LABORATORY OF Phytopathology

A METHODOLOGY FOR ELICITOR SCREENING OF WINTER WHEAT INFECTED BY STB AND FHB

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OBJECTIVES

CONTEXT

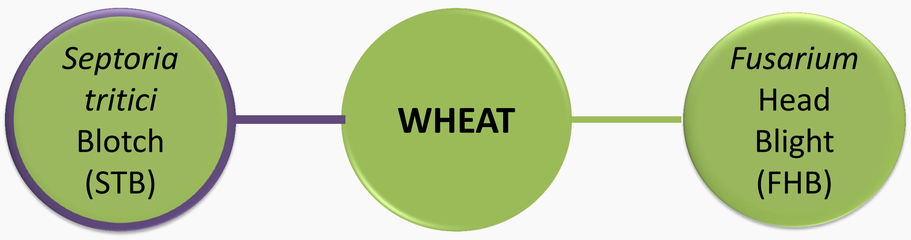
Elicitors consist of all signals perceived by plants and inducing a defensive reaction. They have been subject to intensive research during the last decade and are considered as one of the most promising tools in agriculture for the **promotion of sustainable agroecosystems** and **biological control methods.**

Up to now, few elicitors have been efficiently and specifically designed to protect wheat against major diseases threatening both its yield and quality.

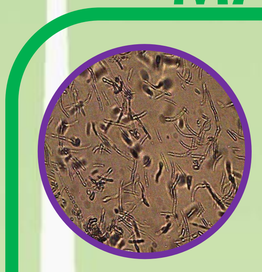
This project aims to develop a **method based on eliciting agents** to protect winter wheat against *Septoria tritici* Blotch (STB) and *Fusarium* Head Blight (FHB).

...tests prior to elicitor screening :

Development of a protocol for an efficient wheat plant infection by *Septoria tritici*



MATERIAL AND METHODS

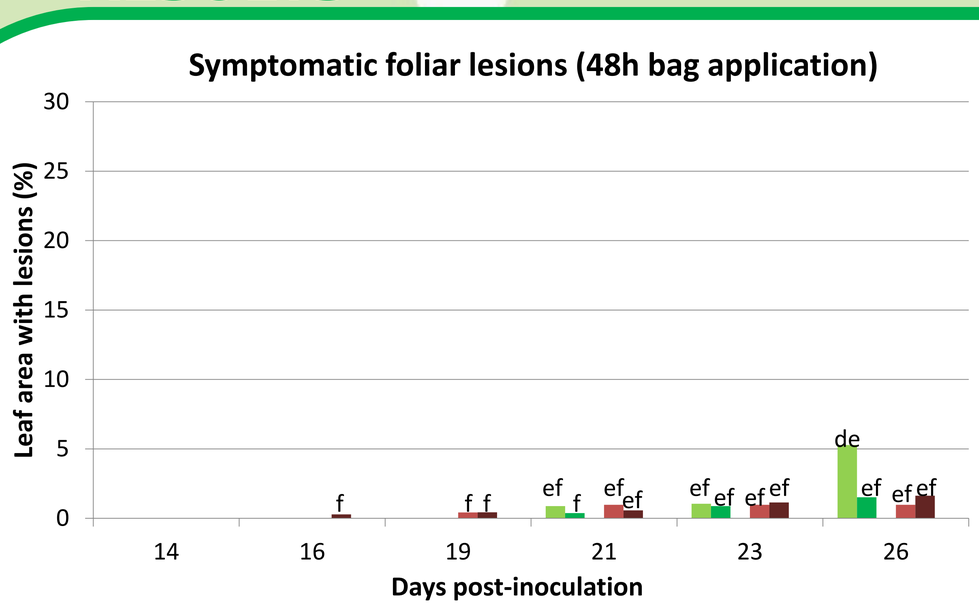


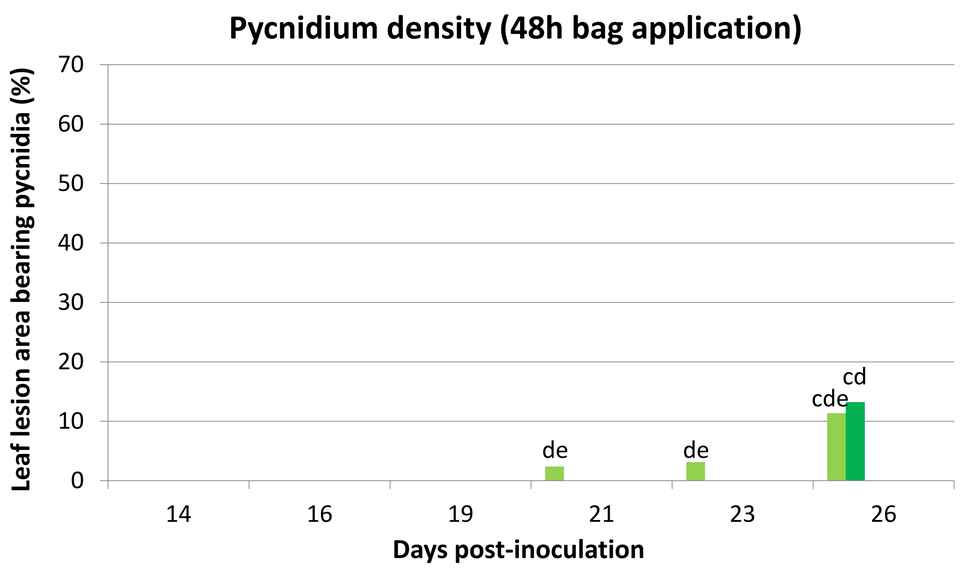
2 *Septoria tritici* isolates: **TO1187** and **TO1196**

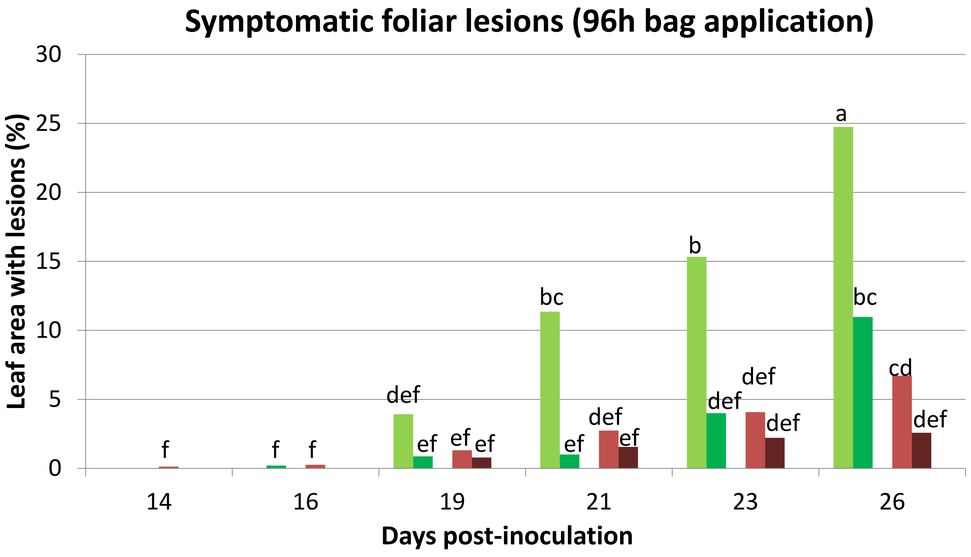
2 winter wheat varieties: **'AVATAR'** (sensitive) and **'Sy Epson'** (semi-resistant) were grown under greenhouse conditions.
For each isolate and variety, 5 pots of 8 plants were used as replicates.

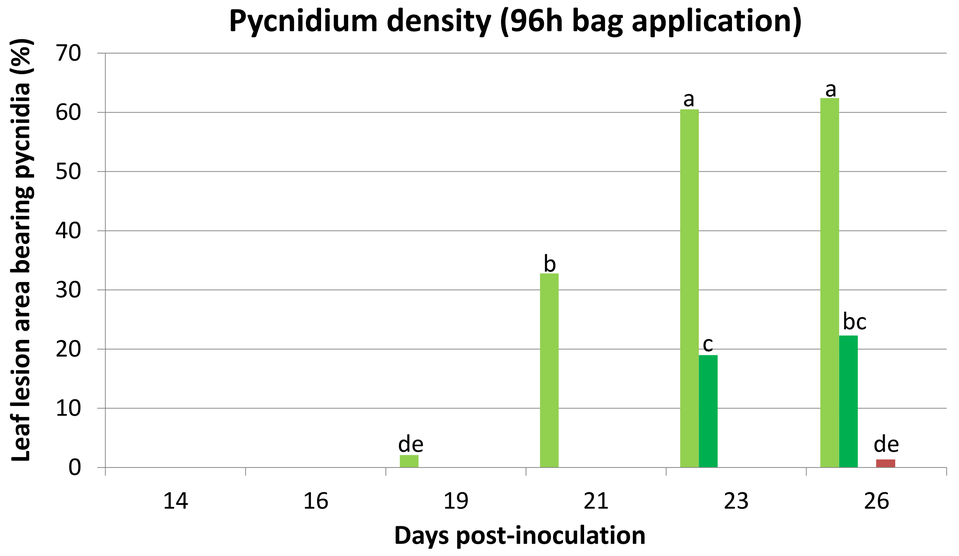
- At 3 leaf stage, all the plants are inoculated with a 20 mL spore suspension (**10^6 spores.mL^{-1}**). Controls plants were treated with sterile water amended with 0,05% Tween 20.
- Plants were covered with transparent plastic **bags for 48 or 96 hours** immediately after inoculation to ensure water-saturated conditions
- **Disease severity** was scored every 2 days for 26 days post-inoculation by assessing the percentage of 3rd leaf area covered with **lesions** (necrosis + chlorosis) and **pycnidium density** within the scored lesions.

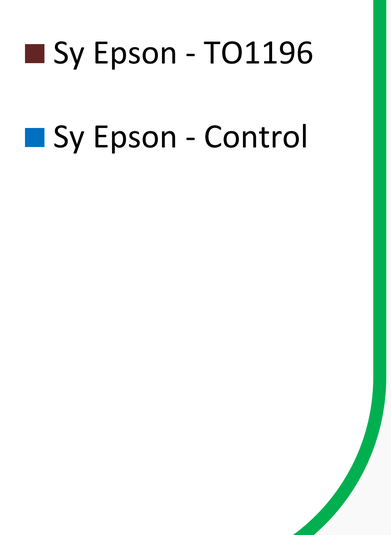
RESULTS











Means tagged with the same letter are not significantly different using the Tukey test at *P*=0.05

CONCLUSION

- Efficient infection by STB on sensitive wheat variety 'Avatar' with the isolate TO1187: most significant amount of lesions and pycnidia
- The best results are obtained with bags covering plants for 4 days (96h).

The STB infection protocol developed here shall be used in elicitor screening tests.
Similar tests will be carried out with *Fusarium* Head Blight.