

INTRODUCTION TO PLANT PATHOGENS

PRACTICALS

Practical No. 2

**ACQUAINTANCE WITH PLANT PATHOLOGY  
LABORATORY AND EQUIPMENTS**

The student should get acquainted with the chemicals glassware and equipments of the plant pathology laboratory listed below.

**INSTRUMENTS**

**1. Microscope**

Microscope is a device, which can magnify a microbial cell or a group of microbial cells to enable the human eye to study its structures, morphology etc.

**A. Simple microscope:** Consists of a simple lens system

**B. Compound microscope:** It consists of 2 or more lens systems- Depending on source of illumination, they are of two kinds:

**a. Light microscope**

Specimen is illuminated by visible light or U.V. rays with a max magnification of 1000 or more. These are used for observing stained and unstained specimens and counting of microbes. They include the bright field, dark field, U.V phase contrast and the fluorescent microscope.

**b. Electron microscope**

Here the images are formed on a fluorescent screen by electron beam focused by magnets instead of lens, with a magnification of 1,00,000. These are used for observation of viruses and ultra structures of cells.

**2. Autoclave**

It is an apparatus in which saturated steam under pressure affects sterilization called autoclaving. The pressure increases boiling point of water and produces steam with a high temperature. Cells are destroyed by high temp and not by the pressure. Most of the organisms are killed at 121 °C and 15lb pressure per sq. inch in 15 min. It is more efficient and common instrument used to sterilize solids and liquid media for microbial

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culture. It is not recommended for oils, powders, heat sensitive fluids and plastics. Autoclave is a double walled cylindrical metallic vessel made of thick stainless steel copper, lid of which is opened to receive the material to be sterilized. The lid is provided with pressure gauge noting the pressure, steam clock for air exhaustion of the chamber. It is also provided with safety valve to avoid explosion. The materials to be sterilized are kept in a basket provided with holes all around for the free circulation of steam. Moist air has most penetrating power than dry heat and hence it is more efficient than dry- heat.