

The scenario

Subject	Chemistry reactions/Reaction retardant
Length	2:41
Main objectives	To show how citric acid may act as retardant of an oxidation reaction
Detailed objectives	
Structure and description of experiments:	
1. Introduction	Description: The motivation for the experiment will be the investigation oxidation reaction in an apple and how it can be retarded with citric acid (lemon)
2. Main subject	Description: Why do fruits like apples brown in contact with air? What type of reaction and how can it be retarded?
Part 1	
(0:41), Experiment 1 (0:44)	<p>Tools: Apple, lemon</p> <p>Description: First, cut the apple in half. One slice of apple will be untreated with the acid citric and drops of lemon in the slice of apple that will be treated.</p> <p>After two hours, the slice of apple that was not treated it has browned and the other slice that was treated with acid citric did not brown. The addition of lemon (acid citric) retards the browning process, which is an oxidation reaction.</p> <p>Questions: Why do fruits like apples brown when exposed to air – The enzyme polyphenol oxidase, in contact with the oxygen in the air, catalyzes one step of the biochemical conversion of plant phenolic compounds to brown pigments known as melanin.</p> <p>Conclusions: Lemon juice contains acid citric, which is a natural antioxidant. Therefore, when you apply lemon juice to the apple slice, it helps to prevent the oxidation process.</p>
3. Summary, evaluation and notes	<p>Application: As preservative in the food industry.</p> <p>Level: primary school (ISCED 2 / 6th, 8th grade)</p>