PHYTOTESTKIT

MICROBIOTESTS

Seed germination and early growth tests for determination of the « direct » (intrinsic) effects of chemicals on higher plants

Rapid and user-friendly tests with direct length measurements by image analysis

Phytotestkits contain all the materials to perform either a limit test with **three** plant species at one (selected) concentration of a chemical, or a complete test with **one** plant species, at 5 dilutions of the chemical

PHYTOTESTKIT

3 days microbiotest for testing of the direct (intrinsic) effects of chemicals on the germination and early growth of plants

The **Phytotestkit** is a variant of the **Phytotoxkit** and allows to determine the "direct" (= intrinsic) effects of "growth inhibiting" (toxic) chemicals and "growth promoting" chemicals on the germination and early growth of plants, without prior incorporation of the chemicals into a (reference) soil.

The Phytotestkit is available in two versions :

- ***a PHYTOTOXKIT LIMIT TEST for performance of a bioassay on three plant species, with 3 replicates at one (selected) concentration of a chemical (in comparison to the control)***
- ***a PHYTOTESTKIT COMPLETE TEST for a bioassay with 5 dilutions of a chemical (in comparison to the control) on one plant species and with 3 replicates, with calculation of the EC50.***

The assays are performed in special transparent test containers which allow for direct observations and length measurements by image analysis at the end of the test. Easy to follow instructions and detailed illustrations are provided in the kits for the conduct of the very practical assays. Calibrated high quality seeds of the selected test plants are included in the kits for the germination and early growth tests.

Test species

- Three test species frequently used in phytotoxicity analyses have been selected for the Phytotestkit microbiotests because of their very rapid germination and growth of their roots and shoots, which allow observations and scoring after only 3 days : the monocotyl *Sorghum saccharatum* (Sorgho) and the dicotyls *Lepidium sativum* (garden cress) and *Sinapis alba* (mustard).

- Phytotestkit tests can also be applied with any other type of seeds, with adaptation of the exposure time in function of the speed of germination and growth of the plants.

Test criterion

- Germination of the seeds and growth of the roots and the shoots of the selected plant species, upon "direct" exposure of the plants to solutions of chemicals spiked onto a thick filter paper, in comparison to germination and growth in a control without chemical spiking.

Reproducibility

- The high quality seeds, the special standard test containers and materials are a guarantee for the high repeatability and reproducibility of the assays, in comparison to conventional assays on plants.

User-friendliness/ Cost-Effectiveness

- Very rapid set up and scorings which allow to handle multiple tests concurrently.
- Direct observation of the germinated seeds and automatic measurement of the roots (and shoots) in the unique transparent test containers, by image analysis.
- A practical and convenient "Image J" analysis programme can be obtained free of charge on demand.
- Vertical incubation of the flat test containers in their holders, requiring a minimum of shelf- and incubation space.
- "Image capturing" of the germinated seeds in the test containers with any type of "digital" equipment (camera, web camera or flatbed scanner).
- Analyses and measurements can be deferred (since the "pictures" of the test plates are stored on computer) which is a major asset in comparison to conventional tests on plants.
- Minimal equipment needed for test performance: small incubator - (webcam) camera or flatbed scanner – computer with image analysis programme

Contents

- 18 transparent test containers each provided with a foam pad, a thick white filter paper and a thin black filter paper - 3 cardboard holders for the test containers and tubes with seeds of the test species.
- Detailed Standard Operational Procedure brochure and abbreviated Bench Protocol.
- Specification sheet with batch number of the seeds.

N.B. All the materials included in the 2 versions of the PHYTOTESTKIT are also available separately.

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