Variability of agronomic and quality traits of winter wheat (*Triticum aestivum* L.) genotypes in Macedonia

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Abstract

The main objective of this research work was to estimate the variability of five wheat cultivars, namely Radika, Milenka and Orovčanka (Macedonia), Pobeda and Novosadska Rana 5 (Serbia), which are most grown cultivars in the last years in Macedonia. The following parameters were analysed: yield, 1000 grain mass, hectolitre weight, protein content, SDS-sedimentation test, wet gluten, and Hagberg falling-number. The experiment was located in the production region Pollog (Tetovo), a randomised complete-block design was used, with three replications. Sowing density was 600 kernel/m². The results were statistically processed with SPSS 15. Regarding agronomic parameters, Pobeda (7410 kg/ha), NSR 5 (7250 kg/ha), and Orovčanka (7220 kg/ha) demonstrated the best performance for yield; for 1000 grain mass the best values were indicated by the cultivars NSR 5 (44.9 g) and Pobeda (44.6 g), whereas for hectolitre weight Orovčanka had the significant lowest value (75.3 kg) compared to the other cultivars Radika (78.6 kg), NSR 5 (78.8 g), Pobeda (78.9 kg) and Milenka (79.5 kg). For protein content no significant differences were registered, but the overall average protein content was very high (14.76 %). For zeleny-sedimentation test the best performance was achieved by the cultivar Milenka (37 ml), followed by Radika (32.6 ml) and Pobeda (31.6 ml). Further, for wet gluten the best values indicated the cultivars Radika (31.7%), Milenka (28.9%) and Orovčanka (27.2%). The values of Hagberg falling-number were very high by all cultivars with Radika (566 sec) having the highest and Orovčanka (463 sec) the lowest value. It can be concluded that in Macedonian growing condition, cultivars from Serbia have achieved the best agronomic traits, especially cultivar Pobeda. Domestic cultivars had best performance in quality traits but not in agronomic traits, with the exception of the cultivar Milenka, which had an average performance in agronomic traits. The results of Hagberg falling number indicated that the activity of enzyme α-amylase is very low and to ensure high bread making quality the extracted flour from these cultivars must be treated with malt.

Key words: Macedonia, wheat, adaption, agronomic and quality traits