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The pESI plasmid may be a burden for Salmonella enterica serovar Infantis in plant environments

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Plants serve very often as ecological niche for *Salmonella enerica.* Fresh plant foods consumed raw have been linked to numerous outbreaks. In recent years, one critical concern has been the multidrug resistance (MDR) observed in *Salmonella* strains. Among the many serovars, *Salmonella* serovar Infantis ranks as the fourth most commonly reported serovar in human infections. A megaplasmid named pESI (Plasmid of Emerging Salmonella Infantis) enhances *Salmonella* colonization in mammalian hosts and improves environmental fitness. It does so by carrying genes that confer resistance to various antibiotics. This megaplasmid is thought to contribute significantly to the successful spread of emerging *S.* Infantis strains. In our study, we used cress as a plant model for investigating *Salmonella* persistence. Two *S.* Infantis strains were included: one carrying the pESI megaplasmid and the other without it. Our results showed that the Infantis strain without pESI persisted better on cress. To explore this further, we obtained transconjugants by mating the two strains. These transconjugants were introduced separately onto cress. The findings confirmed that the strain without pESI exhibited better persistence, and the presence of pESI negatively impacted the strain's ability to persist in the plant environment. The study revealed that, while pESI offers clear advantages for colonization in mammalian hosts, it acts as a burden for *S.* Infantis persistence in plant environments.

Keywords

AMR; Salmonella; plants

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Professional Status of the Speaker

Professor

Junior Scientist Status

No, I am not a Junior Scientist.

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