Experiment No 1

- In vitro seed germination
Overview

1. Introduction
2. Experiment
3. Material and Chemicals
4. Procedure
5. Objective
Introduction
More detailed or more convenient analysis of the components of an organism that have been removed from the intact organism is called as in vitro.

Common examples of in vitro experiments include work that uses cells derived from multicellular organisms (cell culture or tissue culture)

Advantages and disadvantages of In vitro studies.
Examples of In vitro Experiments

- Polymerase chain reaction
- Protein purification
- In vitro fertilization
- In vitro diagnostics

Capsule Dissolution Time: In Vitro Dissolution in 37°C (98°F) Water
Germination is the process by which plants, fungi and bacteria emerge from seeds and spores, and begin growth.

Germination can imply anything expanding into greater being from a small existence.
The most common example of germination is the sprouting of a seedling from a seed of an angiosperm or gymnosperm.
Seed Germination

- Seed germination is the growth of an embryonic plant contained within a seed; it results in the formation of the seedling.

- Empty and Dormant seeds

- Role of certain hormones in seed dormancy
Factors affecting germination

- Water
- Oxygen
- Temperature
- Light or darkness

Germination rate and Germination capacity
In vitro seed germination is the process of germination of embryo of seed in lab by providing favorable conditions for growth as living system.
Experiment for In vitro Seed Germination
Apparatus and Chemicals

- Petri dishes
- Flask
- Autoclave
- Laminar flow
- Aluminum foil
- Forceps
- Digital Balance
- HgCl2
- Agar
Layout and protocol of the Experiment
Soaking of seeds

Distilled water is used

Seed Preparation

Soaking of seeds

Agar

Autoclave to avoid contamination

Surface Sterilization of seeds

HgCl₂ is used

Laminar flow hood is used

Do not dip into HgCl₂ overnight
Washing of seeds

Seed coating

Transfer of seeds in test Petri dishes

Agar+ prepared seeds

Propagation of seed germination

Use of Laminar flow hood+ hands should be washed properly

Provide favorable condition for growth

Placement in growth room
Protocol

- Soak seeds in distilled water for 2-3 hours.

- In order to prepare plain agar dissolve 1 gram of agar is in 100 ml of tap water and autoclave it with other necessary apparatus in autoclave at 120c for 20 min.

- Take all apparatus in laminar flow to avoid contamination.
Wash them 2-3 times and then remove seed coats.

Place those seeds in test tube with the help of forceps, in which solidified agar media is present.

Plug them and cover lower tide with aluminum foil and place them in growth room for a day.
Thank You