

# Hyperspectral images database

## Downy mildew on grapevine leaves

### Plant and pathogen

**Plant** : *Vitis vinifera* L. cv Cabernet Sauvignon

Origin : Cuttings from glasshouse production (SAVE laboratory, France)

**Pathogen** : *Plasmopara viticola* strains INRA-Pv13, INRA-Pv42 and INRA-Pv45

Origin : INRAE strains (Bordeaux, France)

**Inoculation** : Three drops of sporangia suspension deposited on the abaxial leaf area.

**Incubation** : 9 days at 22°C in growth chamber with 12h photoperiod

### Hyperspectral imaging

**Hyperspectral imaging system** : (Specim, Spectral Imaging Ltd., Oulu, Finland)

- Hyperspectral camera Specim FX10
  - Spectral range : 400 – 1 000 nm
  - Spectral resolution : 5.5 nm (mean)
  - Spectral bands : 224
  - Spatial samples : 1 024 pixels
  - Maximum frame rate : 327 FPS
- Specim Labscanner
  - 3 halogen lamps
- Specim's LUMO Scanner Software

**Database** :

- 165 hyperspectral images
- CSV file with wavelengths encoding
- For each image :
  - Dark reference : Internal camera shutter
  - White reference : Teflon bar with 99% standard reflectance
- Database composition : *A replicate corresponds to the same leaf captured over time*
  - Control
    - 4 days
    - 5 replicates
  - Infected
    - 3 strains
    - 9 dpi
    - 3 replicates from 1 to 9 dpi
    - 2 replicates from 1 to 4 dpi
    - 5 replicates from 2 to 4 dpi
  - Missing
    - Control 5<sup>th</sup> replicate, 3<sup>rd</sup> day
    - INRA-Pv13 3<sup>rd</sup> replicate from 1 to 9 dpi, 3<sup>rd</sup> dpi
    - INRA-Pv45 5<sup>th</sup> replicate from 2 to 4 dpi