

## THE LACK OF RECOGNITION OF THE POLYGALACTURONASES SECRETED BY *CLAVICEPS PURPUREA* BY PVPGIP2 IS RESPONSIBLE FOR SUSCEPTIBILITY IN WHEAT TRANSGENIC PLANTS

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*Claviceps purpurea* is a biotrophic fungal pathogen of grasses and cereals, causing the ergot disease. The infection process of *C. purpurea* spore mimics a pollen grain growing into the ovary during fertilization and the subsequent pathogenic development is strictly limited to the ovary and the connected vascular tissue. The infection process of *C. purpurea* on rye (*Secale cereale*) flowers is accompanied by pectin degradation and PG activity represents a pathogenicity factor. Because of the importance of PG in the infection process of rye flower, we tested whether in the interaction system *C. purpurea*/wheat the presence of PvPGIP2 can affect pathogen infection and ergot disease development. We first verified the expression of PvPGIP2 in the ovary of transgenic wheat line MJ23a that showed a reduced symptom disease caused by *Bipolaris sorokiniana* and *Fusarium graminearum*. Subsequently, we evaluated the ergot disease symptoms both by assessing the honeydew production on a scale from 1 to 4 and by measuring the sclerotia weight. Both methods produced slight, though statistically significant, differences in mean value between transgenic and control plants. These data suggest that PvPGIP2 affects pathogen growth but its contribution does not produce a noticeable phenotypic effect on ergot symptoms. To verify the possible reason of these lack of improved resistance in MJ23a transgenic plants, we isolated and expressed in *Pichia pastoris* both *pg* genes contained in the *C. purpurea* genome. In vitro assays using the heterologous expressed proteins and purified PvPGIP2 showed that both PGs are poorly affected by this inhibitor. These data suggests that the lack of increased resistance in MJ23a line is due to the lack of inhibition of the PGs of *C. purpurea* by PvPGIP2, thus reinforcing the notion of the effectiveness of PGIP as defence response when recognition occurs.