imported large quantities of it or its flour.

2 : AIM OF INVESTIGATION

This study was carried out to study the following main points :

1- Complete chemical analysis of the raw materials under study, i.e. wheat flours (72% and 82% extraction) broken rice, corn and barley flours.

2- Effect of addition of broken rice, corn and barley flours to wheat flours on yeast activity.

3- Effect of addition of broken rice, corn and barley flours and flours mixture to wheat flours on rheoloigical properties.

4- Effect of addition of broken rice, corn and barley flours and flours mixture to wheat flours on the sensory characteristics of the flat bread (balady and shamy).

5- Effect of addition of broken rice, corn and barley flours and flours mixture to wheat flours on bread staling.

3 : REVIEW OF LITERATURE

3.1-Chemical composition of raw materials

3.1.1 Wheat flour :

Mahmoud (1971) studied the chemical composition of two varieties of wheat in Egypt (Giza 150 and Giza 155) with extraction rates of 72 % and 82 %. He found that wheat flour 72 % extraction obtained from Giza 150 wheat variety was found to contain 11.7 % moisture, 11.05 % protein, 0.32 % fiber, 1.07 % ash and 80.58 % total carbohydrates, while that obtained from Giza 155 wheat variety contained 11.33 % moisture, 11.79 % protein, 0.20 % fiber, 1.04 % ash and 80.34 % total carbohydrates. He also reported that Giza 150 wheat flour with extraction rate 82 % contained 11.28 % moisture, 11.20 % protein, 0.58 % fiber, 1.26 % ash and 79.63 % total carbohydrates, while that obtained from Giza 155 wheat variety with the same extraction contained 12.24 % moisture, 12.33 % protein, 0.38 % fiber, 1.28 % ash and 78.88 % total carbohydrates on dry weight basis.

Foda et al ., (1986) found that wheat flour (82% extraction) contained 12.42 % protein, 1.82 % fat, 1.40 % ash, 1.14 % fiber and 82.29 % total carbohydrates.

Hassan et al., (1991) found that wheat flour 72% extraction contained 13.23 % moisture, 11.82 % protein, 1.46 % fiber, 0.63 % ash and 72.87 % carbohydrate.

Mohamed (1992) studied the chemical composition of Egyptian wheat (Sakha 69) with high extraction rate (82 %) and found that it contained 85.87 % carbohydrates, 11.24 % protein, 1.19 % fat , 0.93 % fiber and 0.77 % ash.

El-badrawy, (1994) studied the chemical composition of wheat flour and found that flour 72 % extraction contained 84.35 % total carbohydrates, 13.11 % protein, 1.51 % lipids, 0.41% fibers, 0.62 % ash and 12.10 % moisture, while wheat flour 82 % extraction contained 84.15 % carbohydrates, 12.41 % protein, 1.15 % lipids, 1.34 % fiber, 0.95 % ash and 11.20 % moisture.

3.1.2 Rice flour :

Mosqueda-Suarez (1958) studied the contents of amino acid of rice and wheat flours. He found that rice flour protein contained 7.2 % argnine, 1.7 % histidine, 3.2 % lysine, 5.1 % tyrosine, 1.6 % tryptophane, 1.8 % isoleucine and 6. 2 % valine while wheat flour protein contained .3.9 % argnine, 2.2 % histidine, 1.9 % lysine, 3. 8 % tyrosine, 0.8 % tryptophane, 1.9 % cystine, 5.5 % phenyl alanine, 2.0 % methonine, 2.3% theronine, 4.7 % serine, 7. 0 % leucine, 1. 2 % isoleucine and 1.1 % valine.