Design, Synthesis and Evaluation of N-Aryl-Glyoxamide Derivatives as Structurally Novel Bacterial Quorum Sensing Inhibitors

Shashidhar Nizalapur, Önder Kimyon, Nripendra Nath Biswas, Christopher R. Gardner, Renate Griffith, Scott A. Rice, Mike Manefield, Mark Willcox, David StC. Black and Naresh Kumar*

a. School of Chemistry, UNSW Australia, Sydney, NSW 2052, Australia.
b. School of Biotechnology and Biomolecular Sciences (BABS), UNSW Australia, Sydney, NSW 2052, Australia.
c. School of Medical Sciences, UNSW Australia, Sydney, NSW 2052, Australia.
d. Centre for Marine Biology, School of Biological, Earth and Environmental Sciences, UNSW Australia, Sydney, NSW 2052, Australia.
e. The Singapore Centre on Environmental Life Sciences Engineering and the School of Biological Sciences, Nanyang Technological University, Singapore.
f. School of Optometry and Vision Science, UNSW Australia, Sydney, NSW 2052, Australia

* Corresponding author

E–mail: n.kumar@unsw.edu.au* Tel: +61 29385 4698; Fax:+61 29385 6141.
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NMR Spectra

1-phenylindoline-2,3-dione (10)
$^1$HNMR and $^{13}$CNMR spectra of 1-(4-methoxyphenyl) indoline-2,3-dione (11)
$^{1}$HNMR and $^{13}$CNMR spectra of 1-(3-fluorophenyl) indoline-2, 3-dione (12)
$^1$HNMR and $^{13}$CNMR spectra of 1-(4-fluorophenyl) indoline-2,3-dione (13)
$^1$HNMR and $^{13}$CNMR spectra of 1-(4-nitrophenyl) indoline-2, 3-dione (14)
$^1$HNMR and $^{13}$CNMR spectra of 1-(2,4-dinitrophenyl)indoline-2,3-dione (15)
$^{1}$HNMR and $^{13}$CNMR spectra of 1-(2-(phenylamino) phenyl)-2-(pyrrolidin-1-yl) ethane-1,2-dione (16)
$^1$HNMR and $^{13}$CNMR spectra of 1-(2-(phenylamino)phenyl)-2-(piperidin-1-yl)ethane-1,2-dione (17)
$^1$HNMR and $^{13}$CNMR spectra of 1-(2-((3-fluorophenyl)amino)phenyl)-2-(pyrrolidin-1-yl)ethane-1,2-dione (18)
$^1$HNMR and $^{13}$CNMR spectra of 1-(2-((4-fluorophenyl)amino)phenyl)-2-(pyrrolidin-1-yl)ethane-1,2-dione (19)
$^1$HNMR and $^{13}$CNMR spectra of 1-(2-((4-fluorophenyl)amino)phenyl)-2-(piperidin-1-yl)ethane-1,2-dione (20)
$^1$HNMR and $^{13}$CNR spectra of 1-(2-((4-nitrophenyl)amino)phenyl)-2-(pyrrolidin-1-yl)ethane-1,2-dione (21)
$^1$HNMR and $^{13}$CNMR spectra of 1-(2-((4-methoxyphenyl)amino)phenyl)-2-(pyrrolidin-1-yl)ethane-1,2-dione (22)
\[
\text{HNMR and } ^{13}\text{CNMR spectra of 1-((2-(2,4-dinitrophenyl)amino)phenyl)-2-(pyrrolidin-1-yl)ethane-1,2-dione (23)}
\]
$^1$HNMR and $^{13}$CNMR spectra of 1-(2-((2,4-dinitrophenyl)amino)phenyl)-2-(piperidin-1-yl)ethane-1,2-dione (24)
$^1$HNMR and $^{13}$CNMR spectra of N-butyl-2-oxo-2-(2-(phenylamino)phenyl)acetamide (25)
\( ^1 \text{HNMR} \) and \( ^{13} \text{CNMR spectra of } N\text{-octyl-2-oxo-2-(2-(phenylamino)phenyl)acetamide (26)} \)
\[ ^{1}\text{HNMR and } ^{13}\text{CNMR spectra of } N\text{-butyl-2-}(2-((3\text{-fluorophenyl})\text{amino})\text{phenyl})-2\text{-oxoacetamide (27)} \]
$^1$HNMR and $^{13}$CNMR spectra of N-butyl-2-(2-((4-methoxyphenyl)amino)phenyl)-2-oxoacetamide (28)
$^1$HNMR and $^{13}$CNMR spectra of $N$-butyl-2-((2,4-dinitrophenyl)amino)phenyl)-2-oxoacetamide (29)
$^1$HNMR and $^{13}$CNMR spectra of 2-(2-((2,4-dinitrophenyl)amino)phenyl)-2-oxo-\textit{N}-pentylacetamide (30)
$^1$HNMR and $^{13}$CNMR spectra of Ethyl (2-(2-((2,4-dinitrophenyl)amino)phenyl)-2-oxoacetyl)glycinate(31)
$^1$HNMR and $^{13}$CNMR spectra of Methyl (2-(2-((2,4-dinitrophenyl)amino)phenyl)-2-oxoacetyl)-L-alaninate (32)
$^1$HNMR and $^{13}$CNMR spectra of Methyl (2-((2,4-dinitrophenyl)amino)phenyl)-2-oxoacetyl)-L-valinate (33)
\(^1\)HNMR and \(^{13}\)CNMR spectra of Methyl (2-((2,4-dinitrophenyl)amino)phenyl)-2-oxoacetyl)-L-leucinate (34)
\( ^1 \text{HNMR and } ^{13} \text{CNMR spectra of Methyl (2-((2,4-dinitrophenyl)amino)phenyl)-2-oxoacetyl-L-phenylalaninate (35)} \)
$^{1}$HNMR and $^{13}$CNMR spectra of Methyl (2-(2-((2,4-dinitrophenyl)amino)phenyl)-2-oxoacetyl)-L-tryptophanate (36)
Optical Density (OD) Measurements

Table 1: Growth inhibition by the synthesized compounds against the PAMH602 and *E. coli* MT102 strains at three different concentrations.

<table>
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<tr>
<th>Compound</th>
<th>PAMH602</th>
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<th>E. coli MT102</th>
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<tr>
<td></td>
<td>Concentration (µM)</td>
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<td>62.5</td>
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<td>125</td>
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<tr>
<td>16</td>
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<tr>
<td>17</td>
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<td>14.9±1.3</td>
<td>4.2±0.3</td>
<td>1.7±0.2</td>
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<tr>
<td>18</td>
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<td>4±0.7</td>
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</tr>
<tr>
<td>19</td>
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<td>9.9±2.4</td>
<td>6.1±0.8</td>
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<tr>
<td>34</td>
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<td>0.8±1.6</td>
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<td>26.1±6.7</td>
<td>5.2±0.8</td>
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<td>12.2±4.4</td>
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<tr>
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<td>2.3±1.5</td>
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<td>98.8±11.7</td>
<td>99.7±0.3</td>
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Growth inhibition ± standard deviation of mean from at least two independent experiments.
Compounds tested thrice in triplicate. 0 = No growth inhibition.