Phosphooxylipins, New Keys to *Arabidopsis thaliana* Defense Against *Botrytis cinerea*.

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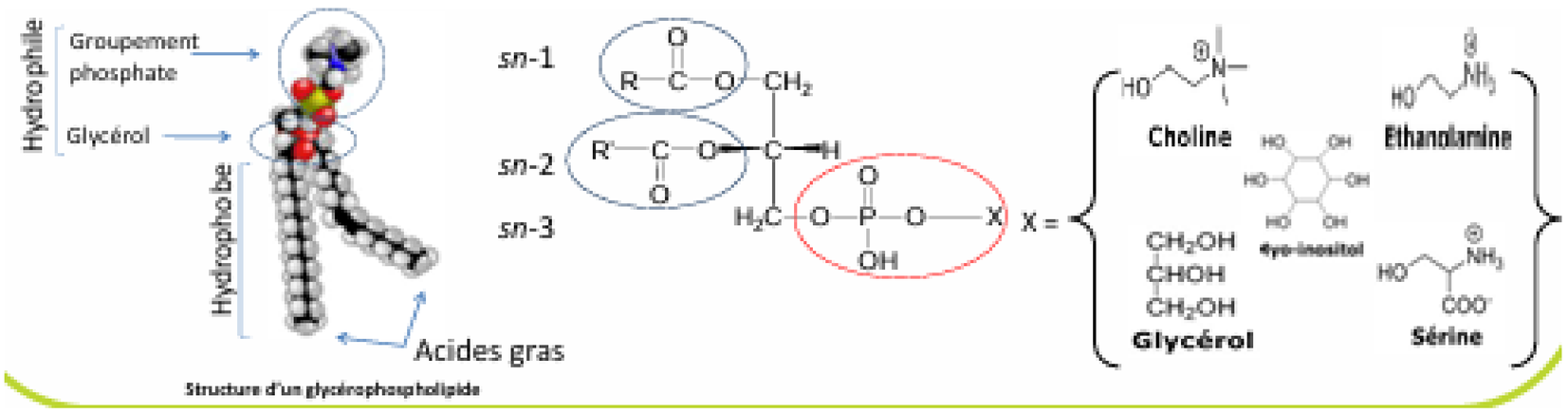
Introduction

Biotic and abiotic stresses suffered by plants lead to the oxidation of membrane lipids, thus forming oxylipins **(Deboever and *al.*, 2020).** Plant oxylipins include both free (more extensively studied) and esterified forms. The esterification of unsaturated fatty acids can occur in complex lipids such as phospholipids, thereby generating phosphooxylipins. Studies have shown that these secondary metabolites accumulate under stress conditions such as wounding, bacterial infections (**Vu and *al.*, 2012),** freezing, and fungal infection, and a great diversity of these molecules has been highlighted. Even though their biosynthetic pathway has not yet been fully studied, the accumulation of phosphooxylipins in plants under stress conditions allows for the hypothesis that phosphooxylipins could be important molecules in plant stress responses. Furthermore, some work conducted on the necrotrophic fungus *Botrytis cinerea* infection in *Arabidopsis thaliana* has highlighted the upregulation of certain genes, notably allene oxide synthase (AOS), allene oxide cyclase 2 (AOC2), OPDA reductase 3 (OPR3), lipoxygenase 2 (LOX2), which are involved in the formation of enzymes participating in the biosynthesis of esterified oxylipins (**Yang and *al*., 2007**), such as phosphooxylipins. Studying the production and the biosynthetic pathway of these molecules during the infection of *Arabidopsis thaliana* with *Botrytis cinerea* would allow for a better understanding of their metabolic functions.



Structure d'un glycérophospholipide

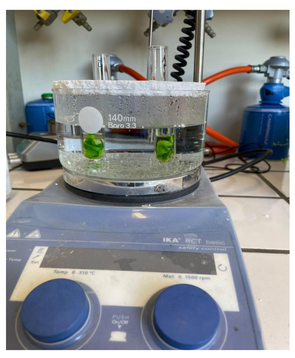
Method


Fungi culture

Pre-germination on Petri dish

3 weeks of plants

Inoculation



Chemical extraction

Sample analyses

Conclusion

These analyses open up interesting perspectives for better understanding the metabolic functions of phosphooxylipins in the response of plants to Botrytis cinerea.

References

Vu, H. S. et *al*. Plant Physiol. 158, 324–339 (2012).
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Wenyu Yang and *al*. 22 juin 2007, JBC volume 282, Pages 18116-18128020.

Acknowledgements

The authors wish to thank the Laboratory of Chemistry of Natural Molecules, Gembloux Agro Bio-Tech, University of Liège.

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