

NEW TECHNIQUES TO IMPROVE NUTRITIONAL VALUES IN CEREAL BRAN

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INTRODUCTION: Cereals are the staple food in Iranian diets that provide most of the calories and proteins. Being a byproduct of the cereal milling process, bran is specially rich in dietary fiber and essential fatty acids and contains significant quantities of vitamins, minerals and phytic acid, which is an antinutrient that prevents bivalent metals such as iron, zinc, calcium, and manganese absorption. The nutritional benefits of fiber to diets have been investigated in many studies that indicated they reduce the risk of chronic diseases such as diabetes, cardiovascular diseases and certain cancers. The phytic acid breakdown in the stomach and small intestine of humans by intestinal phytase is very low. Therefore in this study new techniques are introduced improving of dietary fiber bioavailability and reducing in phytic acid.

MATERIALS AND METHODS: Using phytase enzyme, washing the bran to remove harmful components, pearling of wheat grains or using various heat treatments, hydrothermal processing and fermentation have been successfully used to decline phytic acid and improve the nutritional values. The bran extract is produced by enzymatic process.

RESULTS AND DISCUSSION: According to hydrothermal processing and fermentation, phytate content of wheat bran was reduced by 75 to 95%. Bran extract is intended for use as a food ingredient in baked goods, beverages, breakfast cereals, grain products and pastas.

Keywords: bran, cereal, dietary fiber, new techniques, phytic acid.

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