

## [P017] CAN THE AGRICULTURAL MICROBIOME BE UTILISED FOR SUPPRESSING ZONOTIC PATHOGENS IN PLANT FOODS?

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**Aim:** Plant based foods are a significant contributor to foodborne disease outbreaks. Whilst human pathogen numbers in the horticultural production environment generally reduce over time, there may be residual presence, resulting in a potential food safety risk. There is extensive knowledge of the different risk factors in horticultural production, but less is known about the interactions between human pathogens and the microbial communities of the plants, and whether the latter can exert a suppressive effect on the former. The objective of this work is to present some perspectives on harnessing agricultural microbiomes towards increased antagonism against zoonotic pathogens in horticultural production systems.

**Methods:** Published studies were reviewed for evidence of suppressive interactions between pathogens and native microbial communities in different ecological niches in plant production systems.

### Results:

- Suppressiveness is likely to be a function of the community as a whole
- Conditions facilitating expression of suppressiveness need to be elucidated
- Multidisciplinary approaches including relevant knowledge on plant physiology, agronomy, agricultural microbiota and the food chain are needed to develop strategies to investigate functional interactions
- Combining genomic approaches, network analysis, dynamic monitoring and ecological modelling will enable better understanding of the functional potential, ecological niches occupied, and how microbes interact with each other and the plant.

**Conclusions:** As our understanding of the factors shaping microbial assembly, plant-microbe interactions and microbial function in plant systems is enhanced, utilisation of the agricultural microbiome for suppressing zoonotic pathogens seems a realistic prospect. This will be of significant importance from a food safety point of view.