LARGE VARIATION OF PHENOLIC COMPOUNDS AND ANTIOXIDANT ACTIVITY IN SORGHUM GERMOPLASM

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The levels of bioactive compounds in sorghum vary depending on the genotypes. All sorghum cultivars contain phenolic acids, which may be in the free or bounded form. The objective of this work was to screen the active germoplasm bank belonging to the Embrapa Milho e Sorgo, Sete Lagoas-MG regarding to the total phenolic content and total antioxidant activity. The sorghum samples were collected at Nova Porteirinha-MG and sent by airplane under refrigeration, to Embrapa Clima Temperado, Pelotas-RS where it was analyzed in the Laboratory of Food Science and Technology. Total phenolic compounds and antioxidant activity was determined. According to the results, there is great variation in the total phenolic content and antioxidant activity among the studied genotypes. The highest value found was 5342.5 mg of chlorogenic acid equivalent/100g sample and, the lowest was 8.45 mg of chlorogenic acid equivalent/100g sample. The highest antioxidant activity found was 65453.8 µg of trolox equivalent/g sample and the lowest was 211.3 µg of trolox equivalent/g sample. The correlation between total phenolic content and antioxidant activity was low R=0.4187. In conclusion, the sorghum active germoplasm bank shows great variation in the total phenolic compounds and antioxidant activity. This large genetic variability makes it interesting from the standpoint of breeding program since cultivars can be selected for specific health claims and can also be used to print features of interest into varieties of good agronomic performance.