



RESEARCH PAPER

Development of evaporative cooling mobile vending cart for vegetables

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Abstract : Post-harvest losses of fruits and vegetables are impacted by lack of adequate low-temperature storage and transportation facilities. The present traditional vending system of handling fruits and vegetables by street vendors causes loss of weight due to lack of cooling system. Solar powered evaporative cooling vending cart operating at reduced temperature was developed and evaluated for its performance loading vegetables namely spinach, fenugreek, brinjal, tomato, cucumber and chilly in the month of February, April and September. The mean drop in temperature was observed $10.21\pm 0.41^{\circ}\text{C}$, $8.97\pm 0.46^{\circ}\text{C}$ and $3.37\pm 1.21^{\circ}\text{C}$, whereas mean per cent-increase in relative humidity was $216.54\pm 46.77\%$, $184.59\pm 12.63\%$ and $130.20\pm 5\%$ observed inside the storage chamber during the month of February, April and September, respectively. Per cent saving in physiological loss in weight (PLW) was highest (62.5%) in spinach, followed by tomato (57.27%), brinjal (53.62%), cucumber (51.97%), chilly (31.69%) and fenugreek (30.30%) as compared to ambient (control). Saving in weight was more than 0.14kg.kg^{-1} of vegetables over control.

Key Words : Two-stage evaporative cooling, Solar-powered mobile vending cart, Fruits, Vegetables, Temperature, Relative humidity, Physical loss in weight

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