

Use of a soft X-ray imaging system for on-line detection of spongy tissue in 'Alphonso' mango fruit

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Abstract

A collaborative research project was conducted during the 2007-08 and 2008-09 mango season with an objective to develop a non-destructive method to identify and sort spongy tissue affected 'Alphonso' mango fruits using a soft X-ray imaging system, designed and developed by CEERI, Chennai, in collaboration with Dr. B.S. Konkan Krishi Vidyapeeth, Dapoli. A batch of 'Alphonso' mango fruits having different ripening stages as a treatments viz., T_1 – 2 days after harvest, T_2 – 3 days after harvest, T_3 – 4 days after harvest, T_4 – 5 days after harvest were exposed repeatedly to the X-ray imaging machine, calibrated by computing different algorithms, using base line data regarding physico-chemical properties of spongy tissue and healthy pulp of 'Alphonso' mango fruit. The machine could best detect and sort spongy tissue affected fruits from treatment (T_3), followed by T_4 and T_2 , but was less successful for T_1 . The machine could also detect fruit with air pockets.