

Evaluation of the effect of ripening on the sensory quality and properties of tamarillo (*Cyphomandra betaceae*) fruits

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Abstract

Tamarillo (*Cyphomandra betaceae*) fruits were sourced from a single farmer from the Central province of Kenya soon after harvesting. The fruits were then cleaned and sorted in order to remove all immature and damaged fruits. The resulting fruits were by visual inspection divided into eleven groups or ripeness scales depending on the degree of ripening and then subjected to a sensory evaluation for taste and colour using an untrained panel of 10 people. Objective measurements of firmness, colour, juice yield, pH and total soluble solids were also done for all the eleven ripeness groups.

The sensory score for both taste and colour increased with the degree of ripeness to reach a maximum at the ripeness scale of between 7 and 9, respectively, and thereafter decreased with further ripening. There was a remarkable change in the fruit pulp colour with L^* and b^* decreasing with increase in ripeness from 64.6 to 36.1 and 40.8 to 13.2, respectively, while a^* values increased from -4.3 to 8.5. Changes in fruit surface colour were well pronounced and decreased from 46.3 to 22.1 and 28.3 to 4.9 for L^* and b^* , respectively, while a^* increased from -4.9 to 28.3. There was progressive increase in juice yield (10.6–26.0%), total soluble solids (9.4–10.9) and pH (3.35–3.85) with increase in degree of ripeness. However, the firmness decreased from 115.5 to 71.6 N with increase in degree of ripeness. There was a linear relationship between the colour lightness coordinates for peel and pulp with an R^2 value of 0.989 indicating that fruit surface L^* values are good indicators of internal quality.

Keywords

Tamarillo fruits; Ripening; Sensory quality; Objective measurement; Fruit properties