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TRANSFER OF ANTIBIOTIC RESISTANCE GENES FROM
TRANSGENIC (TRANSPLASTOMIC) PLANTS TO ENVIRONMENTAL
BACTERIA.

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Increasing interest in the fate of antibiotic resistance genes used in transgenic plant has led us to examine the possible transfer of these genes to soil microorganisms, *in planta* conditions. Interkingdom gene transfers are limited by combination of physical, biological and genetic barriers, which could be overcome under specific conditions. Recently, we have found that the naturally transformable soil bacterium *Acinetobacter* sp. can co-colonise plants during their infection by the phytopathogen *Ralstonia solanacearum*. This latter bacterium infected and multiplied in its host plant, disorganized tissues leading to plant cell lyses and plant death. In such favourable nutrient conditions, *Acinetobacter* sp. multiplied actively and developed a competence state, allowing uptake of free DNA and genes from *Ralstonia solanacearum*. In addition, the genetic engineering of the chloroplast genome led to a new generation of transgenic plants called transplastomic in which the introduced transgene attained 10000 copies compared to less than 10 for traditional and nuclear modified transgenic plant. Thus, the likelihood for plant transgene DNA uptake and integration by bacteria would be much higher in those transplastomic plants. In this work, we have evaluated possible horizontal gene transfer from transgenic plants DNA, which is released during plant cell lysis, to the co-colonizing *Acinetobacter* sp. *Acinetobacter* sp. when co-infecting a transplastomic tobacco with *R. solanacearum* was naturally transformed by the plant's transgene DNA (*aadA*) conferring spectinomycin and streptomycin resistance. *Acinetobacter* sp. transformants were observed when homologous sequences between plant DNA and recipient genome were present allowing homologous recombination, but none were detected when they are missing.