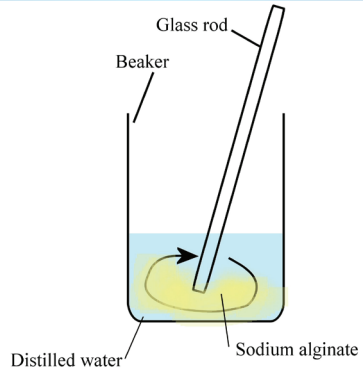
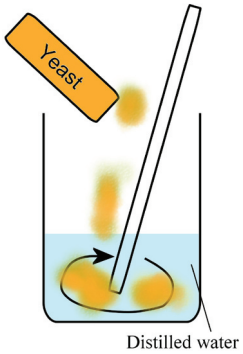
4.6 To prepare one enzyme immobilisation and examine its application

1



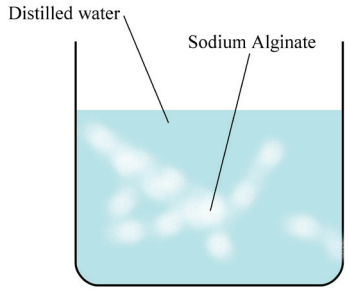
In a beaker, add 0.4 g sodium alginate to 10 ml of distilled water and stir.

2



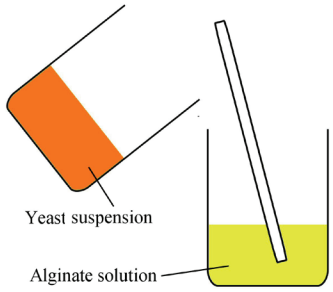
In a separate beaker, add 2 g of yeast to 10 ml of distilled water and stir.

3



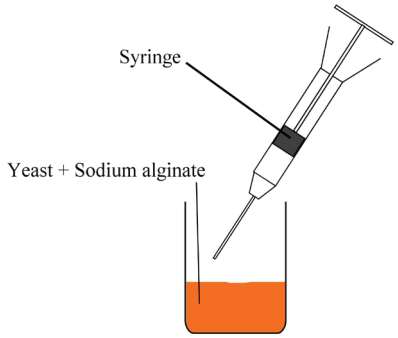
In a separate large beaker, dissolve the calcium chloride in water.

4



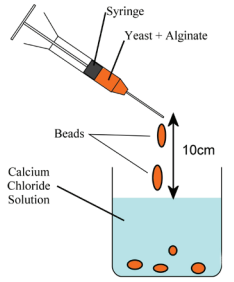
Add the yeast suspension to the alginate solution.

5



Draw the liquid into a 20 ml syringe.

6



From a height of 10 cm, release the mixture from the syringe into the calcium chloride one drop at a time. Leave to harden for 10 minutes.

Always remember – Leave time to tidy up

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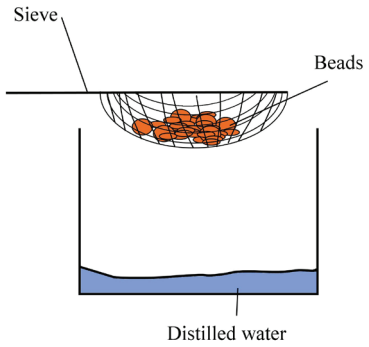
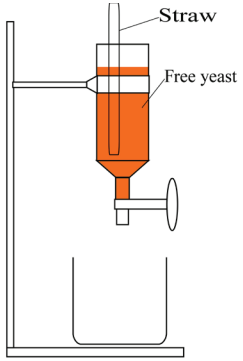
7



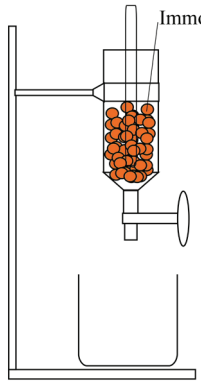
Filter the hardened beads through a sieve and rinse with water.

8



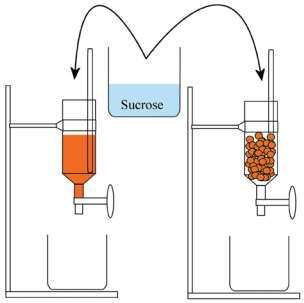
Mix 2 g of yeast in 10 ml of distilled water and pour into one of the separating funnels.

9



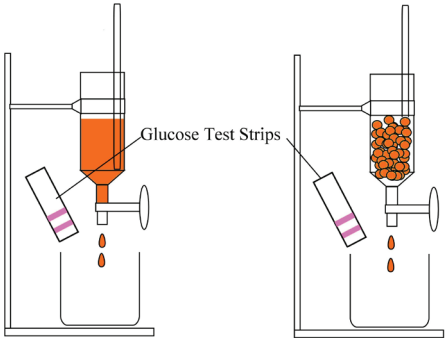
Pour the beads into the second funnel.

10



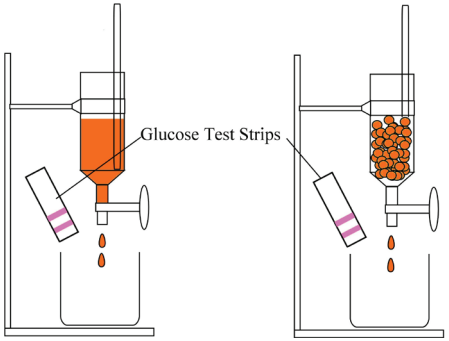
Dissolve 1 g of sucrose in 100 ml of distilled water. Pour 50 ml into each separating funnel.

11



Immediately test the products in the beakers with glucose strips.

12



Repeat test every 2 minutes until glucose appears in both beakers.

Always remember – Leave time to tidy up

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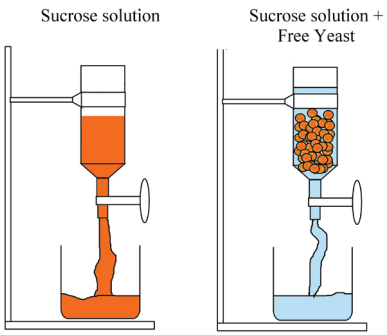
13



Run off the remaining product from each funnel into the beakers and compare the turbidity* of the solution from both funnels.

Table of Results

Time (minutes)	Free yeast – presence of glucose	Immobilised yeast – presence of glucose
0		
2		
4		
6		
8		
10		

////////////////////////////////////	Free yeast	Immobilised yeast
Turbidity of solution		