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Relation between fruit density and β -carotene content in ripe mango

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β -carotene content is one of the main factors that determines the nutritional quality and orange color of ripe mango fruit. It is known as the pro vitamin A, and it is generally the predominant carotenoid in ripe mango. Currently, fresh fruit sector demands a reliable non-destructive indicator to better predict the nutritional quality of ripe mango, and especially in terms of β -carotene content. Fruit density has been applied in horticulture sector to predict dry matter or maturation stage of mango. It would interesting to know if it can be a relevant non-destructive indicator of the carotenoid content in fruits. Therefore, the aim of this study was to identify the relationship between mango density and β -carotene content at the ripe stage. Mangoes (cv. 'Kent'), from Ivory Coast, Peru, and Brazil were selected from a mango importer in France at a green mature stage (day 0). Then, all mangoes were ripened at 18 °C and 80% of relative humidity. Color of ripe mango pulp and β -carotene contents were assessed 11 and 15 days after (day 0) corresponding to a ripe stage of consumption. Fruit density was significantly correlated to the pulp color and β -carotene contents of ripe mangoes, whatever the origin (p-value < 0.05). Mango fruits with a high density were characterized by high value of Chroma, lower value of Hue angle, and high contents in β -carotene. β -carotene content was found in range of [92-307 $\mu\text{g}\cdot 100\text{g}\cdot \text{FM}^{-1}$] for low density mango, and in range of [365-924 $\mu\text{g}\cdot 100\text{g}\cdot \text{FM}^{-1}$] for high density mango. So, fruit density, measured at the green-mature stage, could be a reliable indicator to predict the nutritional quality of mango fruit at the ripening stage, which is extremely useful for fresh fruit sector for grading or sorting mango fruit early in the supply chain.