**Biotechnology Lab: Enzyme Action**

Cheese production is based on bacteria and rennet action on milk components. The two main steps of this manufacturing process are coagulation and draining followed or not by maturing and salting. This biological process is an example of the first applications of biotechnology.

Rennet, consisting of enzymes such as chymosin, pepsin and lipase, is used to curdle the milk. During this stage the milk is separated into curds (solid matter) and whey (liquid matter). Curdling can be done with animal or vegetable rennet, or chymosin.

**Objective:**

The purpose of these experiments is to familiarize you with some of the basic aspects of enzyme/substrate interaction. For this lab you will develop a protocol in which you will evaluate one of the factors affecting the yield of cheese production. Successful completion of this work will provide an understanding of the properties of enzymes, including the effect of concentration, temperature and pH on their activity, the denaturation of enzymes, and the nature and properties of proteases (animal rennet, vegetable rennet, chymosin).

**Method & equipment**

1. Determine the factor to be studied (dependent and independent variable).
2. Present an investigation of the chosen factor on the cheese production yield.
3. Formulate your hypothesis.
4. Determine the precise method to be used to test the hypothesis.
5. Prepare a list of the necessary equipment.
6. Identify the health and safety elements to be respected.

**Observation**

Results in table form

**Conclusion**

What conclusion can you draw on the role of your variable in the cheese production process?