

Genotype and Environment effects on Tocopherol and Plastochromanol-8 Content of Winter Oilseed Rape Doubled Haploids

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The use of double haploids (DH) lines derived from F1 plants represents a large scale of possible genetic features of parental lines and are an ideal material for selection. Many authors present results of genotype x environment interactions of tocopherols, fatty acids, phytoosterols or sinapate ester content in *Brassica napus*. However, there are no reports concerning the population of doubled haploid seeds obtained by crossing yellow and black seeds. There is also the lack of data concerning PC-8 content in rapeseed. Therefore such studies were undertaken to analyze the impact of genotype x environment effects in a population of DH lines derived from crossed between black- and yellow-seeds.

The object of this study was the population of doubled haploid lines (DH) of winter rapeseed (*Brassica napus* L.). Biological material consisted of 25 different DH lines, two parental lines and Monolit cultivar. Field experiments were carried out during three seasons (2008/2009; 2009/2010 and 2010/2011). Tocopherols and plastochromanol-8 (PC-8) were qualitatively and quantitatively identified using HPLC.

The average content of tocopherols in sampled population was 22.61 mg/100g for α -T, 0.20 mg/100g for β -T, 23.54 mg/100g for γ -T and 0.53 mg/100g for δ -T. The average total tocopherol content is 46.88 mg/100g and ratio α -T/ γ -T is equal to 0.99. The sampled population of DH lines was characterized by mean value of PC-8 at the level of 6.88 mg/100g. Testing the main effects for individual genotypes 5 DH lines are found to be satisfactory (ZH-29, ZH-41, ZH-76, ZH-81, Z-114) concerning α -T content. Three of them are stable (ZH-29, ZH-76, ZH-81). Taking into account the content of γ -T, two lines were found to be satisfactory ZH-18 and ZH-46, and one of them stable - ZH-18. Analyzing the content of PC-8, parental line Z-114 and Monolit cultivar are satisfactory and only Z-114 is stable.