

THE OPTIMIZATION OF THE RATIO OF POTENTIALLY ANTI-CARCINOGENIC VEGETABLE FIBRES IN CEREALS, FLOURS AND FARINACEOUS PRODUCTS IN THE NORTH-EAST OF ROMANIA

Steluța RADU¹, Oana-Cristina VOINEA¹

e-mail: stelaradu2010@yahoo.com

Abstract

The increased contribution of vegetable fibres limits the indirect carcinogenic action of other nutrition principles. The research carried out in 17 world countries revealed that colon neoplasm is reversely proportionate to the use of cereals and their derivatives. The mechanisms via which the low use of vegetable fibres favours colon cancer are manifold: it decreases the speed of the intestinal transit, it increases the ratio of anaerobic microbial flora, it reduces the capacity to metabolise biliary acids. Therefore, the use of flours with high-degree of extraction, rich in insoluble fibres and containing less soluble fibres, facilitates consumer's digestion by producing an extended state of satiation; due to the reduction of the food intakes, the risk of obesity also decreases. Flours with a lower extraction degree and farinaceous products obtained from them negatively impact digestion by hydrating fibres, creating short-chain fatty acids in the colon, which ferment soluble fibres. This generates the low ratio of mineral salts and vitamins, the farinaceous products being food partially devitalised of valuable nutrients. The experiments carried out revealed the following results: the total vegetable fibres in wheat and wheat grits (for samples 1, 2, 3, 4, 5, 6) was between 10.6% and 44%, for rye and rye cake the values ranged from 11.5% to 11.73%, and for oat the value was 4.15%. For flours obtained from wheat, the total content of vegetable was: 3.25% for white wheat flour T650, 9.57% for whole-wheat flour. Regarding the types of white bread, the ratio of vegetable fibres was 2.51%, and, respectively, 8.47% for whole-wheat bread. The experiments conducted reveal that the sample 6, with grit granulation, has a high content of dietary fibres, namely 10.6%, of which non-cellulosic polysaccharides 6.27%, cellulose 3.48%, and lignin 0.85%, and that it can be used with good results in the technological process, having a hydration capacity of 84.46%. Therefore, by increasing the content of vegetable fibres from 3.25% in the white flour to 10.6% in the flour with dietary fibres obtained, we can optimise the quality of the farinaceous products with no added exogenous substances (food additives), and also improve the anti-carcinogenic potential of these farinaceous products. The research was conducted by using the resources of the processing company under the Research/consultancy agreement entitled "Research on the innovation of new farinaceous products rich in nutrients and recommended in the diets for preventing and fighting against certain metabolic disorders".

Key words: food safety, health, cereals, farinaceous products.