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Physiochemical assessment of released tomato (*Solanum lycopersicum* L) varieties to Sudanese environment

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Abstract

This study aimed to perform comparative evaluation for physical, chemical, nutritional and sensory parameters with three released tomato (Lycopersicon esculentum) varieties for Sudan climate; Castle Rock, Dar-mali and Zahrat Elneel. There was some variation observed in chemical and physical characteristics between the three varieties. The three varieties were medium-size to small, round to ellipsoid, red to orange-red in colour. In terms of chemical composition, the dry matter was 6.0, 5.7 and 5.0%, total soluble solids was 5.1, 5.1 and 4.5%, ash was 5.48, 5.8 and 7.78%, fiber was 9.72, 6.43 and 14.66%, total sugars were 20.94, 20.0 and 20.3%, titratable acidity was 0.26, 0.2 and 0.3% for Dar-mali, Castle Rock and Zahrat Elneel, respectively. The level of lycopene and β-carotene were assessed in the three varieties in the levels of 12.877-15.63 and 7.92-8.87 mg/100g, respectively. The mineral composition of tested varieties was obtained and compared to their RDA. The most abundant mineral was K (299-416 mg/100g) which was more than its RDA. Appropriate amounts of Na and Mg were found. However, varieties were low in Ca. Among micro-elements, appropriate amounts of Mn, Cu, Fe and Zn were also detected. Fruits were organoleptically assessed. The three tested fruits gained high level of overall acceptability (91.1-92.71%).

Keywords: *Tomato, Released varieties, Physiochemical, Sensory evaluation*