

Differences in resource use lead to coexistence of seed-transmitted microbial populations

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R�sum� en anglais	<p>Seeds are involved in the vertical transmission of microorganisms in plants and act as reservoirs for the plant microbiome. They could serve as carriers of pathogens, making the study of microbial interactions on seeds important in the emergence of plant diseases. We studied the influence of biological disturbances caused by seed transmission of two phytopathogenic agents, <i>Alternaria brassicicola</i> Abra43 (Abra43) and <i>Xanthomonas campestris</i> pv. <i>campestris</i> 8004 (Xcc8004), on the structure and function of radish seed microbial assemblages, as well as the nutritional overlap between Xcc8004 and the seed microbiome, to find seed microbial residents capable of outcompeting this pathogen. According to taxonomic and functional inference performed on metagenomics reads, no shift in structure and function of the seed microbiome was observed following Abra43 and Xcc8004 transmission. This lack of impact derives from a limited overlap in nutritional resources between Xcc8004 and the major bacterial populations of radish seeds. However, two native seed-associated bacterial strains belonging to <i>Stenotrophomonas rhizophila</i> displayed a high overlap with Xcc8004 regarding the use of resources; they might therefore limit its transmission. The strategy we used may serve as a foundation for the selection of seed indigenous bacterial strains that could limit seed transmission of pathogens.</p>
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