

Tomato plants are suitable hosts for *Salmonella*

Azhar Zarkani¹, Sven Jechalke², Jasper Schierstaedt³, Marlies Becker¹ and Adam Schikora¹

¹Julius Kühn Institute, Federal Research Centre for Cultivated Plants, Institute for Epidemiology and Pathogen Diagnostics, Braunschweig

²Justus Liebig University Giessen, Department of Phytopathology, Gießen

³Leibniz Institute of Vegetable and Ornamental Crops, Department of Plant-microbe interaction, Großbeeren

E-mail of corresponding author: azhar.zarkani@julius-kuehn.de

Salmonella is able to cause disease in humans and animals and also to colonize plants. For successful colonization, *Salmonella* needs to attach and adhere to host surfaces. Recent reports show that *Salmonella enterica* is able to colonize a variety of plant species and organs; hence it can cause disease outbreaks and result in severe economic losses.

Salmonellosis outbreaks are increasingly associated with the consumption of contaminated raw fruits and vegetables. Interestingly, contamination of produce can occur along the whole production chain, also during the plant growth.

Importantly, *Salmonella* originating from plants maintains its virulence in animals. Thus, *Salmonella*-contaminated (crop) plants play an important role in its transmission towards animal and human hosts.

As a consequence, plants might be an alternative host for *Salmonella*. However,

the knowledge about factors influencing the persistence of *Salmonella* in the plant environment and the associated colonization of plants is still insufficient.

Consequently, we investigated the interaction between *Salmonella enterica* and tomato, chosen as a model for crop plants. We analyzed the survival of *Salmonella* in the soil as well as on and in the plant and monitored the gene expression patterns in tomato plants during the interaction with *Salmonella*. We assessed the immune response of tomato plant to the attack of different strains of *Salmonella* and tested whether the different bacterial genetical factors are differently perceived by the plants.

Additionally, we assessed the role of *Salmonella* motility on its persistence in the host plant.