Examination of root characteristics of wheat-barely derivates

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Abstract

Hybridization between related species makes it possible to transfer useful traits, such as stress - drought - tolerance, earliness, or various desirable traits from one species into another. Addition, substitution and translocation lines developed from wheat-barley (<i>Triticum aestivum</i> L. x <i>Hordeum vulgare</i> L.) hybrids at Agricultural Research Institute of the HAS in Martonvásár were investigated to determine how the added barley chromosomes (segments) influence agronomy traits in wheat. Since the first successful hybridization between wheat and barley (Kruse, 1973) only a few wheat-barley translocation and substitution lines have been developed and were investigated regarding cytogenetic characteristics and fertility. Even less information is available on the ability of barley chromosomes to compensate for wheat chromosomes regarding agronomically important characteristics and there is no information available on the behaviour of wheat-barley derivates grown on the field. The experiments were carried out at UP Georgikon Faculty, Keszthely. At first we checked the seeds germinating power and germinating percent and the early development of shoots and roots. The field experiment was carried during 2007-2008. Sowing and harvest was made by hand. Data were obtained for anthesis- and maturity date, colour of leaf, morphology of ear, plant height, root-shoot ratio and components of grain yield. Wheat-barley addition, substitution and translocation lines showed a scale of variation in all examined traits. That is introgression lines originating from wheat-barley derivates can broaden the genetic bases of the wheat breeding programs with valuable traits.

Key words: wheat-barley hybrids, root-shoot ratio, grain yield

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