# Measurements, micropipetting, and sterile techniques

ASSIGN BUSTER

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Here we discuss about two techniques named as ‘ Micropipetting’ and ‘ Sterile pipetting’

for laboratory experiments based on microbiology or on the micro chemical protocols and small volume of DNA has to measure with pure cultures.

Purpose:

Sterile technique must use to protect the sterile broth, plates, slants and pure cultures form the microbes. In this technique only sterile surfaces touch each other sterile surfaces according to this method exposure of the sterile surfaces to the air should be minimum and in micropipetting is the technique of measuring small volumes even if in micro liters.

PROCEDURE:

1. The size of the micropipettor should be either 100-1000 or P1000 on the circle on top of the plunger.

2. To read 015, we have to set the numbers in the window( fig.). It shows 150 micro liters.

Where,

1 micro liter = 1/1, 00, 000 liters

3. Now, with a great attention place a tip strongly on the end of the micropipettor(fig.). To prevent the samples from contamination we must not touch the pointed end of the tip with our fingers.

4. to take up a volume of sample

a. Press the plunge r up to first stop. When you feel the resistance then don’t

push the button.

b. Keep the tube and micropipettor at the eye level. Put the point of the tip into the liquid found in the tube labeled “ CW” for colored water.

c. Gradually release the plunger button and suction up liquid.

d. You have to repeat this process if there is any bubble present in the tube.

5. To remove or expel the volume of the sample on the filter paper (fig.).

a. Put the tip of the micropipettor directly on the labeled filter paper.

b. Slowly push the plunger button (from first stop to second stop) and make sure all the liquid came out.

6. To eject the tip:

a. Hold the tip over a waste disposal container.

b. Push the eject button.

7. Reset the numbers in the window to read 020 (fig.). Write 020 and your name on another piece of filter paper. Follow steps 3-5 to transfer this volume of liquid to the filter paper. What volume in µl does 020 represent?

8. Now reset the numbers in the window to read 024 (fig.). Write 024 and your name on another piece of filter paper and follow steps 3-6. What volume in µl does 024 represent?

Result:

By this experiment we measured very small volumes of liquids and gels like DNA. Proper pipetting and sterile technique is essential for correct result. If there is any inaccuracy in pipetting or in sterile technique then it may cause poor and incorrect results. By using sterile technique we developed an ideal environment which protects our sample from contamination. If we put our finger on the tip of the pointed end then sample becomes contaminate.

CONCLUSION:

Many laboratory experiments based on the microbiology or on the micro chemical protocols and small volume of DNA has to measure with pure cultures which is done with the help of two techniques-Micropipetting and sterile pipetting. These techniques take us towards nearer to the correct results. Use of these techniques is very important for the better result.

We can obtain ideal environment by this method ‘ Sterile Technique’. This helps us to gain better results. It means that in this process sterile surfaces or sterile media is protected from contamination by microbes. It is very necessary to maintain sterile conditions properly to reduce the probability of contaminating with bacteria and fungus.

By using these methods we can measure small volumes also. Small volume micropipettor and Large volume micropipettor exercises are used to perorm this experiment. Scientists used an instrument called “ Micropippettor” for this. Hence, micropipettor is a device or an instrument which is used to measure small volumes of liquids in the lab. In the experiments related with the measurement of small volumes like DNA we can use “ Micropipetting Technique”, which makes our result more accurate.

Q . When is necessary to use sterile technique?

If live bacteria are needed at the end of a manipulation (general culturing and transformation), sterile technique is not necessary if the bacteria are destroyed by the manipulation in the experiment or when solutions for DNA analysis (plasmid isolation, DNA restriction and DNA legation) are being used. To protect pure cultures from microbes we use this technique. A sterile swab, pipette or toothpick can be used instead of an inoculating loop.

References:

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