University of Huddersfield Repository

Song, C., Psakis, Georgios, Kopycki, J., Lang, C., Matysik, J. and Hughes, J.

The D-ring, Not the A-ring, Rotates in Synechococcus OS-B' Phytochrome

Original Citation


This version is available at http://eprints.hud.ac.uk/21420/

The University Repository is a digital collection of the research output of the University, available on Open Access. Copyright and Moral Rights for the items on this site are retained by the individual author and/or other copyright owners. Users may access full items free of charge; copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational or not-for-profit purposes without prior permission or charge, provided:

• The authors, title and full bibliographic details is credited in any copy;
• A hyperlink and/or URL is included for the original metadata page; and
• The content is not changed in any way.

For more information, including our policy and submission procedure, please contact the Repository Team at: E.mailbox@hud.ac.uk.

http://eprints.hud.ac.uk/
Table 2. FWHM line-widths ($\nu_{1/2}$) of $^{13}$C and $^{15}$N resonances of the chromophore in SybCph2(GAF). $^{13}$C and $^{15}$N experimental line-shapes were simulated by the Voigt function (convolution of a Lorentzian with a Gaussian at an equal ratio). The $\nu_{1/2}$ values listed (mean ± standard deviation) were extracted from the Voigt profile (fitting spectra not shown). $\Delta \nu_{1/2}$ are reported as P690 – P630 and listed at the right-most column.

<table>
<thead>
<tr>
<th>chromophore carbon</th>
<th>P630 $\delta^{13}$C (ppm)</th>
<th>$\nu_{1/2}$ (FWHM, in Hz)</th>
<th>P690 $\delta^{15}$N (ppm)</th>
<th>$\nu_{1/2}$ (FWHM, in Hz)</th>
<th>$\Delta \nu_{1/2}^{P690-P630}$ (Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rings A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ring A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>182.0</td>
<td>168.3±22.0</td>
<td>183.3</td>
<td>177.0±22.5</td>
<td>8.7</td>
</tr>
<tr>
<td>2</td>
<td>35.2</td>
<td>433.7±45.7</td>
<td>36.4</td>
<td>1013.5±187.2</td>
<td>579.8</td>
</tr>
<tr>
<td>2'</td>
<td>17.2 (2')</td>
<td>341.6±44.6</td>
<td>17.6 (2')</td>
<td>523.1±58.7</td>
<td>181.5</td>
</tr>
<tr>
<td>3</td>
<td>53.3 (3')</td>
<td>146.2±34.2</td>
<td>50.0 (3')</td>
<td>523.1±141.8</td>
<td>376.9</td>
</tr>
<tr>
<td>3'</td>
<td>47.4</td>
<td>316.7±12.3</td>
<td>48.4</td>
<td>568.2±35.8</td>
<td>251.5</td>
</tr>
<tr>
<td>4</td>
<td>20.6</td>
<td>707.9±79.2</td>
<td>19.3</td>
<td>1207.3±84.7</td>
<td>499.4</td>
</tr>
<tr>
<td>A–B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>85.4 (5')</td>
<td>151.4±54.9</td>
<td>151.8</td>
<td>174.4±28.2</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>86.5 (5')</td>
<td>219.7±49.3</td>
<td></td>
<td>255.7±26.8</td>
</tr>
<tr>
<td>3</td>
<td>151.4 (6')</td>
<td>118.7±35.5</td>
<td>151.8</td>
<td>174.4±28.2</td>
<td>55.7</td>
</tr>
<tr>
<td>7</td>
<td>127.4</td>
<td>207.2±17.1</td>
<td>127.2</td>
<td>304.3±19.7</td>
<td>97.1</td>
</tr>
<tr>
<td>7'</td>
<td>8.3</td>
<td>98.6±11.7</td>
<td>9.9</td>
<td>253.1±66.5</td>
<td>154.5</td>
</tr>
<tr>
<td>8</td>
<td>147.5</td>
<td>121.5±20.1</td>
<td>146.7</td>
<td>196.1±16.7</td>
<td>74.6</td>
</tr>
<tr>
<td>8'</td>
<td>20.9</td>
<td>449.9±55.9</td>
<td>20.1</td>
<td>632.9±29.9</td>
<td>183.0</td>
</tr>
<tr>
<td>9</td>
<td>180.2</td>
<td>261.0±17.9</td>
<td>179.7</td>
<td>367.6±24.4</td>
<td>106.6</td>
</tr>
<tr>
<td>10</td>
<td>126.4</td>
<td>173.6±19.5</td>
<td>126.6</td>
<td>282.9±19.4</td>
<td>109.3</td>
</tr>
<tr>
<td>Rings C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ring C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>130.0</td>
<td>152.0±8.1</td>
<td>129.7</td>
<td>352.4±27.8</td>
<td>200.4</td>
</tr>
<tr>
<td>12</td>
<td>138.5</td>
<td>149.2±20.5</td>
<td>138.3</td>
<td>294.1±36.2</td>
<td>144.9</td>
</tr>
<tr>
<td>12'</td>
<td>21.3</td>
<td>221.0±63.6</td>
<td>22.3</td>
<td>779.3±66.5</td>
<td>558.3</td>
</tr>
<tr>
<td>12'</td>
<td>37.3</td>
<td>419.9±42.6</td>
<td>38.2</td>
<td>870.7±154.9</td>
<td>450.8</td>
</tr>
<tr>
<td>13</td>
<td>177.6</td>
<td>188.7±7.3</td>
<td>177.0</td>
<td>475.4±28.4</td>
<td>286.7</td>
</tr>
<tr>
<td>13'</td>
<td>123.6</td>
<td>121.2±20.3</td>
<td>124.3</td>
<td>144.0±8.6</td>
<td>22.8</td>
</tr>
<tr>
<td>14</td>
<td>11.2</td>
<td>191.2±5.3</td>
<td>11.3</td>
<td>405.2±65.9</td>
<td>214.0</td>
</tr>
<tr>
<td>14'</td>
<td>140.4</td>
<td>192.1±9.7</td>
<td>140.3</td>
<td>225.8±12.0</td>
<td>33.7</td>
</tr>
<tr>
<td>Rings D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ring D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>143.6</td>
<td>145.5±13.1</td>
<td>143.4</td>
<td>320.1±20.9</td>
<td>174.6</td>
</tr>
<tr>
<td>17</td>
<td>140.9</td>
<td>200.6±22.2</td>
<td>141.3</td>
<td>231.6±26.1</td>
<td>31.0</td>
</tr>
<tr>
<td>17'</td>
<td>8.5</td>
<td>207.1±4.9</td>
<td>8.8</td>
<td>392.6±25.2</td>
<td>185.5</td>
</tr>
<tr>
<td>18</td>
<td>132.7</td>
<td>128.0±10.5</td>
<td>132.6</td>
<td>215.3±22.2</td>
<td>87.3</td>
</tr>
<tr>
<td>18'</td>
<td>15.0</td>
<td>450.0±17.6</td>
<td>15.4</td>
<td>756.6±45.1</td>
<td>306.6</td>
</tr>
<tr>
<td>19</td>
<td>11.3</td>
<td>167.3±9.4</td>
<td>12.3</td>
<td>328.7±29.1</td>
<td>161.4</td>
</tr>
<tr>
<td>pyrrole nitrogen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\delta^{13}$C (ppm)</td>
<td></td>
<td>$\nu_{1/2}$ (FWHM, in Hz)</td>
<td>$\delta^{15}$N (ppm)</td>
<td>$\nu_{1/2}$ (FWHM, in Hz)</td>
<td>$\Delta \nu_{1/2}^{P690-P630}$ (Hz)</td>
</tr>
<tr>
<td>Ring A</td>
<td>165.6</td>
<td>255.0±13.3</td>
<td>156.0</td>
<td>152.7±8.8</td>
<td>102.3</td>
</tr>
<tr>
<td>Ring B</td>
<td>161.7</td>
<td>156.4±9.8</td>
<td>161.7</td>
<td>191.5±11.0</td>
<td>35.1</td>
</tr>
<tr>
<td>Ring C</td>
<td>145.4</td>
<td>180.5±7.3</td>
<td>145.6</td>
<td>145.5±8.2</td>
<td>35.0</td>
</tr>
<tr>
<td>Ring D</td>
<td>131.9</td>
<td>236.9±14.4</td>
<td>132.0</td>
<td>154.9±9.0</td>
<td>82.0</td>
</tr>
</tbody>
</table>