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Effect of Bromination on Quorum Sensing Inhibition of Indole Carboxaldehydes

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*Effect of Bromination on Quorum Sensing Inhibition
of Indole Carboxaldehydes*


A Thesis Submitted to
the Faculty of the University of North Georgia
in Partial Fulfillment
of the Requirements for the Degree
Bachelor of Science in Biology
with Honors

Chesley Anne Kemp

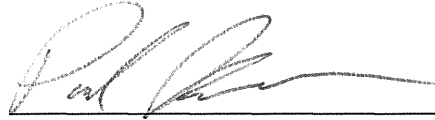
Spring 2018

Accepted by the Honors Faculty
of the University of North Georgia
in partial fulfillment of the requirements for the title of
Honors Program Graduate


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Thesis Chair



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Effect of Bromination on Quorum Sensing Inhibition of Indole Carboxaldehydes
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Abstract

Quorum sensing is a form of bacterial communication that regulates group behaviors such as biofilm formation and production of virulence factors. As a result, inhibition of quorum sensing may prevent activation of pathogenesis in a number of bacterial species. Indoles are a type of signaling molecule found in many bacterial species and the indole derivative indole-3-carboxaldehyde has been found to inhibit quorum sensing mediated behaviors in *Escherichia coli*. Bromination may be a way to increase quorum sensing inhibiting properties of indole carboxaldehydes. The IC_{50} s of three monobrominated indole carboxaldehydes were determined and compared to the IC_{50} of indole-3-carboxaldehyde. IC_{50} s of all three test compounds were significantly decreased from the control. There was not a significant difference between different bromination patterns, although two compounds showed a trend towards a reduced IC_{50} when compared to the third compound.