

Pathoscreen X-Y-Z

<https://search.labfacilities.wur.nl/SearchDetail.aspx?deviceid=5e2e08e4-8121-401d-a843-242827e7edb3>

Brand

PhenoVation

Type

Contact

Theo van der Lee (theo.vanderlee@wur.nl)

Els Verstappen (els.verstappen@wur.nl)

Organisation

Plant Sciences

Department

Bio Interacties en Plantgezondheid

Description

Measuring GFP, RFP, CF and colour images of small whole plants, detached leaves and/or pathogens PathoScreen visualizes the GFP/RFP labelled pathogen and the effect of the presence of the pathogen on the plant through imaging the stress response of the plant. PathoScreen measures multiple fluorescence images at 6 megapixel resolution providing pixel-to-pixel images of Green Fluorescence Protein (GFP), Red Fluorescence Protein (RFP or DsRed), Chlorophyll Fluorescence (CF) and colour (in RGB). Modified pathogens can be selectively imaged using GFP and/or RFP labelling together with the stress response of the plant using chlorophyll fluorescence technology yielding the maximum quantum yield of Photosystem II (PSII) photochemistry (Fv/Fm). This provides early detection of the pathogen and its interaction with the photosynthesis of the plant. GFP images are corrected for auto-fluorescence from senescing leaves.

Technical Details

- Camera with 6 Mp at 14 bit
- Total recording time of all images in 10 s
- Time-lapse recording
- Filtered blue LEDs for GFP excitation, filtered green LEDs for RFP excitation, red LEDs for chlorophyll excitation and white LEDs for colour
- Pixel-to-pixel information on multi fluorescence and colour images
- Built-in pc and monitor for timed imaging, light control and data storage
- Custom optimized measuring protocols
- Fluorescence images for labeled biological material on GFP, auto- fluorescence, and RFP
- Chlorophyll fluorescence images of plant material yielding F0 and Fm of the Kautsky induction curve
- Colour images in separate red, green and blue images (RGB)
- Imaged area of 130x130 mm²
- High Depth of Field (DOF)
- GFP, GFP corrected (for auto-fluorescence) , RFP and CF
- Absolute and relative area of pathogens and plant material
- Fv/FM= (FM-F0)/FM (maximum quantum yield of PSII photochemistry)
- Colour in red, green and blue intensities (RGB values)