Abstract:

The objective of this research was to identify ripening-related proteins in stone fruit that can be used as an index of ripening and whose expression is not affected by growing conditions. The initial research was conducted with Japanese-type plums. Fruit were harvested at several stages during development, including optimum commercial harvest maturity, as determined by changes in skin colour, firmness, titratable acidity, soluble solids concentrations and storage life at 0°C. Total proteins were extracted from the fruit and separated by 2-D polyacrylamide gel electrophoresis. Four proteins were detected that are synthesised a few days before ideal commercial maturity. Closely related proteins were also found in extracts of maturing peaches and nectarines. Monoclonal antibodies (mAbs) were raised against conjugated oligopeptides designed from amino acid sequence data from two of the proteins. However, the mAbs could not reliably detect the proteins either in protein extracts or juice samples from fresh fruit. Research is continuing on the properties of the ripening-related proteins that should enable the development of a highly sensitive immunological field test of maturity.