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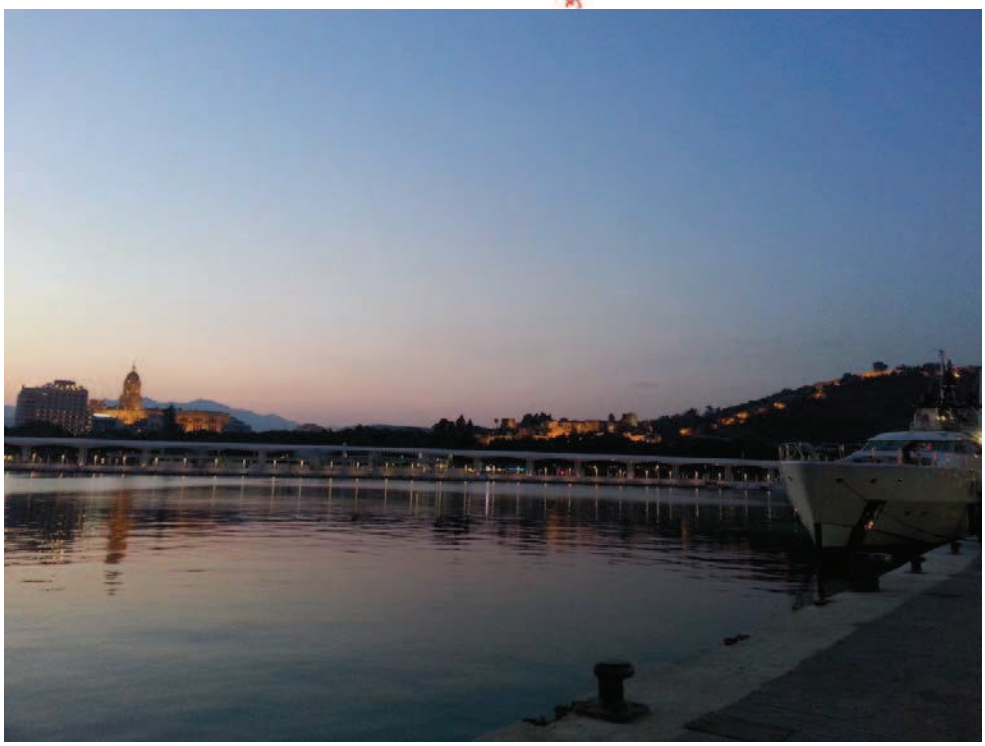

P13. Epigallocatechin gallate and other polyphenols extract from plant biomass for environment-friendly control of *Pseudomonas syringae* diseases

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Although bacterial diseases of plant are relatively few in comparison to those caused by viruses and fungi, they annually cause heavy economic losses all over the world. Damages caused on vegetable and fruit crops may be destructive under adverse environmental conditions or in case of quarantine pathogens. The control of bacterial diseases of plants is worldwide a considerable challenge in the agriculture practice, because of the limited availability of bactericides, that are represented mainly by copper and antibiotics, the latter not allowed in EU for plant protection. In order to meet the needs related both to the productivity of agro-industry and to the protection of the environment, alternatives to the use of copper compounds against phytopathogenic fungi are already under study, possibly able to block their ability to harm the host instead that their viability. Among the few synthetic compounds evaluated until now on phytopathogenic bacteria there are salicylidene acylhydrazides, targeting the Type Three Secretion System (T3SS) of *Erwinia amylovora* (Yang et al., 2014). Similarly, against the T3SS of this bacterium several phenolic compounds and their derivatives were shown to have inhibitory activity (Khokhani et al., 2013). In this work *P. savastanoi* pv. *nerii*, *P. syringae* pv. *tabaci* and *P. syringae* pv. *actinidiae* were used as model systems to evaluate the use of polyphenol-based molecules extracted from agricultural plant biomass as T3SS inhibitors, together with epigallocate-chin-3-gallate (EGCG) which is the main phenol present in green tea. The effectiveness of these polyphenols was demonstrated by using a green fluorescent protein (GFP) reporter system to monitor T3SS expression in these phytopathogenic bacteria, and by *in vitro* and *in vivo* pathogenicity trials on their host plants and HR on tobacco. Furthermore, gene expression studies were also carried out to unveil the bacterial pathways altered by these phenolic extracts.

Key Words: T3SS, *P. syringae*, polyphenols, phenolic extracts, EGCG, green tea.

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