Colicin-like bacteriocins show potential as next generation antibiotics with potential clinical and agricultural applications. Key to these potential applications is their high potency and species specificity which enables a single pathogenic species to be targeted with minimal disturbance of the wider microbial community. Genes encoding bacteriocins can be readily identified in the genomes of a large number of Gram-negative bacteria, including economically important plant pathogens such as *Pseudomonas syringae*, *Pectobacterium* spp., and *Xanthomonas* spp. We have characterized a number of bacteriocins from phytopathogenic bacteria and these studies suggest that bacteriocins may be useful biocontrol agents. In addition, two colicin M-like bacteriocins, pectocin M1 and syringacin M1, reveal diverse mechanisms of bacteriocin evolution.