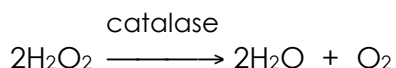


Organic & Inorganic Catalysts Demo

Purpose:

Thousands of chemical reactions take place inside our cells and each of them requires an enzyme to catalyze the reaction. Many of them happen in organelles (small rooms) within cells. For example fatty acids are broken down in organelles called peroxisomes. These rooms contain enzymes that break apart fatty acids and one of the by-products of this reaction is hydrogen peroxide (H_2O_2). Hydrogen peroxide is a very harmful molecule; because it is a strong oxidizing agent and can damage cells, so it must be removed. Catalase is another enzyme in peroxisomes that breaks down hydrogen peroxide into water and oxygen.



Most complex cells contain the enzyme Catalase.

Not all catalysts need to be biological enzymes. Some catalysts can be inorganic. For example manganese (IV) oxide MnO_2 can also break hydrogen peroxide into water and oxygen gas.

Organic catalysts (enzymes) are made from proteins so they are sensitive to environmental factors like temperature and pH, while inorganic catalysts are not.

Procedure:

1. Add 3% hydrogen peroxide to four test tubes.
2. to test tube 1 add a small piece of raw potato
3. to test tube 2 add a small piece of cooked potato (boiled in water)
4. to test tube 3 add a small piece of MnO_2
5. to test tube 4 add a small piece of MnO_2 (boiled in water)
6. Observe the results and fill in the data table

Data Table:

Table 1: Observations after samples have been added to 3% hydrogen peroxide solution

	Tube 1: Raw potato	Tube 2: Cooked potato (boiled in water)	Tube 3: Manganese (IV) oxide (crystal)	Tube 4: Manganese (IV) oxide (boiled in water)
Observation				

Conclusion: