

STORAGE OF MURTILLA (*UGNI MOLINAE* T.) UNDER CONTROLLED AND MODIFIED ATMOSPHERE

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Murtilla is a native species grown wild in the Coast Mountains of Southern Chile. It belongs to the Myrtaceae family. The fruit is a small berry of 6 to 10 mm diameter, very aromatic and of pleasant flavor. It can be eaten fresh, canned, used in pies, processed to jams or jellies, or fermented. In a search for new fruit crops and new export alternatives, the objective of this study was to evaluate fruit storage behaviour of murtilla berries under controlled and modified atmosphere.

Fruit were harvested during the last week of March from the Pilen area, VII region, Chile. The selected fruit had full red coloration of the peel and a fruit diameter of 9 to 10 mm.

Two experiments were performed, one using modified atmosphere packaging (MAP) and the other using controlled atmosphere (CA). For MAP, two films were used, polyvinyl chloride (0.0127 mm thick) and polyethylene-low density (0.03 mm thick). Conventional storage was used as a control. For CA, 5 and 10% CO₂ were used in combination with 3% O₂. Normal air concentration was used as a control. The berries were stored at 1°C and 90% RH for CA and the trays for MAP were kept in a cold storage room at 75% RH. Daily measurements of CO₂ and O₂ were made for the CA experiment, and before removing the film from each tray in the MAP experiment. Plastic trays of 100 g fruit capacity were used in both experiments.

At harvest, 21 and 42 days in storage, and after 3 days of shelf life at 18°C, measurements of berry color, soluble solids content (SSC), pH, titratable acidity (TA), SSC/TA ratio, incidence of decay, fresh weight loss and general appearance were performed. The experiment was a completely randomized design with 6 replications per treatment. The experimental unit was the tray. Analysis of variance was on the data set, and Duncan's multiple range test at 5% was used to compare treatment means.

Neither CA nor MAP brought about major peel color changes, but there was a great variability in red coloration among fruits. The Munsell color table values obtained were: 5R 5/13, 5R 4/12, 5R 3/7 and 2.5R 3/7. Soluble solids content at harvest was 22°Brix and no change of SSC was noted during cold storage under CA or MAP. The highest values of SSC (30°Brix) which were found in the MAP controls (without films) could be explained by the high dehydration values obtained after the extended storage of 21 (11%) and 42 days (18%) and during the ripening periods of 3 days at 18°C (22-25%). As expected, MAP showed higher dehydration values than fruit stored under CA. However, MAP was an effective way to control fruit weight loss.

During cold storage or the shelf-life period for both CA and MAP, there were no major changes in titratable acidity, with general values of 0.06 to 0.08% expressed as malic acid. No trend was found for pH, SSC/TA ratio and decay for CA and MAP. Only some superficial mycelium (*Botrytis* spp.) was found on the berries. Since no fungicide treatment was used, this indicates that murtilla may have a high resistance to decay.

Murtilla berries were kept in good quality conditions up to 42 days using CA and MAP. Nevertheless, conventional cold storage is also feasible if adequate RH control is provided.