Non-destructive technique for determining mango maturity

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Abstract

Mango (*Mangifera indica* L.) is an important tropical fruit that has great potential in international markets. Currently, major markets for mango include North America, Europe, and Japan. The acceptance of exported mango in destination countries depends largely on eating quality, which is affected by maturity at harvest. Mango maturity can be judged visually, based on skin color, or determined chemically based on soluble solids content, acid content, and solids:acid ratio. Maturity deter¬mination based on visual observation is unreliable and prone to errors. On the other hand, determination based on sugar or soluble solids to acid ratio is destructive. Therefore, it is important to develop a simple, reliable and non-destructive technique for mango maturity determination. In this study, a reliable and non-destructive technique has been developed and tested. This technique uses a digital camera to capture an image of the mango skin. Images obtained were analyzed using an image processing software (Adobe Photoshop) to obtain color parameters (*L, a, b* values). Each of the color parameters was plotted against soluble solids content, total acid content, and solids:acid ratio and curve fitting was then applied to obtain polynomial equations. Results indicate that the color parameters can adequately predict the above maturity indices and, therefore, can be used to predict maturity of mango.