

Abstract

A fresh – cut apple slice process to increase margins of food safety and maximize shelf – life has been developed by Hort Research in conjunction with Fresh Appeal (NZ) Ltd. Laboratory trials were undertaken to simulate industrial conditions, identify the critical processing variables and validate the potential to make apple slices that meet required market specifications. The trials were carried out using combinations of dip treatments and the physical treatments of heating and UV that would result in a 21 days shelf life and minimum food safety risk. It was found that apple slices made with the optimum anti – browning concentration, combined with heat and UV treatments, can be stored at 0°C for more than 21days with excellent retention of flavor. The work has resulted in the development of an automated industrial pilot plant to carry out the operations. The process uses multiple highly controlled steps to treat the fresh – cut product achieving results not possible with a single treatment process and eliminating the operator error involved in manual fresh – cut processes. Regulated control of washing, UV, heating and antibrowning dipping is used to prevent high levels inducing excessive stress that shortens shelf life and low levels being insufficient to preserve the product in best possible conditions for the intended time.