# APÉNDICE A

Datos obtenidos respecto a la concentración de antocianinas.

- Temperatura de 70°C

| | | | pH1 | | pH4.5 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **T (°C)** | **Sistema** | **t (días)** | **524 nm** | **700 nm** | **524 nm** | **700 nm** | **A** | **C (mg/l)** | **C (moles/l)** | **ln C/Co** |
| 70 | 1:O | 0 | 0.842 | 0.061 | 0.407 | 0.078 | 0.452 | 2.12 | 3.47E-06 | 0 |
| 70 | 1:O | 0 | 0.843 | 0.062 | 0.408 | 0.079 | 0.452 | 2.12 | 3.47E-06 | 0 |
| 70 | 1:O | 0 | 0.842 | 0.061 | 0.408 | 0.078 | 0.451 | 2.115 | 3.46E-06 | 0 |
| 70 | 1:O | 1 | 0.613 | 0.061 | 0.417 | 0.08 | 0.215 | 1.008 | 1.65E-06 | -0.743 |
| 70 | 1:O | 1 | 0.613 | 0.062 | 0.416 | 0.09 | 0.225 | 1.055 | 1.73E-06 | -0.698 |
| 70 | 1:O | 1 | 0.612 | 0.062 | 0.417 | 0.09 | 0.223 | 1.046 | 1.71E-06 | -0.704 |
| 70 | 1:O | 2 | 0.523 | 0.112 | 0.454 | 0.118 | 0.075 | 0.352 | 5.75E-07 | -1.796 |
| 70 | 1:O | 2 | 0.523 | 0.111 | 0.454 | 0.116 | 0.074 | 0.347 | 5.68E-07 | -1.81 |
| 70 | 1:O | 2 | 0.525 | 0.112 | 0.455 | 0.116 | 0.074 | 0.347 | 5.68E-07 | -1.807 |
| 70 | 1:O | 3 | 0.577 | 0.152 | 0.344 | 0.115 | 0.196 | 0.919 | 1.5E-06 | -0.836 |
| 70 | 1:O | 3 | 0.585 | 0.154 | 0.343 | 0.115 | 0.203 | 0.952 | 1.56E-06 | -0.8 |
| 70 | 1:O | 3 | 0.589 | 0.155 | 0.342 | 0.115 | 0.207 | 0.971 | 1.59E-06 | -0.779 |
| 70 | 1:O | 4 | 0.479 | 0.229 | 0.401 | 0.25 | 0.099 | 0.464 | 7.59E-07 | -1.519 |
| 70 | 1:O | 4 | 0.556 | 0.362 | 0.413 | 0.297 | 0.078 | 0.366 | 5.98E-07 | -1.757 |
| 70 | 1:O | 4 | 0.454 | 0.22 | 0.429 | 0.297 | 0.102 | 0.478 | 7.83E-07 | -1.486 |
| 70 | 1:O | 6 | 0.574 | 0.178 | 0.473 | 0.169 | 0.092 | 0.432 | 7.06E-07 | -1.592 |
| 70 | 1:O | 6 | 0.572 | 0.177 | 0.474 | 0.167 | 0.088 | 0.413 | 6.75E-07 | -1.636 |
| 70 | 1:O | 6 | 0.573 | 0.176 | 0.474 | 0.167 | 0.09 | 0.422 | 6.9E-07 | -1.612 |
| 70 | 1:O | 7 | 0.52 | 0.24 | 0.461 | 0.224 | 0.043 | 0.202 | 3.3E-07 | -2.352 |
| 70 | 1:O | 7 | 0.528 | 0.24 | 0.461 | 0.224 | 0.051 | 0.239 | 3.91E-07 | -2.182 |
| 70 | 1:O | 7 | 0.521 | 0.235 | 0.488 | 0.233 | 0.031 | 0.145 | 2.38E-07 | -2.677 |
| 70 | 1:O | 8 | 0.525 | 0.213 | 0.519 | 0.23 | 0.023 | 0.108 | 1.76E-07 | -2.978 |
| 70 | 1:O | 8 | 0.523 | 0.213 | 0.519 | 0.228 | 0.019 | 0.089 | 1.46E-07 | -3.169 |
| 70 | 1:O | 8 | 0.525 | 0.213 | 0.519 | 0.228 | 0.021 | 0.098 | 1.61E-07 | -3.067 |
| 70 | 1:O | 9 | 0.564 | 0.339 | 0.481 | 0.26 | 0.004 | 0.019 | 3.07E-08 | -4.727 |
| 70 | 1:O | 9 | 0.566 | 0.337 | 0.482 | 0.26 | 0.007 | 0.033 | 5.37E-08 | -4.168 |
| 70 | 1:O | 9 | 0.565 | 0.336 | 0.481 | 0.26 | 0.008 | 0.038 | 6.14E-08 | -4.032 |

| | | | pH1 | | pH4.5 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| T (°C) | Sistema | t (días) | 524 nm | 700 nm | 524 nm | 700 nm | A | C (mg/l) | C (moles/l) | ln C/Co |
| 70 | 1:O.25 | 0 | 0.838 | 0.089 | 0.326 | 0.074 | 0.497 | 2.331 | 3.81E-06 | 0 |
| 70 | 1:O.25 | 0 | 0.837 | 0.09 | 0.325 | 0.075 | 0.497 | 2.331 | 3.81E-06 | 0 |
| 70 | 1:O.25 | 0 | 0.838 | 0.091 | 0.327 | 0.075 | 0.495 | 2.322 | 3.8E-06 | 0 |
| 70 | 1:O.25 | 1 | 0.834 | 0.058 | 0.396 | 0.081 | 0.461 | 2.162 | 3.54E-06 | -0.075 |
| 70 | 1:O.25 | 1 | 0.833 | 0.058 | 0.398 | 0.082 | 0.459 | 2.153 | 3.52E-06 | -0.08 |
| 70 | 1:O.25 | 1 | 0.834 | 0.06 | 0.397 | 0.082 | 0.459 | 2.153 | 3.52E-06 | -0.076 |
| 70 | 1:O.25 | 2 | 0.61 | 0.161 | 0.369 | 0.125 | 0.205 | 0.962 | 1.57E-06 | -0.886 |
| 70 | 1:O.25 | 2 | 0.59 | 0.163 | 0.367 | 0.125 | 0.185 | 0.868 | 1.42E-06 | -0.988 |
| 70 | 1:O.25 | 2 | 0.62 | 0.161 | 0.369 | 0.123 | 0.213 | 0.999 | 1.63E-06 | -0.843 |
| 70 | 1:O.25 | 3 | 0.508 | 0.166 | 0.317 | 0.134 | 0.159 | 0.746 | 1.22E-06 | -1.14 |
| 70 | 1:O.25 | 3 | 0.509 | 0.165 | 0.318 | 0.134 | 0.16 | 0.75 | 1.23E-06 | -1.133 |
| 70 | 1:O.25 | 3 | 0.508 | 0.165 | 0.318 | 0.137 | 0.162 | 0.76 | 1.24E-06 | -1.117 |
| 70 | 1:O.25 | 4 | 0.494 | 0.116 | 0.364 | 0.106 | 0.12 | 0.563 | 9.21E-07 | -1.421 |
| 70 | 1:O.25 | 4 | 0.497 | 0.115 | 0.365 | 0.107 | 0.124 | 0.582 | 9.51E-07 | -1.388 |
| 70 | 1:O.25 | 4 | 0.494 | 0.116 | 0.364 | 0.108 | 0.122 | 0.572 | 9.36E-07 | -1.401 |
| 70 | 1:O.25 | 6 | 0.56 | 0.261 | 0.423 | 0.224 | 0.1 | 0.469 | 7.67E-07 | -1.603 |
| 70 | 1:O.25 | 6 | 0.57 | 0.217 | 0.42 | 0.196 | 0.129 | 0.605 | 9.9E-07 | -1.349 |
| 70 | 1:O.25 | 6 | 0.56 | 0.261 | 0.433 | 0.224 | 0.09 | 0.422 | 6.9E-07 | -1.705 |
| 70 | 1:O.25 | 7 | 0.577 | 0.32 | 0.521 | 0.274 | 0.01 | 0.047 | 7.67E-08 | -3.906 |
| 70 | 1:O.25 | 7 | 0.572 | 0.237 | 0.504 | 0.258 | 0.089 | 0.417 | 6.83E-07 | -1.72 |
| 70 | 1:O.25 | 7 | 0.51 | 0.265 | 0.457 | 0.231 | 0.019 | 0.089 | 1.46E-07 | -3.26 |
| 70 | 1:O.25 | 8 | 0.496 | 0.224 | 0.417 | 0.189 | 0.044 | 0.206 | 3.38E-07 | -2.424 |
| 70 | 1:O.25 | 8 | 0.556 | 0.303 | 0.419 | 0.237 | 0.071 | 0.333 | 5.45E-07 | -1.946 |
| 70 | 1:O.25 | 8 | 0.474 | 0.236 | 0.418 | 0.189 | 0.009 | 0.042 | 6.9E-08 | -4.007 |
| 70 | 1:O.25 | 9 | 0.475 | 0.252 | 0.488 | 0.285 | 0.02 | 0.094 | 1.53E-07 | -3.213 |
| 70 | 1:O.25 | 9 | 0.47 | 0.254 | 0.486 | 0.272 | 0.002 | 0.009 | 1.53E-08 | -5.515 |
| 70 | 1:O.25 | 9 | 0.468 | 0.256 | 0.492 | 0.298 | 0.018 | 0.084 | 1.38E-07 | -3.314 |

| | | | pH1 | | pH4.5 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| T (°C) | Sistema | t (días) | 524 nm | 700 nm | 524 nm | 700 nm | A | C (mg/l) | C (moles/l) | ln C/Co |
| 70 | 1:O.50 | 0 | 1.002 | 0.077 | 0.318 | 0.062 | 0.669 | 3.138 | 5.13E-06 | 0 |
| 70 | 1:O.50 | 0 | 1.001 | 0.076 | 0.319 | 0.061 | 0.667 | 3.129 | 5.12E-06 | 0 |
| 70 | 1:O.50 | 0 | 1.002 | 0.08 | 0.32 | 0.062 | 0.664 | 3.114 | 5.09E-06 | 0 |
| 70 | 1:O.50 | 1 | 0.866 | 0.078 | 0.424 | 0.076 | 0.44 | 2.064 | 3.38E-06 | -0.419 |
| 70 | 1:O.50 | 1 | 0.867 | 0.077 | 0.425 | 0.077 | 0.442 | 2.073 | 3.39E-06 | -0.411 |
| 70 | 1:O.50 | 1 | 0.868 | 0.08 | 0.427 | 0.078 | 0.439 | 2.059 | 3.37E-06 | -0.414 |
| 70 | 1:O.50 | 2 | 0.631 | 0.141 | 0.34 | 0.115 | 0.265 | 1.243 | 2.03E-06 | -0.926 |
| 70 | 1:O.50 | 2 | 0.629 | 0.143 | 0.35 | 0.115 | 0.251 | 1.177 | 1.93E-06 | -0.977 |
| 70 | 1:O.50 | 2 | 0.631 | 0.141 | 0.34 | 0.112 | 0.262 | 1.229 | 2.01E-06 | -0.93 |
| 70 | 1:O.50 | 3 | 0.558 | 0.126 | 0.352 | 0.122 | 0.202 | 0.947 | 1.55E-06 | -1.198 |
| 70 | 1:O.50 | 3 | 0.559 | 0.125 | 0.354 | 0.123 | 0.203 | 0.952 | 1.56E-06 | -1.19 |
| 70 | 1:O.50 | 3 | 0.558 | 0.127 | 0.352 | 0.122 | 0.201 | 0.943 | 1.54E-06 | -1.195 |
| 70 | 1:O.50 | 4 | 0.544 | 0.175 | 0.418 | 0.161 | 0.112 | 0.525 | 8.59E-07 | -1.787 |
| 70 | 1:O.50 | 4 | 0.543 | 0.172 | 0.417 | 0.162 | 0.116 | 0.544 | 8.9E-07 | -1.749 |
| 70 | 1:O.50 | 4 | 0.543 | 0.172 | 0.418 | 0.161 | 0.114 | 0.535 | 8.75E-07 | -1.762 |
| 70 | 1:O.50 | 6 | 0.499 | 0.23 | 0.406 | 0.188 | 0.051 | 0.239 | 3.91E-07 | -2.574 |
| 70 | 1:O.50 | 6 | 0.489 | 0.22 | 0.408 | 0.206 | 0.067 | 0.314 | 5.14E-07 | -2.298 |
| 70 | 1:O.50 | 6 | 0.477 | 0.197 | 0.401 | 0.205 | 0.084 | 0.394 | 6.44E-07 | -2.067 |
| 70 | 1:O.50 | 7 | 0.493 | 0.22 | 0.399 | 0.186 | 0.06 | 0.281 | 4.6E-07 | -2.411 |
| 70 | 1:O.50 | 7 | 0.51 | 0.244 | 0.439 | 0.212 | 0.039 | 0.183 | 2.99E-07 | -2.839 |
| 70 | 1:O.50 | 7 | 0.513 | 0.245 | 0.438 | 0.212 | 0.042 | 0.197 | 3.22E-07 | -2.761 |
| 70 | 1:O.50 | 8 | 0.62 | 0.318 | 0.505 | 0.263 | 0.06 | 0.281 | 4.6E-07 | -2.411 |
| 70 | 1:O.50 | 8 | 0.609 | 0.322 | 0.48 | 0.254 | 0.061 | 0.286 | 4.68E-07 | -2.392 |
| 70 | 1:O.50 | 8 | 0.527 | 0.269 | 0.467 | 0.235 | 0.026 | 0.122 | 1.99E-07 | -3.24 |
| 70 | 1:O.50 | 9 | 0.514 | 0.283 | 0.464 | 0.272 | 0.039 | 0.183 | 2.99E-07 | -2.842 |
| 70 | 1:O.50 | 9 | 0.512 | 0.298 | 0.472 | 0.266 | 0.008 | 0.038 | 6.14E-08 | -4.423 |
| 70 | 1:O.50 | 9 | 0.512 | 0.269 | 0.467 | 0.278 | 0.054 | 0.253 | 4.14E-07 | -2.509 |

| | | | pH1 | | pH4.5 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| T (°C) | Sistema | t (días) | 524 nm | 700 nm | 524 nm | 700 nm | A | C (mg/l) | C (moles/l) | ln C/Co |
| 70 | 1 | 0 | 1.07 | 0.075 | 0.345 | 0.069 | 0.719 | 3.372 | 5.52E-06 | 0 |
| 70 | 1 | 0 | 1.07 | 0.076 | 0.344 | 0.068 | 0.718 | 3.368 | 5.51E-06 | 0 |
| 70 | 1 | 0 | 1.08 | 0.075 | 0.447 | 0.069 | 0.627 | 2.941 | 4.81E-06 | 0 |
| 70 | 1 | 1 | 0.818 | 0.083 | 0.296 | 0.055 | 0.494 | 2.317 | 3.79E-06 | -0.375 |
| 70 | 1 | 1 | 0.82 | 0.085 | 0.296 | 0.057 | 0.496 | 2.326 | 3.81E-06 | -0.37 |
| 70 | 1 | 1 | 0.818 | 0.085 | 0.293 | 0.055 | 0.495 | 2.322 | 3.8E-06 | -0.236 |
| 70 | 1 | 2 | 0.639 | 0.177 | 0.343 | 0.12 | 0.239 | 1.121 | 1.83E-06 | -1.101 |
| 70 | 1 | 2 | 0.637 | 0.175 | 0.344 | 0.118 | 0.236 | 1.107 | 1.81E-06 | -1.113 |
| 70 | 1 | 2 | 0.639 | 0.176 | 0.344 | 0.118 | 0.237 | 1.112 | 1.82E-06 | -0.973 |
| 70 | 1 | 3 | 0.565 | 0.138 | 0.363 | 0.119 | 0.183 | 0.858 | 1.4E-06 | -1.368 |
| 70 | 1 | 3 | 0.565 | 0.135 | 0.367 | 0.119 | 0.182 | 0.854 | 1.4E-06 | -1.372 |
| 70 | 1 | 3 | 0.567 | 0.135 | 0.363 | 0.114 | 0.183 | 0.858 | 1.4E-06 | -1.231 |
| 70 | 1 | 4 | 0.497 | 0.224 | 0.311 | 0.149 | 0.111 | 0.521 | 8.52E-07 | -1.868 |
| 70 | 1 | 4 | 0.487 | 0.213 | 0.311 | 0.15 | 0.113 | 0.53 | 8.67E-07 | -1.849 |
| 70 | 1 | 4 | 0.486 | 0.226 | 0.302 | 0.146 | 0.104 | 0.488 | 7.98E-07 | -1.797 |
| 70 | 1 | 6 | 0.443 | 0.196 | 0.365 | 0.186 | 0.068 | 0.319 | 5.22E-07 | -2.358 |
| 70 | 1 | 6 | 0.492 | 0.229 | 0.364 | 0.187 | 0.086 | 0.403 | 6.6E-07 | -2.122 |
| 70 | 1 | 6 | 0.504 | 0.268 | 0.365 | 0.186 | 0.057 | 0.267 | 4.37E-07 | -2.398 |
| 70 | 1 | 7 | 0.47 | 0.156 | 0.412 | 0.162 | 0.064 | 0.3 | 4.91E-07 | -2.419 |
| 70 | 1 | 7 | 0.468 | 0.157 | 0.41 | 0.162 | 0.063 | 0.295 | 4.83E-07 | -2.433 |
| 70 | 1 | 7 | 0.469 | 0.155 | 0.412 | 0.163 | 0.065 | 0.305 | 4.99E-07 | -2.267 |
| 70 | 1 | 8 | 0.497 | 0.257 | 0.496 | 0.292 | 0.036 | 0.169 | 2.76E-07 | -2.994 |
| 70 | 1 | 8 | 0.511 | 0.245 | 0.489 | 0.326 | 0.103 | 0.483 | 7.9E-07 | -1.942 |
| 70 | 1 | 8 | 0.503 | 0.267 | 0.47 | 0.243 | 0.009 | 0.042 | 6.9E-08 | -4.244 |
| 70 | 1 | 9 | 0.497 | 0.257 | 0.467 | 0.271 | 0.044 | 0.206 | 3.38E-07 | -2.794 |
| 70 | 1 | 9 | 0.511 | 0.261 | 0.458 | 0.257 | 0.049 | 0.23 | 3.76E-07 | -2.685 |
| 70 | 1 | 9 | 0.503 | 0.267 | 0.466 | 0.243 | 0.013 | 0.061 | 9.97E-08 | -3.876 |

- Temperatura de 60ºC

| | | | pH1 | | pH4.5 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **T (°C)** | **Sistema** | **t (días)** | **524 nm** | **700 nm** | **524 nm** | **700 nm** | **A** | **C (mg/l)** | **C (mol/l)** | **ln C/Co** |
| 60 | 1:O | 0 | 1.073 | 0.064 | 0.283 | 0.051 | 0.777 | 3.6445 | 5.961E-06 | 0 |
| 60 | 1:O | 0 | 1.071 | 0.065 | 0.284 | 0.051 | 0.773 | 3.6257 | 5.93E-06 | 0 |
| 60 | 1:O | 0 | 1.073 | 0.067 | 0.281 | 0.055 | 0.78 | 3.6585 | 5.984E-06 | 0 |
| 60 | 1:O | 1 | 1.007 | 0.063 | 0.455 | 0.074 | 0.563 | 2.6407 | 4.319E-06 | -0.3222 |
| 60 | 1:O | 1 | 1.008 | 0.065 | 0.453 | 0.075 | 0.565 | 2.6501 | 4.334E-06 | -0.3135 |
| 60 | 1:O | 1 | 1.009 | 0.063 | 0.457 | 0.077 | 0.566 | 2.6548 | 4.342E-06 | -0.3207 |
| 60 | 1:O | 2 | 0.751 | 0.083 | 0.312 | 0.097 | 0.453 | 2.1248 | 3.475E-06 | -0.5395 |
| 60 | 1:O | 2 | 0.752 | 0.086 | 0.311 | 0.098 | 0.453 | 2.1248 | 3.475E-06 | -0.5344 |
| 60 | 1:O | 2 | 0.752 | 0.083 | 0.313 | 0.098 | 0.454 | 2.1294 | 3.483E-06 | -0.5412 |
| 60 | 1:O | 3 | 0.623 | 0.081 | 0.315 | 0.072 | 0.299 | 1.4024 | 2.294E-06 | -0.955 |
| 60 | 1:O | 3 | 0.631 | 0.079 | 0.313 | 0.072 | 0.311 | 1.4587 | 2.386E-06 | -0.9105 |
| 60 | 1:O | 3 | 0.632 | 0.079 | 0.315 | 0.074 | 0.312 | 1.4634 | 2.394E-06 | -0.9163 |
| 60 | 1:O | 4 | 0.67 | 0.114 | 0.384 | 0.101 | 0.273 | 1.2805 | 2.094E-06 | -1.046 |
| 60 | 1:O | 4 | 0.67 | 0.115 | 0.363 | 0.102 | 0.294 | 1.379 | 2.255E-06 | -0.9667 |
| 60 | 1:O | 4 | 0.69 | 0.114 | 0.363 | 0.102 | 0.315 | 1.4775 | 2.417E-06 | -0.9067 |
| 60 | 1:O | 6 | 0.468 | 0.148 | 0.341 | 0.157 | 0.136 | 0.6379 | 1.043E-06 | -1.7428 |
| 60 | 1:O | 6 | 0.477 | 0.133 | 0.339 | 0.149 | 0.154 | 0.7223 | 1.181E-06 | -1.6133 |
| 60 | 1:O | 6 | 0.456 | 0.114 | 0.336 | 0.143 | 0.149 | 0.6989 | 1.143E-06 | -1.6553 |
| 60 | 1:O | 7 | 0.481 | 0.169 | 0.402 | 0.186 | 0.096 | 0.4503 | 7.365E-07 | -2.0911 |
| 60 | 1:O | 7 | 0.523 | 0.182 | 0.405 | 0.199 | 0.135 | 0.6332 | 1.036E-06 | -1.745 |
| 60 | 1:O | 7 | 0.499 | 0.163 | 0.401 | 0.186 | 0.121 | 0.5675 | 9.283E-07 | -1.8635 |
| 60 | 1:O | 8 | 0.481 | 0.208 | 0.43 | 0.201 | 0.044 | 0.2064 | 3.376E-07 | -2.8713 |
| 60 | 1:O | 8 | 0.522 | 0.221 | 0.447 | 0.202 | 0.056 | 0.2627 | 4.296E-07 | -2.6249 |
| 60 | 1:O | 8 | 0.547 | 0.232 | 0.403 | 0.192 | 0.104 | 0.4878 | 7.978E-07 | -2.0149 |
| 60 | 1:O | 9 | 0.461 | 0.208 | 0.393 | 0.19 | 0.05 | 0.2345 | 3.836E-07 | -2.7434 |
| 60 | 1:O | 9 | 0.46 | 0.207 | 0.395 | 0.19 | 0.048 | 0.2251 | 3.682E-07 | -2.7791 |
| 60 | 1:O | 9 | 0.462 | 0.209 | 0.392 | 0.191 | 0.052 | 0.2439 | 3.989E-07 | -2.7081 |
| 60 | 1:O | 10 | 0.512 | 0.249 | 0.448 | 0.23 | 0.045 | 0.2111 | 3.452E-07 | -2.8488 |
| 60 | 1:O | 10 | 0.515 | 0.245 | 0.447 | 0.231 | 0.054 | 0.2533 | 4.143E-07 | -2.6613 |
| 60 | 1:O | 10 | 0.513 | 0.247 | 0.446 | 0.232 | 0.052 | 0.2439 | 3.989E-07 | -2.7081 |
| 60 | 1:O | 11 | 0.569 | 0.244 | 0.447 | 0.168 | 0.046 | 0.2158 | 3.529E-07 | -2.8268 |
| 60 | 1:O | 11 | 0.567 | 0.243 | 0.448 | 0.167 | 0.043 | 0.2017 | 3.299E-07 | -2.8891 |
| 60 | 1:O | 11 | 0.567 | 0.242 | 0.45 | 0.166 | 0.041 | 0.1923 | 3.145E-07 | -2.9457 |
| 60 | 1:O | 13 | 0.434 | 0.213 | 0.275 | 0.082 | 0.028 | 0.1313 | 2.148E-07 | -3.3232 |
| 60 | 1:O | 13 | 0.436 | 0.211 | 0.274 | 0.083 | 0.034 | 0.1595 | 2.608E-07 | -3.1239 |
| 60 | 1:O | 13 | 0.436 | 0.214 | 0.274 | 0.086 | 0.034 | 0.1595 | 2.608E-07 | -3.1329 |
| 60 | 1:O | 14 | 0.47 | 0.262 | 0.419 | 0.218 | 0.007 | 0.0328 | 5.37E-08 | -4.7095 |
| 60 | 1:O | 14 | 0.471 | 0.26 | 0.423 | 0.216 | 0.004 | 0.0188 | 3.069E-08 | -5.264 |
| 60 | 1:O | 14 | 0.471 | 0.261 | 0.415 | 0.214 | 0.009 | 0.0422 | 6.904E-08 | -4.4621 |
| 60 | 1:O | 15 | 0.612 | 0.339 | 0.408 | 0.201 | 0.066 | 0.3096 | 5.063E-07 | -2.4658 |
| 60 | 1:O | 15 | 0.506 | 0.285 | 0.41 | 0.201 | 0.057 | 0.2674 | 4.373E-07 | -2.6072 |
| 60 | 1:O | 15 | 0.516 | 0.253 | 0.409 | 0.203 | 0.057 | 0.2674 | 4.373E-07 | -2.6162 |

| | | | pH1 | | pH4.5 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| T (°C) | Sistema | t (días) | 524 nm | 700 nm | 524 nm | 700 nm | A | C (mg/l) | C (moles/l) | ln C/Co |
| 60 | 1:O.25 | 0 | 0.869 | 0.06 | 0.309 | 0.054 | 0.554 | 2.5985 | 4.25E-06 | 0 |
| 60 | 1:O.25 | 0 | 0.868 | 0.058 | 0.304 | 0.052 | 0.558 | 2.6173 | 4.281E-06 | 0 |
| 60 | 1:O.25 | 0 | 0.87 | 0.069 | 0.301 | 0.051 | 0.551 | 2.5844 | 4.227E-06 | 0 |
| 60 | 1:O.25 | 1 | 0.748 | 0.088 | 0.251 | 0.055 | 0.464 | 2.1764 | 3.56E-06 | -0.1773 |
| 60 | 1:O.25 | 1 | 0.746 | 0.089 | 0.25 | 0.057 | 0.464 | 2.1764 | 3.56E-06 | -0.1845 |
| 60 | 1:O.25 | 1 | 0.745 | 0.09 | 0.25 | 0.055 | 0.46 | 2.1576 | 3.529E-06 | -0.1805 |
| 60 | 1:O.25 | 2 | 0.683 | 0.047 | 0.377 | 0.07 | 0.329 | 1.5431 | 2.524E-06 | -0.5211 |
| 60 | 1:O.25 | 2 | 0.682 | 0.048 | 0.379 | 0.068 | 0.323 | 1.515 | 2.478E-06 | -0.5467 |
| 60 | 1:O.25 | 2 | 0.679 | 0.045 | 0.375 | 0.065 | 0.324 | 1.5197 | 2.486E-06 | -0.531 |
| 60 | 1:O.25 | 3 | 0.688 | 0.095 | 0.367 | 0.143 | 0.369 | 1.7308 | 2.831E-06 | -0.4064 |
| 60 | 1:O.25 | 3 | 0.678 | 0.093 | 0.36 | 0.147 | 0.372 | 1.7448 | 2.854E-06 | -0.4055 |
| 60 | 1:O.25 | 3 | 0.69 | 0.097 | 0.369 | 0.143 | 0.367 | 1.7214 | 2.815E-06 | -0.4064 |
| 60 | 1:O.25 | 4 | 0.679 | 0.122 | 0.318 | 0.082 | 0.317 | 1.4869 | 2.432E-06 | -0.5583 |
| 60 | 1:O.25 | 4 | 0.677 | 0.124 | 0.321 | 0.081 | 0.313 | 1.4681 | 2.401E-06 | -0.5782 |
| 60 | 1:O.25 | 4 | 0.678 | 0.122 | 0.323 | 0.087 | 0.32 | 1.5009 | 2.455E-06 | -0.5434 |
| 60 | 1:O.25 | 6 | 0.476 | 0.186 | 0.308 | 0.175 | 0.157 | 0.7364 | 1.204E-06 | -1.2609 |
| 60 | 1:O.25 | 6 | 0.523 | 0.199 | 0.307 | 0.177 | 0.194 | 0.9099 | 1.488E-06 | -1.0565 |
| 60 | 1:O.25 | 6 | 0.499 | 0.186 | 0.308 | 0.175 | 0.18 | 0.8443 | 1.381E-06 | -1.1188 |
| 60 | 1:O.25 | 7 | 0.53 | 0.178 | 0.393 | 0.164 | 0.123 | 0.5769 | 9.436E-07 | -1.505 |
| 60 | 1:O.25 | 7 | 0.506 | 0.174 | 0.38 | 0.169 | 0.121 | 0.5675 | 9.283E-07 | -1.5286 |
| 60 | 1:O.25 | 7 | 0.514 | 0.167 | 0.389 | 0.168 | 0.126 | 0.591 | 9.666E-07 | -1.4755 |
| 60 | 1:O.25 | 8 | 0.566 | 0.203 | 0.359 | 0.104 | 0.108 | 0.5066 | 8.285E-07 | -1.635 |
| 60 | 1:O.25 | 8 | 0.564 | 0.198 | 0.357 | 0.11 | 0.119 | 0.5582 | 9.129E-07 | -1.5452 |
| 60 | 1:O.25 | 8 | 0.564 | 0.198 | 0.358 | 0.105 | 0.113 | 0.53 | 8.669E-07 | -1.5843 |
| 60 | 1:O.25 | 9 | 0.495 | 0.23 | 0.445 | 0.25 | 0.07 | 0.3283 | 5.37E-07 | -2.0687 |
| 60 | 1:O.25 | 9 | 0.498 | 0.231 | 0.445 | 0.25 | 0.072 | 0.3377 | 5.524E-07 | -2.0477 |
| 60 | 1:O.25 | 9 | 0.492 | 0.229 | 0.444 | 0.25 | 0.069 | 0.3236 | 5.293E-07 | -2.0776 |
| 60 | 1:O.25 | 10 | 0.63 | 0.296 | 0.403 | 0.197 | 0.128 | 0.6004 | 9.82E-07 | -1.4651 |
| 60 | 1:O.25 | 10 | 0.59 | 0.278 | 0.407 | 0.193 | 0.098 | 0.4597 | 7.518E-07 | -1.7394 |
| 60 | 1:O.25 | 10 | 0.61 | 0.287 | 0.405 | 0.195 | 0.113 | 0.53 | 8.669E-07 | -1.5843 |
| 60 | 1:O.25 | 11 | 0.567 | 0.234 | 0.489 | 0.224 | 0.068 | 0.3189 | 5.217E-07 | -2.0977 |
| 60 | 1:O.25 | 11 | 0.567 | 0.234 | 0.489 | 0.224 | 0.068 | 0.3189 | 5.217E-07 | -2.1049 |
| 60 | 1:O.25 | 11 | 0.567 | 0.234 | 0.489 | 0.224 | 0.068 | 0.3189 | 5.217E-07 | -2.0922 |
| 60 | 1:O.25 | 13 | 0.495 | 0.233 | 0.51 | 0.281 | 0.033 | 0.1548 | 2.532E-07 | -2.8207 |
| 60 | 1:O.25 | 13 | 0.492 | 0.231 | 0.503 | 0.281 | 0.039 | 0.1829 | 2.992E-07 | -2.6608 |
| 60 | 1:O.25 | 13 | 0.489 | 0.229 | 0.496 | 0.282 | 0.046 | 0.2158 | 3.529E-07 | -2.4831 |
| 60 | 1:O.25 | 14 | 0.586 | 0.119 | 0.536 | 0.107 | 0.038 | 0.1782 | 2.915E-07 | -2.6796 |
| 60 | 1:O.25 | 14 | 0.587 | 0.119 | 0.532 | 0.106 | 0.042 | 0.197 | 3.222E-07 | -2.5867 |
| 60 | 1:O.25 | 14 | 0.584 | 0.119 | 0.533 | 0.106 | 0.038 | 0.1782 | 2.915E-07 | -2.6741 |
| 60 | 1:O.25 | 15 | 0.57 | 0.273 | 0.52 | 0.259 | 0.036 | 0.1689 | 2.762E-07 | -2.7336 |
| 60 | 1:O.25 | 15 | 0.566 | 0.277 | 0.517 | 0.256 | 0.028 | 0.1313 | 2.148E-07 | -2.9922 |
| 60 | 1:O.25 | 15 | 0.574 | 0.269 | 0.523 | 0.262 | 0.044 | 0.2064 | 3.376E-07 | -2.5275 |

| | | | pH1 | | pH4.5 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| T (°C) | Sistema | t (días) | 524 nm | 700 nm | 524 nm | 700 nm | A | C (mg/l) | C (moles/l) | ln C/Co |
| 60 | 1:O.50 | 0 | 1.033 | 0.056 | 0.29 | 0.043 | 0.73 | 3.424 | 5.6E-06 | 0 |
| 60 | 1:O.50 | 0 | 1.031 | 0.057 | 0.289 | 0.042 | 0.727 | 3.4099 | 5.577E-06 | 0 |
| 60 | 1:O.50 | 0 | 1.03 | 0.056 | 0.288 | 0.045 | 0.731 | 3.4287 | 5.608E-06 | 0 |
| 60 | 1:O.50 | 1 | 0.915 | 0.053 | 0.394 | 0.061 | 0.529 | 2.4812 | 4.058E-06 | -0.3221 |
| 60 | 1:O.50 | 1 | 0.91 | 0.055 | 0.393 | 0.064 | 0.526 | 2.4672 | 4.035E-06 | -0.3236 |
| 60 | 1:O.50 | 1 | 0.913 | 0.054 | 0.397 | 0.065 | 0.527 | 2.4718 | 4.043E-06 | -0.3272 |
| 60 | 1:O.50 | 2 | 0.747 | 0.08 | 0.32 | 0.093 | 0.44 | 2.0638 | 3.376E-06 | -0.5063 |
| 60 | 1:O.50 | 2 | 0.742 | 0.079 | 0.34 | 0.091 | 0.414 | 1.9418 | 3.176E-06 | -0.5631 |
| 60 | 1:O.50 | 2 | 0.739 | 0.07 | 0.32 | 0.093 | 0.442 | 2.0732 | 3.391E-06 | -0.5031 |
| 60 | 1:O.50 | 3 | 0.756 | 0.105 | 0.309 | 0.071 | 0.413 | 1.9371 | 3.168E-06 | -0.5696 |
| 60 | 1:O.50 | 3 | 0.758 | 0.097 | 0.305 | 0.067 | 0.423 | 1.984 | 3.245E-06 | -0.5416 |
| 60 | 1:O.50 | 3 | 0.757 | 0.098 | 0.303 | 0.065 | 0.421 | 1.9747 | 3.23E-06 | -0.5518 |
| 60 | 1:O.50 | 4 | 0.755 | 0.116 | 0.32 | 0.088 | 0.407 | 1.909 | 3.122E-06 | -0.5842 |
| 60 | 1:O.50 | 4 | 0.756 | 0.113 | 0.321 | 0.083 | 0.405 | 1.8996 | 3.107E-06 | -0.585 |
| 60 | 1:O.50 | 4 | 0.757 | 0.115 | 0.32 | 0.084 | 0.406 | 1.9043 | 3.115E-06 | -0.5881 |
| 60 | 1:O.50 | 6 | 0.62 | 0.233 | 0.4 | 0.174 | 0.161 | 0.7552 | 1.235E-06 | -1.5116 |
| 60 | 1:O.50 | 6 | 0.629 | 0.174 | 0.388 | 0.173 | 0.24 | 1.1257 | 1.841E-06 | -1.1083 |
| 60 | 1:O.50 | 6 | 0.629 | 0.169 | 0.401 | 0.174 | 0.233 | 1.0929 | 1.787E-06 | -1.1434 |
| 60 | 1:O.50 | 7 | 0.524 | 0.176 | 0.401 | 0.164 | 0.111 | 0.5206 | 8.515E-07 | -1.8835 |
| 60 | 1:O.50 | 7 | 0.649 | 0.205 | 0.402 | 0.168 | 0.21 | 0.985 | 1.611E-06 | -1.2418 |
| 60 | 1:O.50 | 7 | 0.583 | 0.178 | 0.405 | 0.167 | 0.167 | 0.7833 | 1.281E-06 | -1.4764 |
| 60 | 1:O.50 | 8 | 0.598 | 0.196 | 0.414 | 0.184 | 0.172 | 0.8068 | 1.32E-06 | -1.4456 |
| 60 | 1:O.50 | 8 | 0.559 | 0.221 | 0.418 | 0.183 | 0.103 | 0.4831 | 7.902E-07 | -1.9542 |
| 60 | 1:O.50 | 8 | 0.556 | 0.235 | 0.418 | 0.185 | 0.088 | 0.4128 | 6.751E-07 | -2.1171 |
| 60 | 1:O.50 | 9 | 0.535 | 0.214 | 0.461 | 0.215 | 0.075 | 0.3518 | 5.754E-07 | -2.2756 |
| 60 | 1:O.50 | 9 | 0.533 | 0.211 | 0.457 | 0.213 | 0.078 | 0.3659 | 5.984E-07 | -2.2322 |
| 60 | 1:O.50 | 9 | 0.537 | 0.217 | 0.465 | 0.217 | 0.072 | 0.3377 | 5.524E-07 | -2.3177 |
| 60 | 1:O.50 | 10 | 0.493 | 0.217 | 0.411 | 0.197 | 0.062 | 0.2908 | 4.756E-07 | -2.4659 |
| 60 | 1:O.50 | 10 | 0.499 | 0.225 | 0.416 | 0.194 | 0.052 | 0.2439 | 3.989E-07 | -2.6377 |
| 60 | 1:O.50 | 10 | 0.505 | 0.221 | 0.406 | 0.191 | 0.069 | 0.3236 | 5.293E-07 | -2.3603 |
| 60 | 1:O.50 | 11 | 0.576 | 0.138 | 0.491 | 0.117 | 0.064 | 0.3002 | 4.91E-07 | -2.4342 |
| 60 | 1:O.50 | 11 | 0.578 | 0.137 | 0.487 | 0.109 | 0.063 | 0.2955 | 4.833E-07 | -2.4458 |
| 60 | 1:O.50 | 11 | 0.58 | 0.139 | 0.489 | 0.101 | 0.053 | 0.2486 | 4.066E-07 | -2.6241 |
| 60 | 1:O.50 | 13 | 0.634 | 0.349 | 0.438 | 0.211 | 0.058 | 0.272 | 4.45E-07 | -2.5326 |
| 60 | 1:O.50 | 13 | 0.636 | 0.347 | 0.44 | 0.213 | 0.062 | 0.2908 | 4.756E-07 | -2.4618 |
| 60 | 1:O.50 | 13 | 0.635 | 0.351 | 0.436 | 0.215 | 0.063 | 0.2955 | 4.833E-07 | -2.4513 |
| 60 | 1:O.50 | 14 | 0.474 | 0.219 | 0.265 | 0.069 | 0.059 | 0.2767 | 4.526E-07 | -2.5155 |
| 60 | 1:O.50 | 14 | 0.472 | 0.22 | 0.268 | 0.073 | 0.057 | 0.2674 | 4.373E-07 | -2.5459 |
| 60 | 1:O.50 | 14 | 0.476 | 0.218 | 0.271 | 0.071 | 0.058 | 0.272 | 4.45E-07 | -2.534 |
| 60 | 1:O.50 | 15 | 0.541 | 0.272 | 0.459 | 0.235 | 0.045 | 0.2111 | 3.452E-07 | -2.7864 |
| 60 | 1:O.50 | 15 | 0.543 | 0.276 | 0.45 | 0.237 | 0.054 | 0.2533 | 4.143E-07 | -2.5999 |
| 60 | 1:O.50 | 15 | 0.539 | 0.28 | 0.441 | 0.233 | 0.051 | 0.2392 | 3.913E-07 | -2.6626 |

| | | | pH1 | | pH4.5 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| T (°C) | Sistema | t (días) | 524 nm | 700 nm | 524 nm | 700 nm | A | C (mg/l) | C (moles/l) | ln C/Co |
| 60 | 1 | 0 | 1.098 | 0.057 | 0.444 | 0.077 | 0.674 | 3.1613 | 5.171E-06 | 0 |
| 60 | 1 | 0 | 1.095 | 0.055 | 0.449 | 0.08 | 0.671 | 3.1473 | 5.148E-06 | 0 |
| 60 | 1 | 0 | 1.092 | 0.049 | 0.447 | 0.083 | 0.679 | 3.1848 | 5.209E-06 | 0 |
| 60 | 1 | 1 | 0.82 | 0.106 | 0.32 | 0.091 | 0.485 | 2.2749 | 3.721E-06 | -0.3291 |
| 60 | 1 | 1 | 0.86 | 0.102 | 0.317 | 0.087 | 0.528 | 2.4765 | 4.051E-06 | -0.2397 |
| 60 | 1 | 1 | 0.83 | 0.103 | 0.314 | 0.086 | 0.499 | 2.3405 | 3.828E-06 | -0.308 |
| 60 | 1 | 2 | 0.848 | 0.108 | 0.33 | 0.091 | 0.501 | 2.3499 | 3.843E-06 | -0.2966 |
| 60 | 1 | 2 | 0.843 | 0.105 | 0.35 | 0.09 | 0.478 | 2.242 | 3.667E-06 | -0.3392 |
| 60 | 1 | 2 | 0.841 | 0.107 | 0.33 | 0.089 | 0.493 | 2.3124 | 3.782E-06 | -0.3201 |
| 60 | 1 | 3 | 0.855 | 0.044 | 0.437 | 0.065 | 0.439 | 2.0591 | 3.368E-06 | -0.4287 |
| 60 | 1 | 3 | 0.856 | 0.043 | 0.425 | 0.066 | 0.454 | 2.1294 | 3.483E-06 | -0.3907 |
| 60 | 1 | 3 | 0.857 | 0.043 | 0.422 | 0.067 | 0.459 | 2.1529 | 3.521E-06 | -0.3916 |
| 60 | 1 | 4 | 0.607 | 0.095 | 0.303 | 0.077 | 0.286 | 1.3415 | 2.194E-06 | -0.8572 |
| 60 | 1 | 4 | 0.604 | 0.093 | 0.305 | 0.079 | 0.285 | 1.3368 | 2.186E-06 | -0.8563 |
| 60 | 1 | 4 | 0.603 | 0.09 | 0.303 | 0.081 | 0.291 | 1.3649 | 2.232E-06 | -0.8473 |
| 60 | 1 | 6 | 0.691 | 0.184 | 0.406 | 0.167 | 0.268 | 1.257 | 2.056E-06 | -0.9222 |
| 60 | 1 | 6 | 0.688 | 0.166 | 0.402 | 0.167 | 0.287 | 1.3461 | 2.202E-06 | -0.8493 |
| 60 | 1 | 6 | 0.693 | 0.178 | 0.408 | 0.166 | 0.273 | 1.2805 | 2.094E-06 | -0.9111 |
| 60 | 1 | 7 | 0.501 | 0.101 | 0.393 | 0.166 | 0.173 | 0.8114 | 1.327E-06 | -1.3599 |
| 60 | 1 | 7 | 0.548 | 0.102 | 0.383 | 0.161 | 0.224 | 1.0507 | 1.718E-06 | -1.0971 |
| 60 | 1 | 7 | 0.579 | 0.107 | 0.387 | 0.162 | 0.247 | 1.1585 | 1.895E-06 | -1.0112 |
| 60 | 1 | 8 | 0.556 | 0.235 | 0.401 | 0.237 | 0.157 | 0.7364 | 1.204E-06 | -1.457 |
| 60 | 1 | 8 | 0.587 | 0.196 | 0.398 | 0.202 | 0.195 | 0.9146 | 1.496E-06 | -1.2358 |
| 60 | 1 | 8 | 0.548 | 0.181 | 0.396 | 0.183 | 0.154 | 0.7223 | 1.181E-06 | -1.4837 |
| 60 | 1 | 9 | 0.462 | 0.168 | 0.428 | 0.208 | 0.074 | 0.3471 | 5.677E-07 | -2.2092 |
| 60 | 1 | 9 | 0.464 | 0.165 | 0.424 | 0.21 | 0.085 | 0.3987 | 6.521E-07 | -2.0661 |
| 60 | 1 | 9 | 0.46 | 0.162 | 0.42 | 0.206 | 0.084 | 0.394 | 6.444E-07 | -2.0898 |
| 60 | 1 | 10 | 0.472 | 0.214 | 0.406 | 0.235 | 0.087 | 0.4081 | 6.674E-07 | -2.0473 |
| 60 | 1 | 10 | 0.474 | 0.211 | 0.41 | 0.237 | 0.09 | 0.4221 | 6.904E-07 | -2.009 |
| 60 | 1 | 10 | 0.476 | 0.217 | 0.408 | 0.233 | 0.084 | 0.394 | 6.444E-07 | -2.0898 |
| 60 | 1 | 11 | 0.58 | 0.279 | 0.419 | 0.21 | 0.092 | 0.4315 | 7.058E-07 | -1.9914 |
| 60 | 1 | 11 | 0.583 | 0.277 | 0.415 | 0.204 | 0.095 | 0.4456 | 7.288E-07 | -1.9549 |
| 60 | 1 | 11 | 0.586 | 0.281 | 0.417 | 0.198 | 0.086 | 0.4034 | 6.598E-07 | -2.0663 |
| 60 | 1 | 13 | 0.637 | 0.298 | 0.437 | 0.208 | 0.11 | 0.5159 | 8.439E-07 | -1.8127 |
| 60 | 1 | 13 | 0.633 | 0.303 | 0.441 | 0.218 | 0.107 | 0.5019 | 8.209E-07 | -1.8359 |
| 60 | 1 | 13 | 0.641 | 0.293 | 0.433 | 0.21 | 0.125 | 0.5863 | 9.59E-07 | -1.6923 |
| 60 | 1 | 14 | 0.517 | 0.174 | 0.308 | 0.071 | 0.106 | 0.4972 | 8.132E-07 | -1.8498 |
| 60 | 1 | 14 | 0.52 | 0.176 | 0.31 | 0.075 | 0.109 | 0.5113 | 8.362E-07 | -1.8174 |
| 60 | 1 | 14 | 0.523 | 0.172 | 0.305 | 0.067 | 0.113 | 0.53 | 8.669E-07 | -1.7932 |
| 60 | 1 | 15 | 0.458 | 0.128 | 0.389 | 0.156 | 0.097 | 0.455 | 7.441E-07 | -1.9385 |
| 60 | 1 | 15 | 0.457 | 0.126 | 0.387 | 0.152 | 0.096 | 0.4503 | 7.365E-07 | -1.9444 |
| 60 | 1 | 15 | 0.459 | 0.128 | 0.391 | 0.156 | 0.099 | 0.4644 | 7.595E-07 | -1.9255 |

- Temperatura de 50 ºC

| | | | pH1 | | pH4.5 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| T (°C) | Sistema | t (días) | 524 nm | 700 nm | 524 nm | 700 nm | A | C (mg/l) | C (moles/l) | ln C/Co |
| 50 | 1:O | 0 | 1.061 | 0.056 | 0.4 | 0.116 | 0.721 | 3.382 | 5.531E-06 | 0 |
| 50 | 1:O | 0 | 1.063 | 0.051 | 0.396 | 0.114 | 0.73 | 3.424 | 5.6E-06 | 0 |
| 50 | 1:O | 0 | 1.057 | 0.062 | 0.396 | 0.116 | 0.715 | 3.354 | 5.485E-06 | 0 |
| 50 | 1:O | 1 | 1.041 | 0.072 | 0.398 | 0.097 | 0.668 | 3.133 | 5.125E-06 | -0.0764 |
| 50 | 1:O | 1 | 1.062 | 0.062 | 0.384 | 0.099 | 0.715 | 3.354 | 5.485E-06 | -0.0208 |
| 50 | 1:O | 1 | 1.063 | 0.065 | 0.401 | 0.097 | 0.694 | 3.255 | 5.324E-06 | -0.0298 |
| 50 | 1:O | 2 | 0.835 | 0.077 | 0.296 | 0.055 | 0.517 | 2.425 | 3.966E-06 | -0.3326 |
| 50 | 1:O | 2 | 0.838 | 0.073 | 0.285 | 0.058 | 0.538 | 2.523 | 4.127E-06 | -0.3052 |
| 50 | 1:O | 2 | 0.841 | 0.071 | 0.283 | 0.051 | 0.538 | 2.523 | 4.127E-06 | -0.2844 |
| 50 | 1:O | 3 | 0.744 | 0.086 | 0.301 | 0.083 | 0.44 | 2.064 | 3.376E-06 | -0.4939 |
| 50 | 1:O | 3 | 0.751 | 0.085 | 0.3 | 0.082 | 0.448 | 2.101 | 3.437E-06 | -0.4883 |
| 50 | 1:O | 3 | 0.743 | 0.088 | 0.305 | 0.083 | 0.433 | 2.031 | 3.322E-06 | -0.5015 |
| 50 | 1:O | 4 | 0.827 | 0.094 | 0.366 | 0.075 | 0.442 | 2.073 | 3.391E-06 | -0.4893 |
| 50 | 1:O | 4 | 0.826 | 0.091 | 0.364 | 0.071 | 0.442 | 2.073 | 3.391E-06 | -0.5017 |
| 50 | 1:O | 4 | 0.825 | 0.093 | 0.366 | 0.077 | 0.443 | 2.078 | 3.399E-06 | -0.4787 |
| 50 | 1:O | 6 | 0.687 | 0.11 | 0.373 | 0.11 | 0.314 | 1.473 | 2.409E-06 | -0.8312 |
| 50 | 1:O | 6 | 0.809 | 0.13 | 0.412 | 0.107 | 0.374 | 1.754 | 2.869E-06 | -0.6688 |
| 50 | 1:O | 6 | 0.811 | 0.12 | 0.317 | 0.089 | 0.463 | 2.172 | 3.552E-06 | -0.4346 |
| 50 | 1:O | 7 | 0.628 | 0.112 | 0.362 | 0.107 | 0.261 | 1.224 | 2.002E-06 | -1.0161 |
| 50 | 1:O | 7 | 0.685 | 0.097 | 0.314 | 0.092 | 0.366 | 1.717 | 2.808E-06 | -0.6904 |
| 50 | 1:O | 7 | 0.718 | 0.104 | 0.321 | 0.107 | 0.4 | 1.876 | 3.069E-06 | -0.5808 |
| 50 | 1:O | 8 | 0.618 | 0.123 | 0.338 | 0.106 | 0.263 | 1.234 | 2.018E-06 | -1.0085 |
| 50 | 1:O | 8 | 0.572 | 0.156 | 0.34 | 0.111 | 0.187 | 0.877 | 1.435E-06 | -1.3619 |
| 50 | 1:O | 8 | 0.59 | 0.112 | 0.339 | 0.112 | 0.251 | 1.177 | 1.926E-06 | -1.0468 |
| 50 | 1:O | 9 | 0.455 | 0.122 | 0.267 | 0.107 | 0.173 | 0.811 | 1.327E-06 | -1.4273 |
| 50 | 1:O | 9 | 0.458 | 0.128 | 0.264 | 0.103 | 0.169 | 0.793 | 1.297E-06 | -1.4631 |
| 50 | 1:O | 9 | 0.452 | 0.125 | 0.261 | 0.099 | 0.165 | 0.774 | 1.266E-06 | -1.4663 |
| 50 | 1:O | 10 | 0.627 | 0.152 | 0.307 | 0.103 | 0.271 | 1.271 | 2.079E-06 | -0.9785 |
| 50 | 1:O | 10 | 0.63 | 0.151 | 0.305 | 0.107 | 0.281 | 1.318 | 2.156E-06 | -0.9547 |
| 50 | 1:O | 10 | 0.633 | 0.153 | 0.303 | 0.101 | 0.278 | 1.304 | 2.133E-06 | -0.9447 |
| 50 | 1:O | 11 | 0.65 | 0.141 | 0.358 | 0.103 | 0.254 | 1.191 | 1.949E-06 | -1.0433 |
| 50 | 1:O | 11 | 0.651 | 0.137 | 0.356 | 0.105 | 0.263 | 1.234 | 2.018E-06 | -1.0209 |
| 50 | 1:O | 11 | 0.652 | 0.139 | 0.36 | 0.101 | 0.254 | 1.191 | 1.949E-06 | -1.0349 |
| 50 | 1:O | 13 | 0.494 | 0.127 | 0.373 | 0.107 | 0.101 | 0.474 | 7.748E-07 | -1.9655 |
| 50 | 1:O | 13 | 0.498 | 0.131 | 0.377 | 0.105 | 0.095 | 0.446 | 7.288E-07 | -2.0392 |
| 50 | 1:O | 13 | 0.496 | 0.135 | 0.369 | 0.103 | 0.095 | 0.446 | 7.288E-07 | -2.0184 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 | 1:O | 15 | 0.524 | 0.127 | 0.315 | 0.108 | 0.19 | 0.891 | 1.458E-06 | -1.3336 |
| 50 | 1:O | 15 | 0.527 | 0.122 | 0.325 | 0.113 | 0.193 | 0.905 | 1.481E-06 | -1.3304 |
| 50 | 1:O | 15 | 0.523 | 0.126 | 0.316 | 0.109 | 0.191 | 0.896 | 1.465E-06 | -1.32 |
| 50 | 1:O | 16 | 0.501 | 0.132 | 0.371 | 0.139 | 0.137 | 0.643 | 1.051E-06 | -1.6607 |
| 50 | 1:O | 16 | 0.496 | 0.133 | 0.369 | 0.137 | 0.131 | 0.614 | 1.005E-06 | -1.7178 |
| 50 | 1:O | 16 | 0.498 | 0.135 | 0.368 | 0.133 | 0.128 | 0.6 | 9.82E-07 | -1.7203 |
| 50 | 1:O | 17 | 0.4 | 0.133 | 0.264 | 0.128 | 0.131 | 0.614 | 1.005E-06 | -1.7054 |
| 50 | 1:O | 17 | 0.397 | 0.13 | 0.251 | 0.122 | 0.138 | 0.647 | 1.059E-06 | -1.6658 |
| 50 | 1:O | 17 | 0.395 | 0.127 | 0.249 | 0.121 | 0.14 | 0.657 | 1.074E-06 | -1.6306 |
| 50 | 1:O | 18 | 0.38 | 0.133 | 0.371 | 0.25 | 0.126 | 0.591 | 9.666E-07 | -1.668 |
| 50 | 1:O | 18 | 0.378 | 0.132 | 0.373 | 0.24 | 0.113 | 0.53 | 8.669E-07 | -1.8449 |
| 50 | 1:O | 18 | 0.375 | 0.138 | 0.372 | 0.27 | 0.135 | 0.633 | 1.036E-06 | -1.6372 |
| 50 | 1:O | 20 | 0.416 | 0.179 | 0.355 | 0.174 | 0.056 | 0.263 | 4.296E-07 | -2.5553 |
| 50 | 1:O | 20 | 0.417 | 0.184 | 0.33 | 0.16 | 0.063 | 0.295 | 4.833E-07 | -2.4499 |
| 50 | 1:O | 20 | 0.411 | 0.156 | 0.344 | 0.142 | 0.053 | 0.249 | 4.066E-07 | -2.602 |
| 50 | 1:O | 21 | 0.407 | 0.157 | 0.347 | 0.157 | 0.06 | 0.281 | 4.603E-07 | -2.4863 |
| 50 | 1:O | 21 | 0.409 | 0.161 | 0.354 | 0.165 | 0.059 | 0.277 | 4.526E-07 | -2.5155 |
| 50 | 1:O | 21 | 0.41 | 0.165 | 0.345 | 0.158 | 0.058 | 0.272 | 4.45E-07 | -2.5118 |
| 50 | 1:O | 22 | 0.379 | 0.155 | 0.347 | 0.166 | 0.043 | 0.202 | 3.299E-07 | -2.7431 |
| 50 | 1:O | 22 | 0.373 | 0.15 | 0.38 | 0.195 | 0.038 | 0.178 | 2.915E-07 | -2.9347 |
| 50 | 1:O | 22 | 0.375 | 0.152 | 0.356 | 0.175 | 0.042 | 0.197 | 3.222E-07 | -2.8048 |

| | | | pH1 | | pH4.5 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **T (°C)** | **Sistema** | **t (días)** | **524 nm** | **700 nm** | **524 nm** | **700 nm** | **A** | **C (mg/l)** | **C (moles/l)** | **ln C/Co** |
| 50 | 1:O.25 | 0 | 1.307 | 0.067 | 0.51 | 0.065 | 0.795 | 3.729 | 6.099E-06 | 0 |
| 50 | 1:O.25 | 0 | 1.291 | 0.062 | 0.501 | 0.069 | 0.797 | 3.738 | 6.114E-06 | 0 |
| 50 | 1:O.25 | 0 | 1.3 | 0.059 | 0.505 | 0.061 | 0.797 | 3.738 | 6.114E-06 | 0 |
| 50 | 1:O.25 | 1 | 1.04 | 0.062 | 0.327 | 0.048 | 0.699 | 3.279 | 5.362E-06 | -0.1287 |
| 50 | 1:O.25 | 1 | 1.041 | 0.065 | 0.331 | 0.05 | 0.695 | 3.26 | 5.332E-06 | -0.1369 |
| 50 | 1:O.25 | 1 | 1.042 | 0.067 | 0.334 | 0.051 | 0.692 | 3.246 | 5.309E-06 | -0.1413 |
| 50 | 1:O.25 | 2 | 0.972 | 0.071 | 0.342 | 0.057 | 0.616 | 2.889 | 4.726E-06 | -0.2551 |
| 50 | 1:O.25 | 2 | 0.988 | 0.068 | 0.34 | 0.059 | 0.639 | 2.997 | 4.902E-06 | -0.221 |
| 50 | 1:O.25 | 2 | 0.991 | 0.057 | 0.338 | 0.06 | 0.656 | 3.077 | 5.033E-06 | -0.1947 |
| 50 | 1:O.25 | 3 | 0.935 | 0.08 | 0.443 | 0.074 | 0.486 | 2.28 | 3.728E-06 | -0.4921 |
| 50 | 1:O.25 | 3 | 0.938 | 0.083 | 0.447 | 0.072 | 0.48 | 2.251 | 3.682E-06 | -0.5071 |
| 50 | 1:O.25 | 3 | 0.935 | 0.086 | 0.441 | 0.075 | 0.483 | 2.265 | 3.705E-06 | -0.5008 |
| 50 | 1:O.25 | 4 | 0.844 | 0.122 | 0.331 | 0.097 | 0.488 | 2.289 | 3.744E-06 | -0.488 |
| 50 | 1:O.25 | 4 | 0.834 | 0.112 | 0.34 | 0.095 | 0.477 | 2.237 | 3.659E-06 | -0.5133 |
| 50 | 1:O.25 | 4 | 0.837 | 0.095 | 0.343 | 0.103 | 0.502 | 2.355 | 3.851E-06 | -0.4623 |
| 50 | 1:O.25 | 6 | 0.732 | 0.078 | 0.339 | 0.086 | 0.401 | 1.881 | 3.076E-06 | -0.6844 |
| 50 | 1:O.25 | 6 | 0.734 | 0.079 | 0.337 | 0.085 | 0.403 | 1.89 | 3.092E-06 | -0.6819 |
| 50 | 1:O.25 | 6 | 0.735 | 0.071 | 0.336 | 0.076 | 0.404 | 1.895 | 3.099E-06 | -0.6794 |
| 50 | 1:O.25 | 7 | 0.602 | 0.11 | 0.302 | 0.079 | 0.269 | 1.262 | 2.064E-06 | -1.0836 |
| 50 | 1:O.25 | 7 | 0.676 | 0.101 | 0.311 | 0.064 | 0.328 | 1.538 | 2.516E-06 | -0.8878 |
| 50 | 1:O.25 | 7 | 0.675 | 0.086 | 0.317 | 0.079 | 0.351 | 1.646 | 2.693E-06 | -0.8201 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 | 1:O.25 | 8 | 0.565 | 0.119 | 0.438 | 0.127 | 0.135 | 0.633 | 1.036E-06 | -1.7731 |
| 50 | 1:O.25 | 8 | 0.629 | 0.123 | 0.426 | 0.133 | 0.213 | 0.999 | 1.634E-06 | -1.3196 |
| 50 | 1:O.25 | 8 | 0.7 | 0.142 | 0.415 | 0.122 | 0.265 | 1.243 | 2.033E-06 | -1.1011 |
| 50 | 1:O.25 | 9 | 0.546 | 0.124 | 0.362 | 0.12 | 0.18 | 0.844 | 1.381E-06 | -1.4854 |
| 50 | 1:O.25 | 9 | 0.544 | 0.122 | 0.365 | 0.118 | 0.175 | 0.821 | 1.343E-06 | -1.5161 |
| 50 | 1:O.25 | 9 | 0.548 | 0.126 | 0.371 | 0.122 | 0.173 | 0.811 | 1.327E-06 | -1.5276 |
| 50 | 1:O.25 | 10 | 0.571 | 0.147 | 0.358 | 0.126 | 0.192 | 0.901 | 1.473E-06 | -1.4208 |
| 50 | 1:O.25 | 10 | 0.565 | 0.145 | 0.356 | 0.124 | 0.188 | 0.882 | 1.442E-06 | -1.4444 |
| 50 | 1:O.25 | 10 | 0.567 | 0.143 | 0.361 | 0.131 | 0.194 | 0.91 | 1.488E-06 | -1.413 |
| 50 | 1:O.25 | 11 | 0.563 | 0.131 | 0.409 | 0.12 | 0.143 | 0.671 | 1.097E-06 | -1.7155 |
| 50 | 1:O.25 | 11 | 0.571 | 0.137 | 0.411 | 0.124 | 0.147 | 0.689 | 1.128E-06 | -1.6904 |
| 50 | 1:O.25 | 11 | 0.567 | 0.134 | 0.41 | 0.128 | 0.151 | 0.708 | 1.158E-06 | -1.6636 |
| 50 | 1:O.25 | 13 | 0.598 | 0.134 | 0.449 | 0.118 | 0.133 | 0.624 | 1.02E-06 | -1.788 |
| 50 | 1:O.25 | 13 | 0.596 | 0.131 | 0.452 | 0.119 | 0.132 | 0.619 | 1.013E-06 | -1.7981 |
| 50 | 1:O.25 | 13 | 0.594 | 0.137 | 0.455 | 0.12 | 0.122 | 0.572 | 9.359E-07 | -1.8768 |
| 50 | 1:O.25 | 15 | 0.549 | 0.139 | 0.356 | 0.121 | 0.175 | 0.821 | 1.343E-06 | -1.5136 |
| 50 | 1:O.25 | 15 | 0.545 | 0.137 | 0.357 | 0.12 | 0.171 | 0.802 | 1.312E-06 | -1.5392 |
| 50 | 1:O.25 | 15 | 0.541 | 0.143 | 0.355 | 0.119 | 0.162 | 0.76 | 1.243E-06 | -1.5933 |
| 50 | 1:O.25 | 16 | 0.491 | 0.121 | 0.369 | 0.121 | 0.122 | 0.572 | 9.359E-07 | -1.8743 |
| 50 | 1:O.25 | 16 | 0.507 | 0.125 | 0.372 | 0.122 | 0.132 | 0.619 | 1.013E-06 | -1.7981 |
| 50 | 1:O.25 | 16 | 0.508 | 0.119 | 0.368 | 0.111 | 0.132 | 0.619 | 1.013E-06 | -1.7981 |
| 50 | 1:O.25 | 17 | 0.483 | 0.166 | 0.39 | 0.162 | 0.089 | 0.417 | 6.828E-07 | -2.1897 |
| 50 | 1:O.25 | 17 | 0.472 | 0.147 | 0.377 | 0.153 | 0.101 | 0.474 | 7.748E-07 | -2.0657 |
| 50 | 1:O.25 | 17 | 0.474 | 0.148 | 0.375 | 0.153 | 0.104 | 0.488 | 7.978E-07 | -2.0365 |
| 50 | 1:O.25 | 18 | 0.456 | 0.145 | 0.345 | 0.128 | 0.094 | 0.441 | 7.211E-07 | -2.0064 |
| 50 | 1:O.25 | 18 | 0.434 | 0.125 | 0.342 | 0.123 | 0.09 | 0.422 | 6.904E-07 | -2.0441 |
| 50 | 1:O.25 | 18 | 0.432 | 0.132 | 0.333 | 0.119 | 0.086 | 0.403 | 6.598E-07 | -2.0852 |
| 50 | 1:O.25 | 20 | 0.425 | 0.134 | 0.319 | 0.129 | 0.101 | 0.474 | 7.748E-07 | -2.0632 |
| 50 | 1:O.25 | 20 | 0.428 | 0.132 | 0.318 | 0.128 | 0.106 | 0.497 | 8.132E-07 | -2.0174 |
| 50 | 1:O.25 | 20 | 0.433 | 0.13 | 0.321 | 0.122 | 0.104 | 0.488 | 7.978E-07 | -2.0365 |
| 50 | 1:O.25 | 21 | 0.494 | 0.166 | 0.361 | 0.119 | 0.086 | 0.403 | 6.598E-07 | -2.224 |
| 50 | 1:O.25 | 21 | 0.495 | 0.186 | 0.344 | 0.124 | 0.089 | 0.417 | 6.828E-07 | -2.1922 |
| 50 | 1:O.25 | 21 | 0.487 | 0.165 | 0.38 | 0.158 | 0.1 | 0.469 | 7.672E-07 | -2.0757 |
| 50 | 1:O.25 | 22 | 0.428 | 0.15 | 0.358 | 0.148 | 0.068 | 0.319 | 5.217E-07 | -2.3301 |
| 50 | 1:O.25 | 22 | 0.417 | 0.148 | 0.37 | 0.163 | 0.062 | 0.291 | 4.756E-07 | -2.4168 |
| 50 | 1:O.25 | 22 | 0.411 | 0.156 | 0.371 | 0.164 | 0.048 | 0.225 | 3.682E-07 | -2.6684 |

| | | | pH1 | | pH4.5 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| T (°C) | Sistema | t (días) | 524 nm | 700 nm | 524 nm | 700 nm | A | C (mg/l) | C (moles/l) | ln C/Co |
| 50 | 1:O.50 | 0 | 1.015 | 0.054 | 0.336 | 0.062 | 0.687 | 3.222 | 5.27E-06 | 0 |
| 50 | 1:O.50 | 0 | 1.02 | 0.052 | 0.339 | 0.067 | 0.696 | 3.265 | 5.339E-06 | 0 |
| 50 | 1:O.50 | 0 | 1.025 | 0.057 | 0.331 | 0.059 | 0.696 | 3.265 | 5.339E-06 | 0 |
| 50 | 1:O.50 | 1 | 0.877 | 0.048 | 0.356 | 0.062 | 0.535 | 2.509 | 4.104E-06 | -0.2501 |
| 50 | 1:O.50 | 1 | 0.873 | 0.046 | 0.358 | 0.067 | 0.536 | 2.514 | 4.112E-06 | -0.2612 |
| 50 | 1:O.50 | 1 | 0.881 | 0.045 | 0.355 | 0.062 | 0.543 | 2.547 | 4.166E-06 | -0.2482 |
| 50 | 1:O.50 | 2 | 0.933 | 0.064 | 0.292 | 0.055 | 0.632 | 2.964 | 4.848E-06 | -0.0834 |
| 50 | 1:O.50 | 2 | 0.934 | 0.06 | 0.286 | 0.054 | 0.642 | 3.011 | 4.925E-06 | -0.0808 |
| 50 | 1:O.50 | 2 | 0.931 | 0.067 | 0.271 | 0.049 | 0.642 | 3.011 | 4.925E-06 | -0.0808 |
| 50 | 1:O.50 | 3 | 0.914 | 0.077 | 0.324 | 0.059 | 0.572 | 2.683 | 4.388E-06 | -0.1832 |
| 50 | 1:O.50 | 3 | 0.917 | 0.075 | 0.327 | 0.056 | 0.571 | 2.678 | 4.38E-06 | -0.198 |
| 50 | 1:O.50 | 3 | 0.918 | 0.081 | 0.328 | 0.058 | 0.567 | 2.659 | 4.35E-06 | -0.205 |
| 50 | 1:O.50 | 4 | 0.887 | 0.105 | 0.308 | 0.09 | 0.564 | 2.645 | 4.327E-06 | -0.1973 |
| 50 | 1:O.50 | 4 | 0.888 | 0.108 | 0.311 | 0.087 | 0.556 | 2.608 | 4.265E-06 | -0.2246 |
| 50 | 1:O.50 | 4 | 0.887 | 0.107 | 0.309 | 0.092 | 0.563 | 2.641 | 4.319E-06 | -0.2121 |
| 50 | 1:O.50 | 6 | 0.743 | 0.091 | 0.317 | 0.079 | 0.414 | 1.942 | 3.176E-06 | -0.5065 |
| 50 | 1:O.50 | 6 | 0.748 | 0.086 | 0.316 | 0.075 | 0.421 | 1.975 | 3.23E-06 | -0.5027 |
| 50 | 1:O.50 | 6 | 0.749 | 0.089 | 0.315 | 0.078 | 0.423 | 1.984 | 3.245E-06 | -0.498 |
| 50 | 1:O.50 | 7 | 0.682 | 0.11 | 0.302 | 0.079 | 0.349 | 1.637 | 2.677E-06 | -0.6773 |
| 50 | 1:O.50 | 7 | 0.657 | 0.086 | 0.311 | 0.064 | 0.324 | 1.52 | 2.486E-06 | -0.7646 |
| 50 | 1:O.50 | 7 | 0.69 | 0.101 | 0.317 | 0.079 | 0.351 | 1.646 | 2.693E-06 | -0.6846 |
| 50 | 1:O.50 | 8 | 0.644 | 0.13 | 0.355 | 0.115 | 0.274 | 1.285 | 2.102E-06 | -0.9192 |
| 50 | 1:O.50 | 8 | 0.601 | 0.118 | 0.338 | 0.106 | 0.251 | 1.177 | 1.926E-06 | -1.0199 |
| 50 | 1:O.50 | 8 | 0.614 | 0.128 | 0.355 | 0.117 | 0.248 | 1.163 | 1.903E-06 | -1.0319 |
| 50 | 1:O.50 | 9 | 0.574 | 0.157 | 0.346 | 0.113 | 0.184 | 0.863 | 1.412E-06 | -1.3174 |
| 50 | 1:O.50 | 9 | 0.571 | 0.158 | 0.348 | 0.121 | 0.186 | 0.872 | 1.427E-06 | -1.3196 |
| 50 | 1:O.50 | 9 | 0.577 | 0.16 | 0.344 | 0.117 | 0.19 | 0.891 | 1.458E-06 | -1.2983 |
| 50 | 1:O.50 | 10 | 0.609 | 0.119 | 0.351 | 0.101 | 0.24 | 1.126 | 1.841E-06 | -1.0517 |
| 50 | 1:O.50 | 10 | 0.613 | 0.115 | 0.361 | 0.107 | 0.244 | 1.144 | 1.872E-06 | -1.0482 |
| 50 | 1:O.50 | 10 | 0.611 | 0.117 | 0.356 | 0.112 | 0.25 | 1.173 | 1.918E-06 | -1.0239 |
| 50 | 1:O.50 | 11 | 0.575 | 0.107 | 0.347 | 0.118 | 0.239 | 1.121 | 1.834E-06 | -1.0559 |
| 50 | 1:O.50 | 11 | 0.578 | 0.109 | 0.345 | 0.117 | 0.241 | 1.13 | 1.849E-06 | -1.0606 |
| 50 | 1:O.50 | 11 | 0.581 | 0.111 | 0.343 | 0.116 | 0.243 | 1.14 | 1.864E-06 | -1.0523 |
| 50 | 1:O.50 | 13 | 0.627 | 0.141 | 0.345 | 0.087 | 0.228 | 1.069 | 1.749E-06 | -1.103 |
| 50 | 1:O.50 | 13 | 0.625 | 0.137 | 0.343 | 0.087 | 0.232 | 1.088 | 1.78E-06 | -1.0986 |
| 50 | 1:O.50 | 13 | 0.629 | 0.134 | 0.351 | 0.091 | 0.235 | 1.102 | 1.803E-06 | -1.0858 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 | 1:O.50 | 15 | 0.479 | 0.133 | 0.321 | 0.12 | 0.145 | 0.68 | 1.112E-06 | -1.5556 |
| 50 | 1:O.50 | 15 | 0.486 | 0.138 | 0.328 | 0.131 | 0.151 | 0.708 | 1.158E-06 | -1.5281 |
| 50 | 1:O.50 | 15 | 0.491 | 0.156 | 0.317 | 0.129 | 0.147 | 0.689 | 1.128E-06 | -1.5549 |
| 50 | 1:O.50 | 16 | 0.436 | 0.106 | 0.328 | 0.106 | 0.108 | 0.507 | 8.285E-07 | -1.8502 |
| 50 | 1:O.50 | 16 | 0.446 | 0.103 | 0.312 | 0.104 | 0.135 | 0.633 | 1.036E-06 | -1.6401 |
| 50 | 1:O.50 | 16 | 0.447 | 0.104 | 0.311 | 0.111 | 0.143 | 0.671 | 1.097E-06 | -1.5825 |
| 50 | 1:O.50 | 17 | 0.487 | 0.141 | 0.343 | 0.131 | 0.134 | 0.629 | 1.028E-06 | -1.6345 |
| 50 | 1:O.50 | 17 | 0.492 | 0.147 | 0.347 | 0.137 | 0.135 | 0.633 | 1.036E-06 | -1.6401 |
| 50 | 1:O.50 | 17 | 0.494 | 0.151 | 0.338 | 0.134 | 0.139 | 0.652 | 1.066E-06 | -1.6109 |
| 50 | 1:O.50 | 18 | 0.488 | 0.15 | 0.336 | 0.119 | 0.121 | 0.568 | 9.283E-07 | -1.4865 |
| 50 | 1:O.50 | 18 | 0.478 | 0.142 | 0.338 | 0.127 | 0.125 | 0.586 | 9.59E-07 | -1.4558 |
| 50 | 1:O.50 | 18 | 0.49 | 0.149 | 0.339 | 0.123 | 0.125 | 0.586 | 9.59E-07 | -1.4688 |
| 50 | 1:O.50 | 20 | 0.469 | 0.164 | 0.369 | 0.143 | 0.079 | 0.371 | 6.061E-07 | -2.1629 |
| 50 | 1:O.50 | 20 | 0.468 | 0.163 | 0.368 | 0.144 | 0.081 | 0.38 | 6.214E-07 | -2.1509 |
| 50 | 1:O.50 | 20 | 0.471 | 0.161 | 0.373 | 0.152 | 0.089 | 0.417 | 6.828E-07 | -2.0567 |
| 50 | 1:O.50 | 21 | 0.394 | 0.158 | 0.371 | 0.183 | 0.048 | 0.225 | 3.682E-07 | -2.6611 |
| 50 | 1:O.50 | 21 | 0.373 | 0.137 | 0.351 | 0.166 | 0.051 | 0.239 | 3.913E-07 | -2.6135 |
| 50 | 1:O.50 | 21 | 0.361 | 0.136 | 0.345 | 0.163 | 0.043 | 0.202 | 3.299E-07 | -2.7841 |
| 50 | 1:O.50 | 22 | 0.331 | 0.129 | 0.324 | 0.17 | 0.048 | 0.225 | 3.682E-07 | -2.4111 |
| 50 | 1:O.50 | 22 | 0.324 | 0.124 | 0.321 | 0.16 | 0.039 | 0.183 | 2.992E-07 | -2.6206 |
| 50 | 1:O.50 | 22 | 0.4 | 0.166 | 0.348 | 0.16 | 0.046 | 0.216 | 3.529E-07 | -2.4685 |

| | | | pH1 | | pH4.5 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **T (°C)** | **Sistema** | **t (días)** | **524 nm** | **700 nm** | **524 nm** | **700 nm** | **A** | **C (mg/l)** | **C (moles/l)** | **ln C/Co** |
| 50 | 1 | 0 | 1.024 | 0.061 | 0.312 | 0.054 | 0.705 | 3.307 | 5.408E-06 | 0 |
| 50 | 1 | 0 | 1.021 | 0.059 | 0.311 | 0.053 | 0.704 | 3.302 | 5.401E-06 | 0 |
| 50 | 1 | 0 | 1.023 | 0.058 | 0.317 | 0.063 | 0.711 | 3.335 | 5.455E-06 | 0 |
| 50 | 1 | 1 | 0.967 | 0.06 | 0.338 | 0.067 | 0.636 | 2.983 | 4.879E-06 | -0.103 |
| 50 | 1 | 1 | 0.966 | 0.058 | 0.341 | 0.063 | 0.63 | 2.955 | 4.833E-06 | -0.1111 |
| 50 | 1 | 1 | 0.972 | 0.055 | 0.339 | 0.059 | 0.637 | 2.988 | 4.887E-06 | -0.1099 |
| 50 | 1 | 2 | 0.811 | 0.057 | 0.303 | 0.051 | 0.502 | 2.355 | 3.851E-06 | -0.3396 |
| 50 | 1 | 2 | 0.813 | 0.059 | 0.292 | 0.052 | 0.514 | 2.411 | 3.943E-06 | -0.3146 |
| 50 | 1 | 2 | 0.814 | 0.06 | 0.291 | 0.051 | 0.514 | 2.411 | 3.943E-06 | -0.3244 |
| 50 | 1 | 3 | 0.784 | 0.105 | 0.345 | 0.113 | 0.447 | 2.097 | 3.429E-06 | -0.4556 |
| 50 | 1 | 3 | 0.756 | 0.096 | 0.348 | 0.117 | 0.429 | 2.012 | 3.291E-06 | -0.4953 |
| 50 | 1 | 3 | 0.782 | 0.093 | 0.343 | 0.112 | 0.458 | 2.148 | 3.514E-06 | -0.4398 |
| 50 | 1 | 4 | 0.736 | 0.067 | 0.335 | 0.057 | 0.391 | 1.834 | 3E-06 | -0.5895 |
| 50 | 1 | 4 | 0.734 | 0.068 | 0.333 | 0.061 | 0.394 | 1.848 | 3.023E-06 | -0.5804 |
| 50 | 1 | 4 | 0.741 | 0.069 | 0.334 | 0.055 | 0.393 | 1.843 | 3.015E-06 | -0.5929 |
| 50 | 1 | 6 | 0.725 | 0.086 | 0.357 | 0.083 | 0.365 | 1.712 | 2.8E-06 | -0.6583 |
| 50 | 1 | 6 | 0.727 | 0.081 | 0.355 | 0.084 | 0.375 | 1.759 | 2.877E-06 | -0.6299 |
| 50 | 1 | 6 | 0.729 | 0.079 | 0.354 | 0.083 | 0.379 | 1.778 | 2.908E-06 | -0.6291 |
| 50 | 1 | 7 | 0.687 | 0.126 | 0.375 | 0.139 | 0.325 | 1.524 | 2.493E-06 | -0.7744 |
| 50 | 1 | 7 | 0.624 | 0.13 | 0.329 | 0.152 | 0.317 | 1.487 | 2.432E-06 | -0.7979 |
| 50 | 1 | 7 | 0.675 | 0.126 | 0.324 | 0.107 | 0.332 | 1.557 | 2.547E-06 | -0.7615 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 | 1 | 8 | 0.567 | 0.088 | 0.334 | 0.086 | 0.231 | 1.083 | 1.772E-06 | -1.1158 |
| 50 | 1 | 8 | 0.563 | 0.084 | 0.328 | 0.082 | 0.233 | 1.093 | 1.787E-06 | -1.1057 |
| 50 | 1 | 8 | 0.571 | 0.091 | 0.331 | 0.087 | 0.236 | 1.107 | 1.81E-06 | -1.1028 |
| 50 | 1 | 9 | 0.69 | 0.163 | 0.33 | 0.107 | 0.304 | 1.426 | 2.332E-06 | -0.8412 |
| 50 | 1 | 9 | 0.71 | 0.167 | 0.333 | 0.108 | 0.318 | 1.492 | 2.44E-06 | -0.7947 |
| 50 | 1 | 9 | 0.67 | 0.149 | 0.327 | 0.106 | 0.3 | 1.407 | 2.301E-06 | -0.8629 |
| 50 | 1 | 10 | 0.521 | 0.107 | 0.301 | 0.085 | 0.198 | 0.929 | 1.519E-06 | -1.2699 |
| 50 | 1 | 10 | 0.523 | 0.104 | 0.299 | 0.087 | 0.207 | 0.971 | 1.588E-06 | -1.2241 |
| 50 | 1 | 10 | 0.525 | 0.101 | 0.297 | 0.089 | 0.216 | 1.013 | 1.657E-06 | -1.1914 |
| 50 | 1 | 11 | 0.569 | 0.102 | 0.356 | 0.102 | 0.213 | 0.999 | 1.634E-06 | -1.1969 |
| 50 | 1 | 11 | 0.565 | 0.1 | 0.359 | 0.101 | 0.207 | 0.971 | 1.588E-06 | -1.2241 |
| 50 | 1 | 11 | 0.567 | 0.105 | 0.353 | 0.103 | 0.212 | 0.994 | 1.626E-06 | -1.2101 |
| 50 | 1 | 13 | 0.558 | 0.111 | 0.373 | 0.095 | 0.169 | 0.793 | 1.297E-06 | -1.4283 |
| 50 | 1 | 13 | 0.56 | 0.114 | 0.375 | 0.093 | 0.164 | 0.769 | 1.258E-06 | -1.4569 |
| 50 | 1 | 13 | 0.556 | 0.108 | 0.377 | 0.091 | 0.162 | 0.76 | 1.243E-06 | -1.4791 |
| 50 | 1 | 15 | 0.508 | 0.132 | 0.326 | 0.117 | 0.167 | 0.783 | 1.281E-06 | -1.4402 |
| 50 | 1 | 15 | 0.51 | 0.129 | 0.328 | 0.123 | 0.176 | 0.826 | 1.35E-06 | -1.3863 |
| 50 | 1 | 15 | 0.512 | 0.135 | 0.33 | 0.12 | 0.167 | 0.783 | 1.281E-06 | -1.4487 |
| 50 | 1 | 16 | 0.61 | 0.126 | 0.392 | 0.122 | 0.214 | 1.004 | 1.642E-06 | -1.1922 |
| 50 | 1 | 16 | 0.604 | 0.127 | 0.394 | 0.124 | 0.207 | 0.971 | 1.588E-06 | -1.2241 |
| 50 | 1 | 16 | 0.603 | 0.129 | 0.391 | 0.125 | 0.208 | 0.976 | 1.596E-06 | -1.2291 |
| 50 | 1 | 17 | 0.446 | 0.11 | 0.346 | 0.13 | 0.12 | 0.563 | 9.206E-07 | -1.7707 |
| 50 | 1 | 17 | 0.451 | 0.112 | 0.342 | 0.129 | 0.126 | 0.591 | 9.666E-07 | -1.7205 |
| 50 | 1 | 17 | 0.451 | 0.117 | 0.338 | 0.128 | 0.124 | 0.582 | 9.513E-07 | -1.7464 |
| 50 | 1 | 18 | 0.456 | 0.132 | 0.334 | 0.121 | 0.111 | 0.521 | 8.515E-07 | -1.7457 |
| 50 | 1 | 18 | 0.466 | 0.145 | 0.336 | 0.125 | 0.108 | 0.507 | 8.285E-07 | -1.7636 |
| 50 | 1 | 18 | 0.451 | 0.147 | 0.339 | 0.119 | 0.108 | 0.507 | 8.285E-07 | -1.7746 |
| 50 | 1 | 20 | 0.409 | 0.123 | 0.304 | 0.108 | 0.09 | 0.422 | 6.904E-07 | -2.0584 |
| 50 | 1 | 20 | 0.408 | 0.127 | 0.301 | 0.11 | 0.09 | 0.422 | 6.904E-07 | -2.057 |
| 50 | 1 | 20 | 0.415 | 0.134 | 0.302 | 0.111 | 0.09 | 0.422 | 6.904E-07 | -2.0669 |
| 50 | 1 | 21 | 0.416 | 0.132 | 0.364 | 0.154 | 0.074 | 0.347 | 5.677E-07 | -2.1511 |
| 50 | 1 | 21 | 0.421 | 0.134 | 0.362 | 0.156 | 0.081 | 0.38 | 6.214E-07 | -2.0513 |
| 50 | 1 | 21 | 0.42 | 0.134 | 0.362 | 0.156 | 0.08 | 0.375 | 6.137E-07 | -2.0747 |
| 50 | 1 | 22 | 0.478 | 0.207 | 0.352 | 0.148 | 0.067 | 0.314 | 5.14E-07 | -2.0139 |
| 50 | 1 | 22 | 0.461 | 0.193 | 0.368 | 0.169 | 0.069 | 0.324 | 5.293E-07 | -2.0081 |
| 50 | 1 | 22 | 0.474 | 0.197 | 0.366 | 0.154 | 0.065 | 0.305 | 4.987E-07 | -2.0678 |