

Degradation of *N*-acylhomoserine lactone by *Enterobacter* sp. sw39 isolated from sewage

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Many Gram-negative bacteria cell-to-cell communication (quorum sensing) relies on the production of *N*-acylhomoserine lactones (AHL) to coordinate gene expression in cell-density dependant manner. To explore microbial AHL degradation, we have previously reported the design of KG medium which resulted in the isolation of quorum quenching bacteria strain 13sw7. We describe here the properties of a second isolate, strain sw39, co-isolated with strain 13sw7 from sewage. Strain sw39, a Gram-negative, aerobic, long rod-shaped bacterium was shown to degrade the quorum-sensing signal molecule *N*-3-oxo-hexanoylhomoserine lactone (3-oxo-C6-HSL). Partial 16S ribosomal DNA sequence data of sw39 suggest that it belongs to the genus *Enterobacter*. AHL-inactivation assay suggested that *Enterobacter* sw39 degraded synthetic 3-oxo-C6-HSL *in vitro* in 3 hours. No detectable short chain AHLs were detected by cross streaking of sw39 with bioreporter CV026. To the best of our knowledge, this is the first documentation of the isolation of *Enterobacter* from sewage and also quorum quenching activity in an *Enterobacter* sp. The presence of quorum quenching bacterium in sewage provides some insights about microbial role in the inactivation of AHLs which may have some influence on microbial physiology and composition in sewage treatment plant.

Keyword: *Enterobacter*, isolate sw39, Gram-negative bacterium, KG medium, *N*-3-oxo-hexanoylhomoserine lactone, quorum sensing, quorum quenching, sewage.

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