

Summary Report on the ISF Project on *Podosphaera xanthii* (Px) in Melon

Project Overview

The International Seed Federation (ISF) conducted an ambitious project from 2019 to 2023 aimed at addressing the significant challenge of powdery mildew in melon crops, caused by *Podosphaera xanthii* (Px). The variability of Px strains has historically hindered effective disease management. This project's primary goal was to develop and validate a differential set and reference isolates for Px, establishing a universal race coding and naming system to improve communication within the seed industry and enhance disease resistance breeding programs.

Achievements

Development of a Differential Set: The project identified a core group of differentiating melon hosts, crucial for distinguishing EU and US races of Px. This development marks a significant step toward standardized powdery mildew management.

Validation of Differential Set and Reference Isolates: An interlaboratory test, orchestrated by Valerie Grimault and Sandrine Houdault of GEVES, was conducted to validate the chosen differential set and reference isolates, ensuring their reliability for global application.

Proposal of a New Race Coding System: A novel system for coding Px races was proposed to facilitate clearer identification and communication regarding Px races across the seed industry.

Publication and Adoption of Results: The findings, including the new race coding system and the validated differential sets, will be made available on the ISF website. Additionally, a proposal will be submitted to include these results in the HRT table of Euroseeds, promoting broader adoption and standardization.

Implications

This project represents a landmark achievement in the fight against powdery mildew in melon crops, offering a foundation for enhanced disease management strategies worldwide. The establishment of a standardized differential set and race coding system enables clearer communication of Px resistance characteristics, supporting the development of resistant melon cultivars and ensuring more sustainable melon production.

Future Directions

The ISF and its partners will continue to monitor Px races' evolution, updating the differential sets and coding system as necessary to respond to emerging strains. This ongoing commitment underscores the ISF's dedication to advancing agricultural research and supporting the seed industry in addressing plant disease challenges effectively.

Conclusion

The successful completion of the ISF project on Px in melon paves the way for more effective, standardized management of powdery mildew in melon crops. By enhancing our understanding of Px races and providing tools for their identification, the seed industry is better equipped to develop resistant cultivars, benefiting melon producers and consumers worldwide.

Acknowledgements

The ISF extends its gratitude to the researchers, institutions, and companies that contributed to this project, highlighting the power of collaboration in overcoming agricultural challenges. Special thanks are given to Valerie Grimault, Sophie Perrot and Sandrine Houdault of GEVES for their coordination of the validation study, which was instrumental in achieving the project's goals.

Additional details and the full report can be found in the following link [Differential Hosts - International Seed Federation \(worldseed.org\)](#)