

Apple Browning Science Experiment

Why do apples turn brown? Is there anything you can do to slow how quickly an apple browns?

Here are 4 different theories to test:

1. sliced apples with nothing done to them
2. sprinkle slices of apple with lemon juice
3. place apple slices in an airtight container
4. slice an entire apple and wrap it with a rubber band



Start a timer and watch the apples. Record the amount of time that has gone by when each one starts to brown.

Apple Status	Time
1. plain sliced apple	
2. apple with lemon juice	
3. apple in airtight container	
4. apple wrapped with rubber band	

In our experiment the lemon juice always works best. Why? It has to do with a chemical reaction called **oxidation**. The ascorbic acid (vitamin C) in the lemon juice creates a barrier between the apple slice and oxygen in the air. Without the acid, the enzymes in the exposed apple slices would react with oxygen (oxidation) and start turning the apple brown. The lemon juice barrier protects the apple enzymes.



Want to experiment more? Try your own theories!