

# Practical 2

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

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### Objectives

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

### Introduction

To avoid the process of plant material sterilisation, sterile culture of plants growing in *in vitro* conditions are recommended as a source of the explants. When fragments of seedlings are used as the explants, seeds can be sterilised and germinated *in vitro*, providing axenic seedling culture.

In the case the explants are taken from mature plant tissue, usually the donor plants cannot be maintained in axenic culture, and the process of sterilisation cannot be avoided.

One of the exceptions are the species from the *Solanaceae* family (e.g., tomato, tobacco), which are easily maintained in *in vitro* culture by a propagation of so-called "cuttings" cultured on an MS10 agar medium. Plants from germinated *in vitro* seeds of *Solanaceae* family can be propagated by cuttings.