

Aim 50

Storage of Microorganisms

Introduction

There is requirement of storage of pure culture of microorganisms for further use. Several methods are used for the maintenance of pure cultures.

Maintenance of cultures - one is the working culture, which is used for routine. Lab work and second is the stock culture, from which new cultures are prepared, when ever required. This help in reducing the chances of contamination. It is recommended to maintain the microorganism in the inactive state and also reduce metabolic activity during preservation of microbes for several years.

1. Preservation in Refrigerator

The metabolic activities of the microbes are reduced at 4°C in refrigerator but not stopped completely at this temperature. The microorganisms are killed and nutrients are utilized and waste products shall be produced. Slow growth is observed at 4°C.

Regular sub-culturing of bacteria shall be done (after 2-3 weeks) and for fungi, sub-culturing shall be done after 3-4 months.

2. Paraffin Method

This is easy, good and efficient method for preserving the microbes and they remain feasible for long periods at the room temperature. Pour sterile liquid paraffin (sterilize at 180 °C in oven for one hour) over the slope culture of the microorganism in such a way that the paraffin shall be about one inch above the agar surface (to prevent the dehydration).

Store the agar slants at room temperature in an upright position. Transfer the loopful of paraffin preserved culture during revival and inoculate on an agar slant or into broth.

3. Storage at -196°C (in liquid nitrogen)

Mix cell suspension with 10 % glycerol or 5% dimethyl sulfoxide (prevents the formation of ice crystals which may damage the frozen cells). Store microbes at low temperature in liquid nitrogen (-196°C). The microbes survive without undergoing change in their characteristics for long periods.

4. Lyophilization

The freeze drying of the sample without going into the liquid state is termed as lyophilization. In this technique, culture freeze quickly in liquid nitrogen and then dehydrated by vacuum. Seal the tubes after drying and store at 4°C. The microbes remain viable for several years without any change in their characteristics.

5. Preservation at - 70°C in Glycerol/DMSO

Store cultures at - 70°C in 10 % glycerol or 5 % Dimethyl Sulphoxide (DMSO) for long periods.