BOOK OF ABSTRACTS

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On behalf of the Secretariat of the 4th International Symposium for Agriculture and Food - ISAF 2022,

Ivana Janeska Stamenkovska
President of ISAF 2022 Secretariat

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PROTEIN QUALITY OF BREAD WHEAT

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Abstract

The storage proteins content and their composition have important role in determination of protein quality in bread wheat. The aim of this work is analysis of gluten content, loaf volume and their relationship with gliadin and high molecular weight glutenin subunits, and composition of amino-acids in bread wheat. In investigation included 10 wheat genotypes grown in two vegetation season (2015/16 and 2016/17) with different climatic conditions. In the first year, the genotype G-3634-2 had the lowest dry gluten content (21.20%) and loaf volume (380 ml), while genotype G-3622-1, had the highest dry gluten content (26.54%) and loaf volume (500 ml). In second year the lowest dry gluten content (23.44%) and the lowest loaf volume was in wheat G-3601-4 (400 ml), while in genotype G-3622-1, found the highest dry gluten content (29.86%) and loaf volume (540 ml). Wheat genotypes which possess glutenin subunits 2* encoded by Glu-A1b, 7+9 encoded by Glu-B1c, and 5+10 encoded by Glu-D1d. In analyzed wheat genotypes the differences of amino acid composition were determined. The contents of essential amino acids (EAA) in wheat grains was lower than content of non-essential (NEAA). The lowest content of the most important amino acids are lysine (Lys) and tryptophan (Trp) that limit the quality of protein in the grain was established. For improving baking quality and nutritional value are necessary select and wheat genotypes in terms of gluten protein composition, lysine content and higher gluten content.

Keywords: wheat, gluten protein, allele, quality