Ability of *Salmonella enterica* and *Staphylococcus aureus* to develop biofilm community on stainless steel and colonize rocket tissue

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Salmonella enterica and *Staphylococcus aureus* are important human pathogens capable of causing a diverse array of diseases, while international organization (EFSA, FAO/WHO) report that these are among the most related microorganisms for foodborne diseases. The ability of both species to form biofilm, together with the increased number of antibiotic-resistant *S. aureus* strains, including ones resistant to methicillin (MRSA), are of special interest for researchers. In addition, the consumption of raw plant tissues, have been recently associated with foodborne diseases outbreaks due to cross contamination. Obviously, the ability of pathogenic strains of these species to survive on either abiotic or plant surfaces needs to be further studied.

In the present study, the ability of *S.* Typhimurium (CDC 6516-60) and *S. aureus* strain COL (MRSA) to both develop a biofilm community on stainless steel (SS) and colonize rocket tissue was investigated (incubation at 20°C for 144 h). In parallel, the planktonic growth of these pathogens in Brain Heart Infusion (BHI) broth, was followed.

Following incubation, the population (log CFU/cm^2) of *S.* Typhimurium biofilm cells on SS coupons was about 1 log higher (6.53) compared to *S. aureus* sessile population (5.63). Similarly, in the case of rocket tissue colonization, a significant 2 log difference in the attachment capability of these two pathogens was observed. Obtained results reveal that both pathogens studied here are able to grow on rocket tissue, however, further studies are needed to better determine the survival and / or growth of these as “real” biofilm cells on plant tissues. Additionally, the study of their pathogenic potential during such growth is crucial for food safety.

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