*Pseudomonas brassicacearum* DF41 can suppress fungal pathogens through a process known as biocontrol. Production of antifungal metabolites is energetically costly; as such, these compounds are expected to impart a fitness advantage to the producer. Predators, including the nematode *Caenorhabditis elegans,* represent a threat to bacterial persistence in the environment. We have been exploring the role of exometabolites in the DF41-*C. elegans* interaction. Our findings reveal that DF41 is able to escape predation through two distinct mechanisms. The first involves exposure to toxic bacterial metabolites and the second entails biofilm formation on the nematode head, which blocks feeding and causes starvation. When co-cultured with *C. elegans,* DF41 exhibits altered gene expression and metabolite production, indicating that this bacterium can sense predator presence and adjust its physiology accordingly.