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Activities

Objective 2: Develop new strategies to maintain fresh-cut product quality

A patent was filed regarding a multi-functional technology to preserve quality in all fresh-cut products, however the details cannot be disclosed until publication. First disclosure is possible by July 2006.

Work with Dr. Kwang Deog Moon (Korea) provided early indication that micro-perforated films resulting in ~ 8% O₂ and ~10% CO₂ atmospheres can tremendously improve flavor and aroma in apple slices. Only preliminary work has been done, however the results are quite dramatic. Further work will require collaboration with a lab capable of measuring aroma volatiles to provide instrumental confirmation of this effect.

Objective 3: Improve understanding of biochemical, physiological and molecular mechanisms that affect fresh-cut product quality.

Ongoing work has continued with Dr. Jennifer DeEll (Ontario Ministry Agriculture, Food and Rural Affairs) in regards to comparative suitability of cultivars for fresh-cut apple slices. A variety which was consistently “non-browning” from the AAFC breeding program at St-Jean-sur-Richelieu, Quebec has been named ‘Eden’. This cultivar has low phenolic content, however, it is not known if this is the only factor in its apparent resistance to cut-edge browning. While it is classed as ‘non-browning’ it can still brown if stored in air too long, or in improper CA storage conditions. Further work is required to better understand optimal storage conditions.

Other cultivars which appear to be “low-browning” are ‘Ambrosia’ and a new cultivar from the AAFC breeding program in Summerland named ‘Sabina’. The mechanism for these two cultivars low browning character appears to be largely due to the resistance of their membranes to deterioration after cutting.

There is ongoing work with Dr. Jennifer DeEll (Ontario Ministry Agriculture, Food and Rural Affairs), Pride Pak (Mississauga, ON) and the Ontario Apple Growers to develop strategies to identify when apple lots from storage are likely to have quality problems. This work is not analyzed or summarized at this point in time.

Objective 5: Evaluate and control unintentional and intentional microbial contamination of intact and fresh-cut produce

A research project funded by the Okanagan-Kootenay Cherry Growers’ Association found that most hydro-cooler systems in the industry were performing well. Packing houses which charged their chlorine once only, at the beginning of days run, were able to maintain effective chlorination for the whole day. Coliforms, *E. coli* and aerobic mesophile bacteria were not found

in appreciable levels in the hydro-cooling water during the harvest/packing season. This indicates that the packing house practices are sufficient. On the other hand, harvested cherries were coming in the field with high contamination levels. While spot tests were done on hands of pickers, no clear indication was found as to the source of the levels of contamination intercepted at the packing house. Next year will focus on environmental sampling to get a better handle on how and where microbial contamination is occurring on the cherries.

Publications

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