

Comparative Analysis of Phenolic Compound of Mutant Lines of Sorghum (*Sorghum bicolor*)

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Sorghum (*Sorghum bicolor*) is increasingly important as a biomass crop worldwide. Its genetic diversity provides a large range of biochemical composition suitable for various uses as bioplastics. Phenolic compounds are the main compounds of lignocellulosic residues, which can be used as a source of active components for their use in active packaging materials. In this research, we investigated the total phenolic content (TPC) and the total flavonoid content (TFC) among 60 mutant lines (early heading, high biomass and dwarfness) and their original cultivars. Sixty sorghum mutant lines were developed by treatment with gamma-ray or proton irradiation in 14 sorghum cultivars. The levels of TPC and TFC of 14 original cultivars were ranging from 3.27 to 11.54 mg/100 g and 2.39 to 6.74 mg/100 g, respectively. The TPCs of the mutant lines were ranging from 1.92 to 13.10 mg/100 g with average content of 6.35 mg/100 g. The TFCs of the mutant lines were ranging from 1.72 to 8.30 mg/100 g with average content of 4.20 mg/100 g. Three mutant lines derived from gamma-ray showed significant lower TPC and TFC than those of the original cultivar. While, five mutant lines showed significant higher TPC and TFC. These findings will be useful for the selection of sorghum genotypes with improved phenolic compounds.

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