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Behavior of physical and organoleptic properties of selected green vegetables in two different temperatures and relative humidity conditions

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The freshly harvested vegetables tend to deteriorate rapidly due to rapid evapotranspiration and rate of respiration unless proper storage conditions are practiced. Thus, the objective of this study is to identify the importance of the temperature and relative humidity (RH) of the storage condition for the variation of physical and organoleptic properties of *Capsicum annum* (green Chili) and *Phaseolus vulgaris* (Green Bean). The selected green vegetables were stored at two storage conditions (In-house; 30.0±0.6^{0}C & RH;78.8±3.6% and Cold-humidified; 3^{0}C lower than the in-house condition & RH; ≈95%). The samples were analyzed for variation of sensory attributes (appearance and overall acceptability), cumulative weight loss, and the visible colour (L*,a*,b*) with respect to storage condition for a period of 4-5 days. According to sensorial properties of selected vegetables, samples stored under in-house and cold-humidified condition were significantly different ($p<0.05$). The cold-humidified condition had gained the highest preference in evaluated sensory attributes throughout the testing period. The cumulative weight loss resulted at the end of the studied period of *C. annum* and *P. vulgaris* with respect to, in-house and cold-humidified condition were 2.0431 ± 1.2082 & 0.6889 ± 0.0755g and 2.4720 ± 0.9016 & 1.2615 ± 0.3575g respectively. Therefore, samples stored under cold-humidified condition had lower cumulative weight loss throughout the study. The L*, a* & b* value variation of *C. annum* with regard to in-house and cold-humidified condition during the study period were 33.0-41.2, -10.1 to -4.6 & 21.2-29.9 and 32.9-31.6, -10.2 to -9.3 & 19.6-27.0 respectively. The L*, a* & b* values of *P. vulgaris* varied with respect to in-house and cold-humidified condition at initial, after 42 and 93 hours as L* varied 38.3±0.1, 57.4±0.9 & 65.4±1.3 and 41.2±0.4, 57.2±1.1 & 57.3±0.1 respectively; a* varied -6.2±0.3, -8.3±0.5 & -6.2±1.0 and -6.3±0.7, -8.2±0.8 & -8.3±0.5 respectively; b* varied 19.9±0.9, 24.3±0.8 & 27.5±0.4 and 19.7±1.3, 24.1±0.1 & 26.2±0.4 respectively. Hence, the visible green colour loss, yellowness and lightness increment were lower in selected vegetables stored under cold-humidified condition than in-house condition. Thus, this study has proved that cooling with the humidified condition is effective for storing green vegetables.

Keywords: cold-humidified condition, in-house condition, green vegetables, cumulative weight loss, colour

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