

- 2.2 **Purpose of Test:** To demonstrate the effect of the enzyme, bromelain on gelatine.

Apparatus & Chemicals :

- comboplate
- 2 x propette
- syringe
- microspatula
- gelatine powder
- *water
- *2.5 ml pineapple juice

NB Pineapple juice is prepared by crushing fresh or canned pineapple. The pineapple stem is the best source of bromelain

Procedure

1. Use a microspatula. Place 10 spatulas of gelatine, dissolved in hot water, in well F1 to fill the well. Stir with the handle of the microspatula.
2. Use the syringe to place 0.2 ml of gelatine solution in F2, F3 and F4
3. Use a propette. Fill well F2 with pineapple juice.
4. Use a propette. Fill well F3 with water.
5. Use a propette. Fill well F4 with gelatine solution.
6. After an hour, observe the state of the solutions in wells F2, F3, F4.

Observations and Questions

NB Commercial gelatine consists mainly of a protein collagen. Collagen is found in the connective tissue of animals e.g. tendons.

Bromelain is an enzyme that catalyses the **partial** breakdown of certain proteins including gelatine. A proteolytic **enzyme** assists in the digestion of certain proteins.

When gelatine is digested or partially **digested it does** not form a gel. Bromelain is found in some foods, e.g. pineapple.

In this experiment, gelatine is the source of **protein and** pineapple juice the source of the enzyme bromelain.

| Well | F2 | F3 | F4 |
|---------------------------------|-------------------|-------------------|-------------------|
| Solution (0.2 cm ³) | gelatine solution | gelatine solution | gelatine solution |
| Substance added | +pineapple juice | +water | gelatine solution |

QUESTIONS

1. With reference to the table, what is the state of **the solution in** wells F2, F3 and F4 after 1/2 an hour. Explain the state of each solution of the test materials in wells F2, F3 and F4
2. Gelatine forms a type of solution termed ...
3. The liquid state of the solution is termed ... and the jelly state is termed...
4. What does pineapple contain that it should be excluded from a table jelly dessert?
5. Green Papaws (papayas) are often used to soften meat before cooking. Explain why papaws (papayas) are used.
6. Name any 2 examples of gelatine producing foods.

Conclusion

The effect of the enzyme, bromelain is to catalyse the digestion of a protein e.g. collagen in the gelatine.

