Production of minimally processed fruit chunks of mango, pineapple and papaya

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A method was developed to produce minimally processed fruit chunks of mango (var. *Willard*), pineapple (var. *Kew*) and papaya (var. *Rathna*). Freshness of the fruit chunks prepared at low temperature condition (10 ^{0}C) remained better than those prepared with heat treatment or with osmotic agent (sucrose, 70 %) to reduce water activity. Fruit chunks with initial fruit firmness of 0.5±0.05 kg/cm^2 (papaya), 1.35±0.05 kg/cm^2 (pineapple) and 2.0±0.1 kg/cm^2 (mango) were treated with citric acid, ascorbic acid and dipping in calcium chloride at <10 ^{0}C for 2 minutes. Dipping in distilled water was the control. The storage study of the fruit chunks was conducted with Low Density Polyethylene (LDPE), Polyvinyldene Chloride (PVC), Polyethylene Tetrapthalate (PET)/ LDPE laminate pouches, Polystyrene trays sealed with Polypropylene film. A perforated package was used as the control. Products were treated, packaged and stored at 6 – 8 ^{0}C and 90 % RH. The sensory evaluation revealed that the most effective inhibitory action on browning was given by combine treatment of citric acid (1000 ppm) and ascorbic acid (200 ppm). PVC clear package was found to be the most suitable packaging material for minimally processed fruit chunks. Storage studies were done for microbiological tests, ascorbic acid content, pH change, total soluble solids (TSS), firmness and sensory quality. Total plate counts (<10^4 cfu/g), yeast and mold counts (<10 cfu/g) were within the limits. pH value, of pineapple, mango and papaya after the treatments were 3.58, 3.81 and 4.45 respectively. TSS was not reduced from initial value of 12. Firmness after 14 days was 1.2 kg/cm^2 (pineapple), 1.75 kg/cm^2 (mango) and 0.3 kg/cm^2 (papaya). The sensory parameters, appearance, colour, texture, flavour, odour and overall acceptability of the minimally processed refrigerated fruit chunks, were not significantly different ($p<0.05$) from freshly cut fruit chunks, after 7 and 14 days of storage.

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