

Evaluation of Physicochemical Properties of Tomato varieties Grown in Uva Region, Sri Lanka and their Suitability for Value Addition

HAGN Madhushani*, MPM Arachchige, NE Wedamulla, WAJP Wijesinghe and PW Jeewanthi
Department of Export Agriculture, Uva Wellassa University, Sri Lanka
*nilushikahettiarachchi@gmail.com

Value addition is a viable solution to manage surplus and postharvest losses. Suitability of tomato varieties is one of the critical problems in value addition. Physicochemical properties are important indicators which are used to detect suitability of a tomato variety for value addition. Aim of the study was to evaluate physicochemical properties of new eight tomato varieties for their suitability for value addition. Furthermore, physicochemical properties of heat treated (90°C for 5 minutes) tomato pulps were evaluated during 10 weeks of storage period under refrigerated condition (4°C). Tomato varieties named as T₁, T₂, T₃, T₄, T₅, T₆, T₇ and T₈ were obtained with the assistance of Provincial Department of Agriculture, Uva Province. Data were analyzed using ANOVA test by Minitab 17 software. Complete Randomized Design (CRD) was used as experimental design. Important physicochemical properties for value addition such as total soluble solid (TSS) content, pH value, lycopene content and pulp color (δE value based on L*, a*, b* in Hunter colour scale) were determined. The antioxidant activity was determined by using 2,2-Diphenyl-1-picrylhydrazyl (DPPH) radical scavenging activity. The variety T₇ showed the highest TSS content (4.60 ± 0.1 Brix). The T₁ variety showed the highest antioxidant activity (75.21 ± 1.15 inhibition%) and the highest lycopene content (175.84 ± 0.34 mg kg⁻¹) in the fresh pulp. The highest pH value (4.61 ± 0.01) was found in T₇ variety. Moreover, the highest δE value was observed in T₂ variety (18.7 ± 1.11). After the heat treatment, values of physicochemical properties were increased. In all the samples lycopene content, antioxidant activity and TSS content were decreased and pH values were slightly increased during storage time ($P < 0.05$). T₁ variety was selected as most suitable tomato variety for value addition with considering desirable physicochemical characteristics.

Keywords: *Antioxidant Activity, Lycopene Content, Physicochemical Properties, Tomato Varieties, Value Addition*