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**IMPACT OF CONTROLLED ATMOSPHERE ON THE STABILITY OF  
DHAKKI DATES**

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**ABSTRACT**

The investigation is realized to identify the impact of inert atmosphere on the storage stability of Dhakki dates at the elevated temperature of 40°C. The dates equilibrated at 0.52, 0.58 or 0.75  $a_w$  were packed into tin containers and flushed with either nitrogen or oxygen prior to storage for 4 months. The samples were also packed under air to compare the effectiveness of the treatments. The dates were removed from the storage after one month regular interval and subjected to examination for non-enzymic browning (NEB), pH, and titratable acidity. Irrespective of the storage environments the NEB and titratable acidity remained on the increase throughout the period, whereas pH exhibited a gradual decline simultaneously. The samples which sustained higher increases in NEB had overall greater pH drop and higher acidity index. However, the rate of quality change appeared a function of storage atmosphere and water activity, and exercised mutual dependence. The quality deterioration in samples stored under oxygen at highest water activity eventuated at a most rapid rate, whereas the changes were minimal in respective samples stored under the nitrogen with low water activity of 0.52  $a_w$ . The averaged rate of quality degradation in terms of darkening, pH and titratable acidity was found respectively about 2.24, 2.79 and 2.65 times rapid under oxygen compared to under nitrogen. Whereas the results for samples stored under air can be approximated as in-between nitrogen and oxygen. On termination of the storage the samples under oxygen appeared dusty brown, while those under nitrogen looked normal. Keeping samples under nitrogen atmosphere visualized much elevated storage stability, and the effectiveness further increased by storing the samples at a reduced water activity level. In order to guard quality and extend shelf stability oxygen free atmosphere is advocated for storage of Dhakki dates at the elevated temperatures.