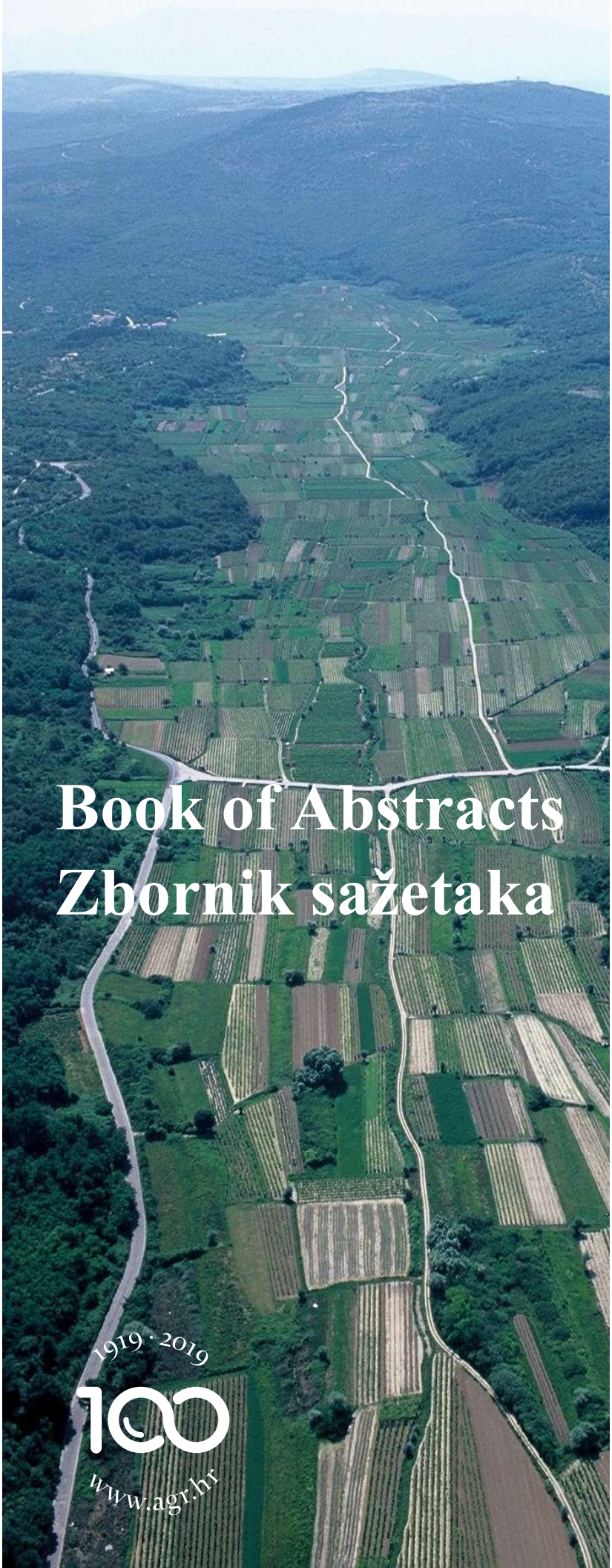

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Proportion of the medium large round seed fraction of maize inbred lines in dependence on the cytoplasm type

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Abstract

The aim of the present study was to determine the proportion of the medium large round seed fraction of the maize inbred lines depending on the cytoplasm type. The studies encompassed 12 inbred lines with different types of cytoplasm (*cms*-C, *cms*-S and fertile) that were tested in two locations (Selection Field and Školsko dobro) during 2015 and 2016. The three-replicate trials were set up according to randomised complete-block design within each type of cytoplasm. The analysis of variance indicated that the cytoplasm type was a decisive factor in the expression of the seed fraction - medium large round (MLR).. The highest, i.e. lowest value of this trait, on average, was recorded in the inbred line L_1 (47.9%), i.e. L_7 (1.4%), respectively. The average percent of the MLR seed fraction significantly varied (P≤5%) in respect of the observed cytoplasm type. The highest and the lowest values of this trait were established in sterile cytoplasm *cms*-C (13.8%), and fertile cytoplasm (12.8%), respectively. The medium values of the MLR seed fraction very significantly (P≤1%) varied in dependence on the year and location of investigation. The greater proportion of the MLR seed fraction was determined in maize inbred in 2015 (19.4%) than in 2016 (7.5%), as well as in the location of Selection Field (14.4%) than in Školsko dobro (12.5%). The analysis of obtained results point out to a significant effect of the cytoplasm type on the medium large round seed fraction.

Key words: cytoplasmic male sterility, inbred lines, seed fraction