

Role of QseG membrane protein in beneficial enterobacterial interactions with plants and *Mesorhizobia*

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Resumen: Membrane protein Quorum sensing G (QseG) positively interferes in the process of colonization and infection of enteric pathogens in animals. Its gene is located between *qseE* and *qseF* genes and is co-transcribed with the two-component system. Homologs of *qseG* gene, along with *qseEF*, are present in many Enterobacteriaceae; however, its role in nonpathogenic strains is still unknown. To fill this knowledge gap, we investigated the role of QseG protein of a plant-associated enterobacterium in the interactions with its legume host and in the benefits induced by this enterobacterium in the *Mesorhizobium*-chickpea symbiosis. Here, we show that *Kosakonia* sp. MH5 $\Delta qseG$ mutant was defective in internal root colonization and inoculation of chickpea seedlings with this mutant increased the expression of the defence-related gene CaRBOH-like in host roots. Furthermore, we show that invasion and a proper establishment within the roots and/or root nodules are essential for MH5 strain to be able to exert beneficial effects on the symbiotic *Mesorhizobium*-chickpea association under salinity. This study demonstrates, for the first time, that the role of QseG is transversal to pathogenic and nonpathogenic enterobacteria and is a step forward to better understanding the molecular bases of plant-bacteria interactions established between legume and beneficial endophytic enterobacteria.