

Phytium brassicum - a new pathogen to cruciferous crops

Authors: V. Michel, Agroscope; Ch. Wohler, Liebegg ; T. Käser, Käser & Co

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Introduction

Several years ago, a new problem appeared in arugula (*Eruca sativa*) crops under tunnel in the production areas of the cantons AG, BE and FR. Especially during the summer season high losses can occur. In close collaboration, the LZ Liebegg Gemüse & Beeren (extension service of Canton AG) and Agroscope (Federal Research Station) tried to discover the origin of this problem.

Investigations

When the temperature under tunnel reaches 20-25°C, arugula leaves started to turn yellow (fig. 1) and plants were stunted (fig. 2).



Fig. 1: Yellowing of leaves of infected arugula plants.

The abiotic soil parameters in the tunnel of the enterprise Käser & Co., on which the investigation was conducted, were normal. Therefore, the research focused on biotic factors, especially soilborne pathogens. Samples of soil, diseased and healthy plants were analyzed in the diagnostic laboratory of Agroscope Conthey. On the roots of infected plants, dark lesions were clearly visible (fig. 3).



Fig. 2: Infected (left) and healthy (right) arugula plants.



Fig. 3: Lesions on the tap root of an infected arugula plant.

A new pathogen

Under the light microscope, an important number of oospores could be detected in the roots (fig. 4). Such spores indicate an infection through oomycetes, a group of pathogens including *Pythium* and *Phytophthora* species. Additionally, specially shaped oogonia were detected, they are also typical for oomycetes. Size of and spines on the observed oogonia (fig. 5) permitted to identify the pathogen as *Pythium brassicum*. This oomycete was recently described by American scientists as a new pathogen of crucifers (Stanghellini *et al.*, 2014).

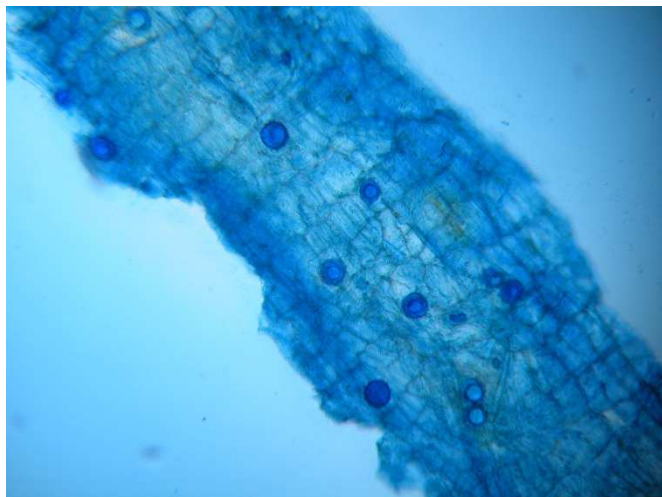


Fig. 4: Oospores in a feather root of an infected plant.

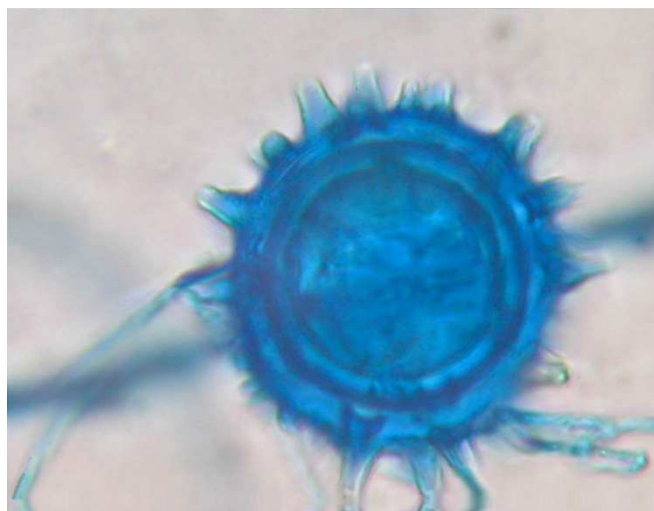


Fig. 5: Oogonium with spines that are typical *Pythium brassicum*.

Control

Actually, no methods for a direct control of this pathogen (i.e., registered fungicides) exist.

Literatur

Stanghellini, M. E., Mohammadi, M., Förster, H., & Adaskaveg, J. E. 2014. *Pythium brassicum* sp. nov.: A novel plant family-specific root pathogen. Plant Disease 98:1619-1625.

Impressum

Editor :	Agroscope Centre de recherche Conthey Route des Vergers 18 1964 Conthey www.agroscope.ch
Information :	vincent.michel@agroscope.admin.ch
Editorial :	V. Michel, Ch. Wohler, T. Käser
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