Plant pathogenic anaerobic bacteria use aromatic polyketides to access aerobic territory.

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Abstract

Around 25% of vegetable food is lost worldwide because of infectious plant diseases, including microbe-induced decay of harvested crops. In wet seasons and under humid storage conditions, potato tubers are readily infected and decomposed by anaerobic bacteria (Clostridium puniceum). We found that these anaerobic plant pathogens harbor a gene locus (type II polyketide synthase) to produce unusual polyketide metabolites (clostrubins) with dual functions. The clostrubins, which act as antibiotics against other microbial plant pathogens, enable the anaerobic bacteria to survive an oxygen-rich plant environment.

Beteiligte Forschungseinheiten

Biomolekulare Chemie Christian Hertweck Mehr erfahren

Infektionsbiologie Peter F. Zipfel Mehr erfahren

Biotechnikum Miriam Agler-Rosenbaum Mehr erfahren

Leibniz-HKI-Autor*innen



Hans-Martin Dahse

Details



Christian Hertweck

Details



Keishi Ishida

Details



Martin Roth

Details



Gulimila Shabuer

Details

Identifier

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