

New elicitors to protect winter wheat against *Zymoseptoria tritici* ?

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Today, focus is made on the crucial protection of wheat, as one of the most cultivated crop plants in the world. This crop is constantly challenged by a persistent and harmful fungus known as *Zymoseptoria tritici*, responsible of the Septoria Tritici Blotch (STB) disease. Control of this disease mainly depends on chemical products. However there is an urgent need to identify and develop alternative methods as biocontrol tools to adopt an efficient IPM program for wheat. Elicitors are increasingly considered as promising biocontrol tools in the preventive treatment of plants against various diseases. These plant-immunity triggering compounds, also called “stimulators of plant natural defenses”, induce a general and systemic resistance of the plant to a large spectrum of biotic stresses.

This study focuses on the screening of nine molecules of various origins and structures for their potential eliciting activity, to protect winter wheat against *Zymoseptoria tritici*. The protective efficacy of these molecules was evaluated under greenhouse conditions by comparing the infection severity of the treated plants with a water control. In addition, the biocide activity of the 9 candidates was tested *in vitro* directly towards the pathogen, by evaluating their impact on spore germination and fungal growth. Finally, the qPFD tool developed by INRA was used to study the expression of 23 defense genes in the wheat plant following the various treatments.

These combined experiments finally allowed the selection of two molecules as potent elicitors: EGL1 and EGL4. They were efficient to reduce foliar disease symptoms from 60 to 80% on wheat under greenhouse conditions. The efficacy of these 2 promising molecules was thus evaluated in 2 field trials in 2016. The corresponding results will be presented and discussed, with the perspective to investigate the efficacy of these 2 potent elicitors to protect wheat cultivars showing different levels of sensitivity towards the pathogen.