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CONNECTING TOTAL PHENOLIC COMPOUNDS AND AGRONOMIC TRAITS IN A DARK RED CORN POPULATION

Goran Bekavac*, Božana Purar, Biljana Kiprovski, Miroslav Zorić, Ivica Đalović, Bojan Mitrović, Maja Šumaruna

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Dark red corn is rich in anthocyanins, which belong to phenolic compounds, one of the largest families of antioxidants. Due to numerous, beneficial biological activities of these compounds, this crop is rising in popularity. Unfortunately, the use of dark red corn in the temperate zone is limited, so the breeding activities in this sense are negligible. To maximize profitability and meet technological and growing demands, both biochemical and agronomic performances of such materials have to be considered. A preliminary study was conducted to test the variability of total phenolic compounds and some agronomic traits in NS01RB, a broad based population of dark red corn. 352 full sibs were tested in an incomplete block design with replicates in sets. Data were collected for grain yield, grain moisture, ASI, stay green, stalk lodging, ear rotting and grain color. Significant genetic variability existed among full sibs for all studied traits. A subset of 132 full sibs that showed the highest level of tolerance to ear rotting was selected for biochemical analysis. Mean values for the total phenolic compound ranged from 0.66 to 4.83 mg/g. Basic genetic parameters, relationships and mean values of the examined traits showed that the studied material represents a valuable source of phenolic compounds and could be used in a breeding program.

Keyword: *breeding, antioxidants, dark red corn, phenolics*