



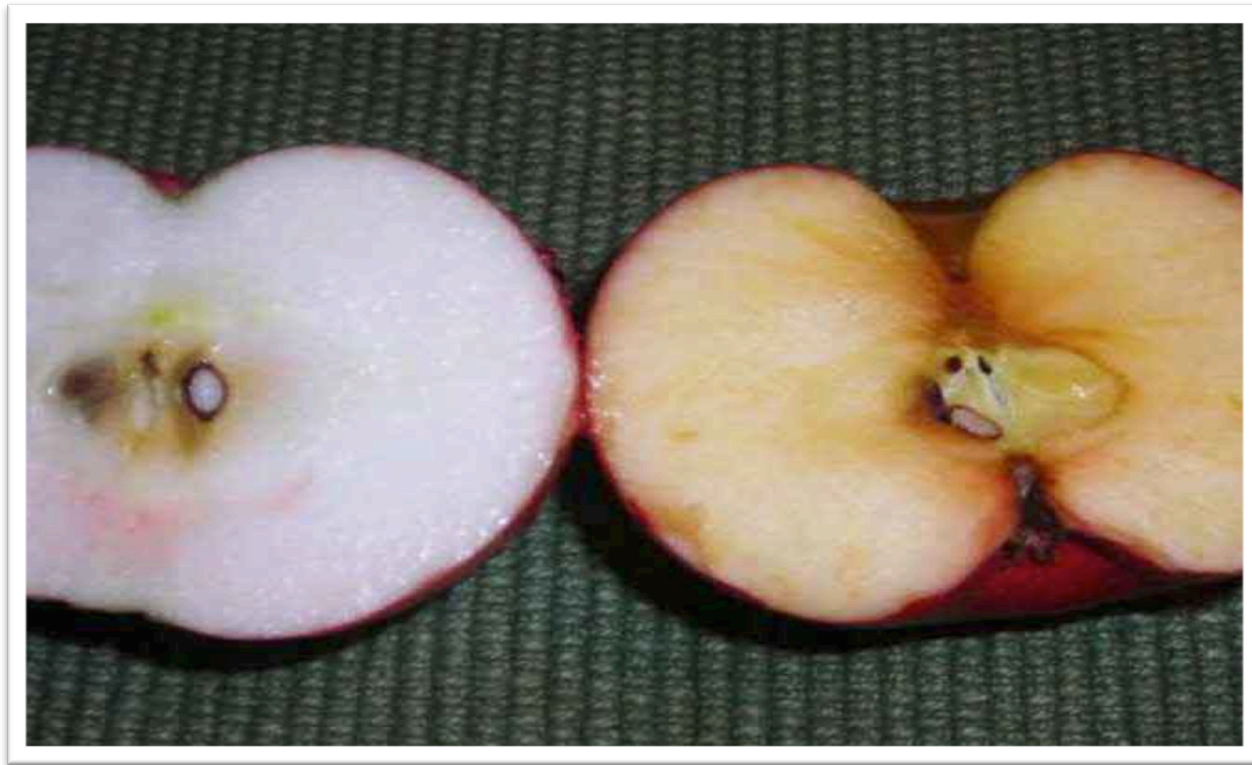
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# Meet the Enzyme: **Catecholase**



# Apple Experiment



Come down and get an apple and a slice of lemon.

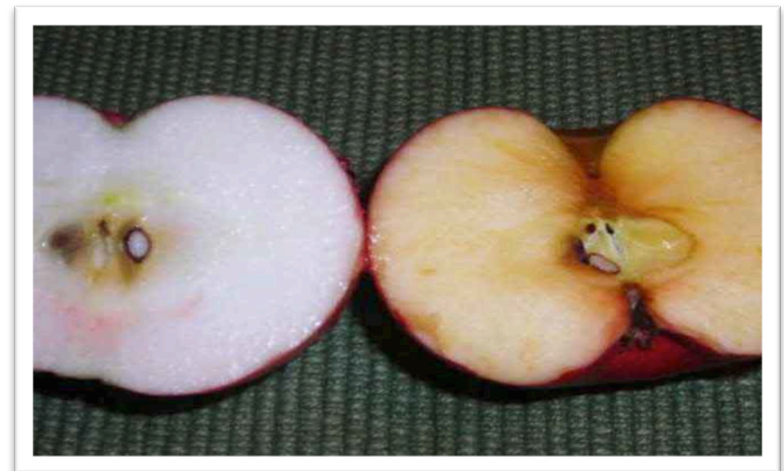
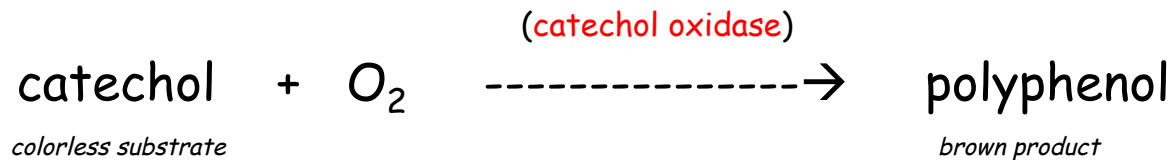
*When you get back to your seat:*

1. Take a big bite of your delicious apple.
2. Immediately squeeze lemon juice over the apple flesh that is now exposed from the bite.
3. **IMPORTANT!** Don't get lemon juice all over the apple. Make sure that it is **ONLY** on the area that you just bit!
4. Set the lemon aside and wipe any lemon juice off of your hands with a napkin.
5. Take another bite from the opposite side of your apple.
6. Set your apple aside.

# Meet the Enzyme: **Catechol Oxidase**

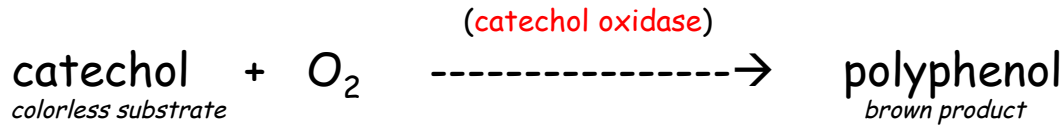
- Catechol oxidase (also called catecholase) is present in most fruits and vegetables.
- It is the enzyme that facilitates the **browning** of cut or bruised fruits and vegetables by catalyzing the following reaction.

## Reaction:

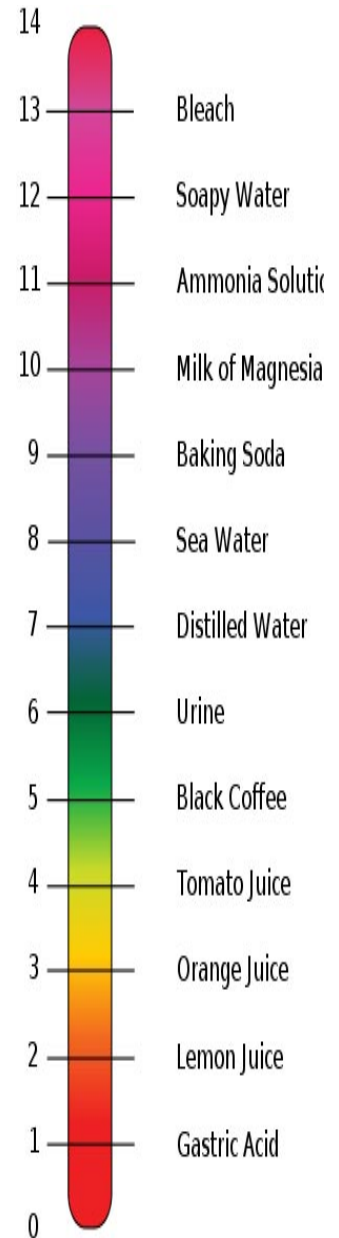
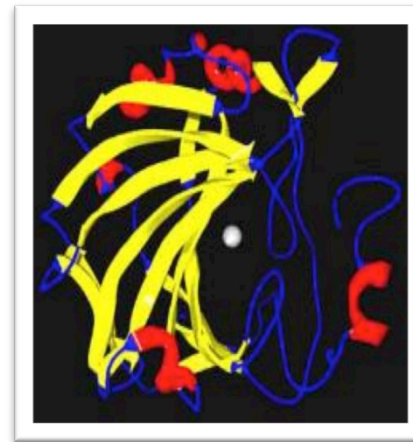
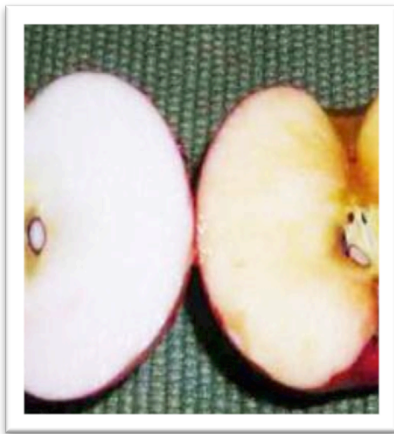


# Meet the Enzyme: **Catechol Oxidase**

## Reaction:

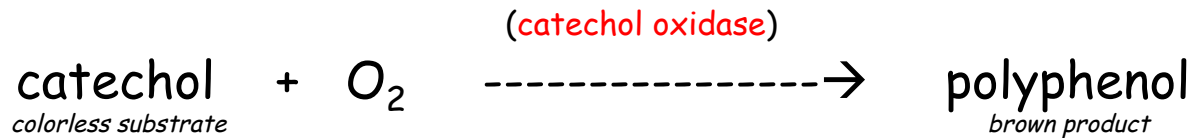


We can slow this reaction by removing the enzyme's cofactor: Lemon juice and other acids are used to preserve color in fruit, particularly apples, by lowering the **pH** and removing the **copper** (cofactor) necessary for the enzyme to function.



# Meet the Enzyme: **Catechol Oxidase**

**Reaction:**



We can also slow this reaction, without denaturing the enzyme, by placing fruits & veggies under **water**.

**Q:** Why would doing this prevent browning?



**READ!**  
The "Class Notes"  
article  
[What Is an Enzyme?](#)