

Title Effect of storage time and relative humidity on transport-ability of sweet tamarind

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Abstract

During transportation tamarind pod, like other fruits, receives impact, compression, and vibration force. These factors cause damage to the shell of the pod and further result in unacceptable quality. The tamarind shell that can withstand the force better will have a better transport-ability and depend less on protection from packaging. The objective of this research is to evaluate the effect of storage time and relative humidity on transport-ability of the sweet tamarind. The freshly harvested tamarind pods were stored for 8 weeks at $25\pm 2^{\circ}\text{C}$ and 30, 50, 75 and 90% RH. The fruit stored at 30 and 50% RH remained mold-free after 8 week storage while mold were observed at week 8 for tamarind storage at 75% RH and at week 6 for tamarind stored at 90% RH. The mold-free fruits were subjected to impact force by dropping from various heights until shell breaks. As the storage time increases the average height that causes shell damage increased for all relative humidity. The fruits were also tested for compression resistance by subjecting the pod to compression force until the shell breaks. The compression resistance of the fruits was similar for fruits stored at RH below 75% but was higher for those stored at 90% RH. The resistance to vibration was evaluated by subjecting tamarind to vibration at 4 Hz for 1 hour and counting the number of pod with shell damage. There were more damaged pods when they were stored longer. The damage level was greater when stored at 30% RH. Storage at low relative humidity tends to reduce transport-ability of the tamarind therefore the pods stored at low relative humidity will have higher.