

BIOCHEMICAL CHARACTERISTICS OF TOMATO LANDRACES FROM GENE BANK OF REPUBLIC OF SRPSKA

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Abstract

Erosion of crops genetic resources is happening due to replacement of traditional landraces with high genetic diversity by modern commercial varieties with high genetic uniformity. Due to good resistance to climatic conditions and on the basis of previous pomological and sensory analyses, it is assumed that the tomato landraces have good quality of fruit and better taste compared to modern commercial varieties. Tomato landraces are characterized by high content of vitamins and minerals and other antioxidants. The aim of this research was to determine differences in biochemical characteristics between different tomato landraces from Gene Bank of Republic of Srpska.

The 2-year research (2018 and 2019) was conducted on 10 tomato landraces from the Gene Bank of Republic of Srpska: GB00874, GB01107, GB01110, GB01123, GB01126, GB01128, GB01129, GB01132, GB01238 and GB01239. Analyzed biochemical characteristics were: total soluble solids content (by the digital refractometer), lycopene (spectrophotometrically), total phenolic (Folin-Ciocalteu - FC colorimetric method) and total flavonoids (colorimetric method with aluminum chloride).

Total soluble solids ranged from 4.4 °Brix (GB01238) to 7.8 °Brix (GB01129) in 2018 and from 5.2°Brix (GB01123) to 7.8 °Brix (GB01110) in 2019. Lycopene content in yellow fruit color landraces ranged from 0.26 mg/kg (GB01238) to 1.06 mg/kg (GB01132) in 2018 and from 0.51 mg/kg (GB01238) to 0.74 mg/kg (GB01132) in 2019. Lycopene content in red fruit color landraces ranged from 24.9 mg/kg (GB01239) to 148.3 mg/kg (GB01110) in 2018 and from 28.3 mg/kg (GB01123) to 174.7 mg/kg (GB00874) in 2019. Considering the content of phenols, the highest amount was measured in the landrace GB01128 which had and the highest flavonoid content.

This is the first insight in nutritional biochemistry of tomato landraces from Gene Bank of Republic of Srpska. Tomato landraces show high diversity in all analyzed biochemical characteristics, which suggest they possess high genetic diversity, good fruit quality and good base for further nutrition research on this landraces.

Key words: *Tomato accessions, Biochemistry, Diversity, Ex situ, Fruit quality.*