Introduction

Whilst conducting an experiment it is essential to prevent bacteria or microorganisms contaminating results. To prevent this scientists use a technique called the ascetic technique. Basically the ascetic technique will kill all microorganisms that are present and employ sterile objects and other items. The different types of contamination are:

1. Airborne micro organisms
2. Contamination of culture bottle and the rim of the petri dish from microorganisms on hands.
3. Contamination for non-sterile tools.

The aseptic technique ensures that the culture remains free of contamination and that microorganisms are not released into the environment.

Aseptic techniques do the following in a clinical setting:
- Remove or kill microorganisms from hands or objects
- Employ sterile objects and other items
- Reduce clients' risk of exposure to microorganisms that cannot be removed

Safety points

- Clear up any spillages immediately.
- Incubate at 30 degrees Celsius –this will ensure no pathogenic bacteria or viruses grow.
- Work near a Bunsen burner (within 1 foot) because the upward currents will prevent particles falling down into the culture.
- Prevent from placing things on the workbench as it may be contaminated with microorganisms
- Wear goggles at all times whilst doing the experiment
- Heat the rim of the culture bottle to prevent airborne contamination.
- Flame the tongs in Bunsen burner after each go to kill all microorganisms.

Apparatus List

- Bunsen burner
- Tongs
- Agar plate
- Inoculating loop

Step By Step Method

1. First light the Bunsen burner
2. Adjust the Bunsen burner to a roaring blue flame
3. Then flame the inoculating loop in the roaring blue flame to ensure sure that it is free of any micro organisms from past experiments will may contaminate culture.
4. Also flame the neck of the bottle for the same reason
5. Insert loop into the bottle of yeast for 10 to 15 seconds
6. Remove loop, there should be a thin film of yeast culture in the loop
7. Lift lid of agar plate ajar (be careful when doing so to avoid airborne contamination) just high enough to fit loop inside the plate
8. Streak the plate with the yeast culture upon the loop in a zigzag pattern
9. Close the lid of the agar plate, then seal it with four pieces of sellotape, also add your name and date so that it is recognisable.
10. Flame the loop again
11. Incubate at 30 degrees Celsius for two days

Problems that occurred during the experiment

The only problem that I occurred whilst conducting this experiment was that the non-sterile tools that I used such as the inoculating loop were not 100% clean so the culture grown may not have been free of contamination.

Anticipating potential problems before they occur

- Make sure that all non-sterile tools used throughout the experiment are all flamed over the Bunsen burner; this will ensure that the culture grown remains free of contamination.
- Do not let items such as the loop touch surfaces such as the workbench as the bench may be contaminated with microorganisms
- Hold tube horizontally, this will prevent any risk of airborne contamination
- Ensure that your hands are clean to prevent contamination

Following these will not only prevent that the culture grown is free of contamination but there also wont be any micro organisms let out into the environment.

Strengths and weaknesses and industrial procedures

The only weakness with this technique is that it is quite hard to prevent the yeast culture from contamination. In a clinical setting the aseptic technique would be useful because it would reduce the medics' risk of exposure to infectious blood or tissue, it would also decrease the likelihood of micro organisms entering the body during clinical procedures. If a sterile environment were maintained then the risk of contamination would be low.

Results

With this starter culture you can clearly see the zig zag shape that was streaked using the yeast culture upon the inoculating loop.