SUPPORTING INFORMATION

Synthesis of a Novel Fluoranthene-based Conformationally Constrained α-Amino Acid Derivatives and Polycyclic Aromatics via the Diels–Alder Reaction

Sambasivarao Kotha,* Milind Meshram

Department of Chemistry, Indian Institute of Technology-Bombay, Mumbai, 400 076, India Fax: (+91)-22-2572-3480 2576 7152; phone: (+91)-22-2576-7160

E-mail: srk@chem.iitb.ac.in

\(^{1}\)H and \(^{13}\)C NMR spectrum of compound 13 S2
\(^{1}\)H and \(^{13}\)C NMR spectrum of compound 22 S3
\(^{1}\)H and \(^{13}\)C NMR spectrum of compound 23 S4
\(^{1}\)H and \(^{13}\)C NMR spectrum of compound 7 S5
\(^{1}\)H and \(^{13}\)C NMR spectrum of compound 8 S6
\(^{1}\)H and \(^{13}\)C NMR spectrum of compound 9 S7
\(^{1}\)H and \(^{13}\)C NMR spectrum of compound 10 S8
\(^{1}\)H and \(^{13}\)C NMR spectrum of compound 11 S9
\(^{1}\)H and \(^{13}\)C NMR spectrum of compound 12 S10
Fluorescence data S11–S18
$^1$H NMR (400 MHz, CDCl$_3$) and $^{13}$C NMR (100.6 MHz, CDCl$_3$) spectrum of compound 13
$^{1}$H NMR (400 MHz, CDCl$_3$) and $^{13}$C NMR (100.6 MHz, CDCl$_3$) spectrum of compound 22
$^1$H NMR (400 MHz, CDCl$_3$) and $^{13}$C NMR (100.6 MHz, CDCl$_3$) spectrum of compound 23
$^1$H NMR (400 MHz, CDCl$_3$) and $^{13}$C NMR (100.6 MHz, CDCl$_3$) spectrum of compound 7
$^1$H NMR (400 MHz, CDCl$_3$) and $^{13}$C NMR (100.6 MHz, CDCl$_3$) spectrum of compound 8
$^1$H NMR (400 MHz, CDCl$_3$) and $^{13}$C NMR (100.6 MHz, CDCl$_3$) spectrum of compound 9
$^1$H NMR (400 MHz, CDCl$_3$) and $^{13}$C NMR (100.6 MHz, CDCl$_3$) spectrum of compound 10
$^1$H NMR (400 MHz, CDCl$_3$) and $^{13}$C NMR (100.6 MHz, CDCl$_3$) spectrum of compound 11
$^1$H NMR (400 MHz, CDCl$_3$) and $^{13}$C NMR (100.6 MHz, CDCl$_3$) spectrum of compound 12
Fluorescence data

Fluoranthene-fused indan based AAA derivative 7

Absorption spectrum

Overlay of excitation and emission spectra
Excitation spectra

![Excitation spectra graph]

Emission spectra

![Emission spectra graph]
Fluoranthene-fused 1,2,3,4-tetrahydroisoquinoline-3-carboxylic acid derivative (Tic) 8

Absorption spectrum

Overlay of absorption and excitation spectrum
Excitation spectra

Emission spectra
Fluoranthene-fused tetralin based AAA derivative 9
Absorption spectrum

Overlay of absorption and excitation spectra

[Graph showing absorption and excitation spectra]
Excitation spectra

Emission spectra
Quantum yield calculation:

Formula used

\[ \phi = \frac{\text{area of Fls. profile}}{\text{standard}} \times \frac{(1 - 10^{-\phi_{\text{std}}})}{(1 - 10^{-\phi_{\text{sample}}})} \times \frac{\eta_{\text{sample}}^2}{\eta_{\text{standard}}^2} \times \phi_{\text{standard}} \]

Standard: quinine sulphate in 1M sulphuric acid. Excitation wavelength was 360 nm for the compound 7 and 8 and 365 nm for the compound 9.

Calculated quantum yield were:

Fluoranthene-fused indan based AAA derivative 7 = 10%
Fluoranthene-fused 1,2,3,4-tetrahydroisoquinoline-3-carboxylic acid derivative (Tic) 8 = 28%
Fluoranthene-fused tetralin based AAA derivative 9 = 14%

Fluorescence lifetime data: The temporal parameters are given in tables below each figure.

Fluoranthene-fused indan based AAA derivative 7

![Fluorescence lifetime data graph](image)

<table>
<thead>
<tr>
<th>Tab 1.</th>
<th>( \chi^2 )</th>
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<tbody>
<tr>
<td>( \tau_1 )</td>
<td>21.24 ns</td>
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<tr>
<td>( \tau_2 )</td>
<td>1</td>
</tr>
<tr>
<td>a_1</td>
<td>1</td>
</tr>
<tr>
<td>a_2</td>
<td></td>
</tr>
<tr>
<td>( \chi^2 )</td>
<td>1.04</td>
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</table>
Fluoranthene-fused 1,2,3,4-tetrahydroisoquinoline-3-carboxylic acid derivative (Tic) 8

![Graph showing decay and emission spectra](image)

<table>
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<th>$\tau_1$</th>
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<th>$a_1$</th>
<th>$a_2$</th>
<th>$\chi^2$</th>
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<tr>
<td>24.61 ns</td>
<td>0.595 ns</td>
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<td>0.90</td>
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Fluoranthene-fused tetralin based AAA derivative 9

![Graph showing decay and emission spectra](image)

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<tr>
<th>$\tau_1$</th>
<th>$\tau_2$</th>
<th>$a_1$</th>
<th>$a_2$</th>
<th>$\chi^2$</th>
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<tbody>
<tr>
<td>23.16 ns</td>
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<td>0.22</td>
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