Evaluation of ambient light and moisture, and edible coatings in different storage period, on pressurized kiwifruit antioxidant properties

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Abstract

This study aimed to investigate the effect of different storage conditions after a quasi-static load on the amount of some qualitative properties of kiwifruit, including antioxidants, phenol, soluble solid, pH, and hardness. After applying the load, three different coatings were applied to the samples, including grape, dates, and berries juice solution. Then kiwifruit samples were stored for 5, 10, and 15 days. The storage conditions included 90% and 95% humidity, the lighting conditions were completely dark and light with the use of energy-saving lamps. After completion of the storage period, the qualitative properties of kiwifruit samples including antioxidants, phenols, soluble solids, pH, and hardness were measured. The results of the experiments showed that the highest and lowest phenolic content in grape cover and storage period was 10 days with 99.33 mg/100 g and in berry cover and storage period was 15 days with 85.34 mg/100 g. The highest pH was observed in berry cover and storage period of 15 days with 3.49. Also, the lowest pH in grape cover and storage period was 10 days with a value of 2.79. In the stiffness study of the samples, the highest stiffness was observed in grape cover and storage period of 10 days with 15.008 N. In general, the placement of samples in a dark environment could have a beneficial effect on the amount of phenolic content of the samples. Examining the percentage of antioxidants and phenolic content of the samples, the date juice cover, the amount of soluble solids, and the hardness of the grape juice cover and the pH of the berry juice cover were higher than the rest of the factor levels. Increasing the storage period also reduced the amount of antioxidants and increased the amount of soluble solids in kiwifruit samples. Finally, dark ambient light conditions, 5–10 days storage time and grape cover for storing kiwi fruit were the best results.