**New Al Rayyan Independent School for Boys**

**Lab report 5**

**Biology department/ 1st semester (2009-2010)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Subject** | | | **Grade** | | | **Unit** | | | **L. R Number** | | | | **Year** | | | |
| **b** | **i** | **o** | **G** | **10** |  | **U** | **0** | **3** | **L** | **R** | **0** | **5** | **2** | **0** | **0** | **9** |

**File name** **/**

**Student Name: Date:27-31/ 12 /2009**

|  |  |  |  |
| --- | --- | --- | --- |
| **Lesson title** | Explaining the presence of enzymes in different living organisms and non living things | **Grade** | **10 / 1-9** |
| **Objectives** | | | |
| **By the end of the lesson, most students** | Will be able to explain that animal tissues(Liver) have more catalase than plant tissue (potatoes) and that non living (biscuits) has no catlase enzyme. | | |
|  | | |
|  | | |
| **Students who progress further:** | Demonstrate to other students | | |

**Aim**: To show the effect of different enzymes and where they are found..

## SEC standard:

## 10A.8.2 Explain how the structure of an enzyme leads to its substrate specificity .

## 10A.1.1 Identify and develop a clearly focused research question

## 10A.1.2 Make predictions directly related to a research question.

## 10A.1.4. Work constructively and adaptively with others as a team on a scientific investigation

**Materials:**

1. Liver .
2. Potatoes slices
3. Hydrogen peroxide.
4. Test tubes.
5. Tube racks.
6. Droppers.
7. Starch .

**Introduction:**

Liver and other living tissues contain the enzyme catalase. This enzyme breaks down hydrogen peroxide, which is a harmful by-product of the process of cellular respiration if it builds up in concentration in the cells. If we use potato or other tissue containing this enzyme, we can use this to measure the relative influence of varying several different factors on the activity of enzymes in living tissue.

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**Predictions**:

1. What substance contains more catalase enzyme

…………………………………………………………………………………………………………………………………………………… (1 m)

1. What do you think will give more Oxygen when reacts with Hydrogen peroxide

………………………………………………………………………………………………………………………………………………………(1 m)

**Method**

|  |  |  |  |
| --- | --- | --- | --- |
| No | Step | Image | Marks |
| 1 | Take three clean test tube. |  |  |
| 2 | Put the following in the three tubes   1. Shopped liver in the 1st tube. 2. Slices of potato in the 2nd tube. 3. Biscuits pieces in the third tube |  | 1 m |
| 3 | Add few drops of Hydrogen peroxide to each of the three test tube (using a dropper) |  | 1 m |
| 4 | Notice if bubbles of oxygen are evolved and Record your observations and Make a conclusion in table No2 |  |  |

Table 2

**(After adding water and oil)**

|  |  |  |
| --- | --- | --- |
| **Question** | **Obs. (Bubbles) (1m for each tube)** | **Conclusion (1m for each tube)** |
| **What happened to each tube** | | |
| **Test tube 1 (Liver)** | **Large amount □**  **Small amount □**  **No Bubbles □** | **…………………………….**  **……………………………**  **…………………………….** |
| **Test tube 2 (potatoes)** | **Large amount □**  **Small amount □**  **No Bubbles □** | **…………………………….**  **……………………………**  **…………………………….** |
| **Test tube 3 (Biscuits)** | **Large amount □**  **Small amount □**  **No Bubbles □** | **…………………………….**  **……………………………**  **…………………………….** |
| **A question to help you to write your conclusion.**   1. **Is the amount of bubbles in each one of the test tubes are equal?** 2. **Why do you think caused that answer of question 1?** | | |

**Final conclusion:**

**Answer the following questions to reach to your final conclusion:**

1. **Does every substance contains catalase?**

**……………………………………………………………………………………………………………………………………………………………………………(1m)**

1. **Is the amount of catalasethe same in both animal and plant tissues?**

**……………………………………………………………………………………………………………………………………………………………………………(1m)**

1. **Is Catalase important for living organisms?**

**……………………………………………………………………………………………………………………………………………………………………………(1m)**

1. **Explain why do you think so (your answer of question2 and 3 )?**

**………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………(2m)**