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# E,E-farnesol Inhibits Swarming Motility in *Burkholderia cepacia* Through Rhamnolipid Production

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**Presenters**

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# Research & Scholarship SYMPOSIUM

## ***E,E*-farnesol Inhibits Swarming Motility in *Burkholderia cepacia* Through Rhamnolipid Production**

*Burkholderia cepacia* and *Candida albicans* both exhibit cell-to-cell communication through the use of quorum-sensing molecules (QSM) known as autoinducers. *E,E*-farnesol is a QSM produced by *C. albicans* which regulates its conversion from yeast to mycelium. Because there is a positive correlation between the presence of *B. cepacia* and *C. albicans* in the lungs of individuals with cystic fibrosis (CF), we examined whether *E,E*-farnesol had an effect on swarming motility in *B. cepacia*. Swarming motility was inhibited when *B. cepacia* was exposed to 250  $\mu$ M of *E,E*-farnesol. In addition, there was a 26.8% decrease in rhamnolipid production when cells were grown in the presence of *E,E*-farnesol. These biosurfactants are known to regulate swarming motility. Changes in the rhamnolipid concentrations could account for the inhibition of swarming motility observed in the presence of *E,E*-farnesol. The effect of *E,E*-farnesol on *B. cepacia* biofilms was also examined because these complex-community structures are detrimental to the lungs of CF patients and are quorum-sensing regulated. Crystal violet staining showed that *E,E*-farnesol did not significantly affect biofilm formation in *B. cepacia*. Further studies are needed to determine the effects of *E,E*-farnesol on established *B. cepacia* biofilms and whether it can be combined with traditional antibiotics to disrupt these structures.