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# Chemical, technological and biological studies on some food cereals.

## By

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# Abstract

The growing public awareness of nutrition and health care research substantiates the potential of phytochemicals such as polyphenols and dietary fiber on their health beneficial properties. Crackers have high nutritive and economic values as well as protective properties.

The chemical composition of wheat, maize, proso millet, quinoa and barley flour was estimated. The effect of these mixtures on their properties was also determined. Estimating total phenol, total flavonoid and antioxidant.

The obtained results showed that the samples of crackers containing wheat flour and substituted with proso millet and quinoa flour were higher in protein, crude fiber, ash, also raised content of nutrients for each of iron, zinc, calcium, potassium, phosphorus, as well as high content of vitamins, compared to control (100%wheat flour), while observed a little decrease in their values of available carbohydrates and calories compared to control.

On the other side, it was calculated the proportion of the recommended dietary allowance of children, adult men and females and the results showed that, for every 100 grams of substituted crackers contributes a high proportion of the daily needs of children and adults.

Then it was estimated sensory properties of produced crackers, the most of samples were organoleptically acceptable with very good degree.

This study was carried out to investigate the chemical, technological and biological effects of some cereals. On the other hand, feeding with crackers showed improve in relative organ weights (liver, heart, kidney, spleen, lungs and pancreas) and a significant increase in body weight gain, food intake and food efficiency ratio in all of diabetic and hypercholesterolemic rats. Serum blood glucose level was significantly decreased (after 2 weeks) in diabetic rats treated with crackers that produced from different flours .In conclusion, cereals subject of study could have therapeutic effect for diabetes and liver disease and considered as a new source of bioactive and functional food.

Keywords: cereals, diabetic rats, hypercholesterolemic rats, antioxidant activity.