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## Effect of Location on the Chemical Composition of Organically Cultivated Tomato (*Lycopersicon esculentum* Mill.) in Sudan

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### Abstract

Nowadays, safety issues and environmental concern have gained great consideration to organically-grown products for their expected health benefits. Tomato is one of the most popular and widely consumed horticultural crops grown in Sudan, having potentially nutritional compounds such as vitamins and minerals beside antioxidant components. The current investigation was established to evaluate the tomato fruit chemical composition such as dry matter, sugar concentration, total organic acids contents, as well as antioxidant capacity, lycopene, and ascorbic acid contents of organically-cultivated tomato fruits. The effect of an environment was studied for the tomato genotype Baladia, which was grown organically in 2007 at the following different locations in Sudan: Khartoum, Khartoum Bahri and Elobeid. The results from this study have shown significant variations among the locations with regard to the investigated quality parameters. Antioxidant capacity as an important quality criterion and lycopene content as the main contributor to the antioxidant capacity, were at the highest levels in tomato fruits from Khartoum Bahri. Dry matter, sugar and total organic acids contents were high in tomato fruits from Khartoum. These results might indicate a better taste of tomato fruits from this location. Fructose represented more than 50 % of detected total sugar concentration; citric and succinic acids were the dominant organic acids found in the tomato fruits from the different locations. On the other hand, ascorbic acid was at the highest level in tomato fruits from Elobeid. It could be concluded that the locations exerted the major influence on the chemical composition of the tomato fruits.

**Keywords:** Antioxidant capacity, lycopene, organic cultivation, organic acids, sugar