Modified atmosphere packaging in blueberries: effect of harvest time and moment of bag sealing

C. Moggia, G.A. Lobos , J.B. Retamales

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Abstract

The use of modified atmosphere in the packaging of fresh blueberries (*Vaccinium corymbosum* L. 'Brigitta') was studied as a function of harvest time and moment of bag sealing. In trial 1, four treatments were established considering harvest time (morning: am or afternoon: pm), and moment of bag sealing: before or after cooling at 0°C. In trial 2, the packaging system was compared to a control treatment, without bag, for am- and pm-harvested fruit. After harvest fruit were placed under shading and subjected to 6 h delay before sorting. Berries were stored for 30 and 45 d at 0°C and evaluated after 1 and 3 d at 18°C (30+1, 30+3, 45+1, 45+3). Evaluations included: $\%O_2$ and $\%CO_2$ evolution within the bags, berry firmness (g/mm) and fruit quality (% sound, rotten, dehydrated or mechanically-damaged fruit). Results show that the use of bags increased the proportion of sound fruit (80-90%) with regards to controls (<60%), especially in the evaluations at 30+3, 45+1 and 45+3. Bagging increased the % of sound fruit in the am vs. pm; however, there was no effect of time of bag sealing. The main effect of bagging was a lower proportion of dehydrated fruit; which amounted to 4-10% in bag treatments vs. 20-30% for control fruit. Additionally bagging retained fruit firmness, both for AM- and PM-harvested fruit. Since bagging had little effect on gas composition, its effect must be studied further. These results evidence a high potential for the use of modified atmosphere packaging for boat shipping of blueberries for distant markets.