
Abstract

The objective of this study was to evaluate albumin profile, prosoleucine and amylolytic activity level and baking performance of wheat varieties grown in two production years with different climate conditions (2011 and 2012) in four locations. The results of ANOVA showed that variety, location, production year and their interactions all had significant effects on all tested wheat quality parameters. The enzymatic activity and specific bread volume were mainly influenced by the variety. The samples from 2011 production year had the lower values of albumin content, prosoleucine and amylolytic activity, and bread specific volume. The correlation analysis performed for 2011 production year showed that albumin fraction (11–20 kDa) and prosoleucine activity were negatively correlated with bread specific volume indicating the role of this fraction on lowering the crustal bread quality parameter. In 2012 production year, albumin fractions (>20 kDa, 16–20 kDa) showed the most correlations, especially with parameters of bread quality.

Results

The appropriate techniques were used to determine the content of albumin, prosoleucine activity, and baking performance of the wheat varieties. The results showed that the albumin content, prosoleucine activity, and bread specific volume were significantly affected by the variety, location, and production year. The correlation analysis showed that the albumin fraction (11–20 kDa) and prosoleucine activity were negatively correlated with bread specific volume, indicating the role of this fraction on lowering the crustal bread quality parameter. In 2012 production year, albumin fractions (>20 kDa, 16–20 kDa) showed the most correlations, especially with parameters of bread quality.