

Bad Microbes in Food Processing

Browning in Apples

Do some apples turn brown quicker than others when cut? Why do they brown? If this is a question on the minds of your students you may want to try some simple observations. Start by cutting up various types of apples to see if some kinds brown quicker than others. Apples do not turn brown until the flesh is exposed to oxygen. You may want to try some experiments sealing apples in plastic or other containers to see if that minimizes the browning.

Here are some ideas and web sites to visit if your group is older and wants to try some “ag-chemistry” and answer some “browning questions.”

Two other things, besides oxygen, cause apples to brown; enzymatic (polyphenoloxidase) actions, and phenolic compounds. Polyphenoloxidase is an example of an enzyme that can lower the quality of a food product. This enzyme produces brown pigment and may change the texture and flavor of food products. The enzyme activity may be minimized by reducing agents, heat inactivation, lowering the pH of the food product (adding lemon juice, ascorbic acid or salt), and the presence of enzyme inhibitors. Students may want to try sugar, milk, soda pop, etc.

Step by step procedures are outlined at the following web sites: <http://www.agricola.umn.edu/fscn3102/brown.html> or for a “more technical” approach visit <http://www-fst.ag.ohio-state.edu/FST605/laboratories/Lab7.html>

