Practical 2

Establishment of axenic culture of plants as explant source for *in vitro* experiments

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Objectives

1. To learn methods of plant material sterilisation.
2. To gain experience in the establishment and maintenance of sterile cultures of seedlings and plants.
3. To establish a sterile culture of *Arabidopsis thaliana* and *Nicotiana sp.* plants used as an explant source in Practicals 3, 7, and 8.

Introduction

1. To avoid the process of plant material sterilisation, sterile cultures of plants growing in *in vitro* conditions are recommended as a source of explants.
2. When seedling fragments are used as explants, seeds can be sterilised.
3. Seeds can be germinated *in vitro*, providing a sterile seedling culture.
4. When explants are taken from mature plant tissue, donor plants are typically not maintained in sterile culture.
5. In such cases, sterilisation is necessary.
6. An exception includes species from the *Solanaceae* family (e.g., tomato, tobacco).
7. These plants are easily maintained in *in vitro* culture through propagation by "cuttings."
8. These cuttings are grown on MS10 agar medium.
9. Plants from germinated *in vitro* seeds of the *Solanaceae* family can be propagated by cuttings.