Electronic Supplementary Material (ESI) for RSC Advances. This journal is © The Royal Society of Chemistry 2015

## Synthesis, photophysical and elctrochemical properties of a new class of fluorescent amidoanthracenophanes

Ayyavoo Kannan and Perumal Rajakumar\*

Department of Organic Chemistry, University of Madras, Guindy Campus Chennai-600 025, India. E-mail: <u>perumalrajakumar@gmail.com</u> Fax: +91 044 22300488; Tel: +91 044 22351269 ext. 213

## SUPPORTING INFORMATIONS

1.	Optical and photophysical spectrum of amidophanes <b>2</b> , <b>3</b> and <b>4</b>	p 2
2.	Optical and photophysical parameters of amidophanes 1, 2, 3 and 4	Р3
3.	Cyclic voltammogram of amidophanes 2, 3 and 4	. P4
4.	Magnified cyclic voltammogram of amidophanes 1, 2, 3 and 4	. P5
5.	<sup>1</sup> H and <sup>13</sup> C NMR spectra of compounds 1, 2, 3, 4 and 7 $\dots$ p	6-15



Figure S1. The salvatochromism of the fluorescent amidophane 2 of absorption and emission spectrum.



Figure S2. The salvatochromism of the fluorescent amidophane 3 of absorption and emission spectrum.



λ <sub>obs (nm)</sub>						
Toluene	DCM	EA	CH <sub>3</sub> CN	THF		
377, 396 and	376, 396 and	374, 395 and	375, 394 and	375, 396 and		
419	418	417	416	418		
377, 397 and	377, 396 and	375, 394 and	374, 394 and	377, 395 and		
417	417	415	415	416		
377, 396 and	376, 396 and	373, 393 and	376, 396 and	374, 394 and		
418	419	415	417	416		
379 399 and	377 396 and	376 396 and	377 397 and	378 398 and		
422	417	420	420	421		
	Toluene 377, 396 and 419 377, 397 and 417 377, 396 and 418 379, 399 and 422	Toluene DCM   377, 396 and 376, 396 and   419 418   377, 397 and 377, 396 and   417 417   377, 396 and 376, 396 and   418 377   377, 396 and 376, 396 and   418 419   379, 399 and 377, 396 and   422 417	$\lambda_{obs (nm)}$ TolueneDCMEA377, 396 and376, 396 and374, 395 and419418417377, 397 and377, 396 and375, 394 and417417415377, 396 and376, 396 and373, 393 and418419415379, 399 and377, 396 and376, 396 and422417420	$\lambda_{obs (nm)}$ TolueneDCMEACH3CN377, 396 and376, 396 and374, 395 and375, 394 and419418417416377, 397 and377, 396 and375, 394 and374, 394 and417417415415377, 396 and376, 396 and373, 393 and376, 396 and418419415417379, 399 and377, 396 and376, 396 and377, 397 and422417420420		

**Figure S3.** The salvatochromism of the fluorescent amidophane **4** of absorption and emission spectrum.

**Table S1**.Optical parameters for the fluorescent amidophanes 1, 2, 3 and 4 in DCM in  $1X10^{-5}$  in different solvents

**Table S2**.Optical parameters for the fluorescent amidophanes 1, 2, 3 and 4 in DCM in  $1X10^{-5}$  in different solvents

## Electrochemical properties of fluorescent amidophanes 2, 3 and 4

The fluorescent amidoanthracenophanes **3** and **4** shows two oxidation potential at -0.70 and 0.62, -0.42 and 0.71 as well as two reduction peaks at -0.55 and 0.55, 0.28 and 0.54. Similarly, the fluorescent amidoanthracenophanes **2** exhibited three oxidation peaks at -0.75, 0.42 and 1.15 and three reduction peaks at -0.51, 0.57 and 1.12. From this study, all the synthesized fluorescent amidophanes are having electrochemical properties, which can be attributed due to the presence of fluorophoric anthracene unit. The electrochemical properties are altered due to the presence of various aromatic units such as benzene, pyridine and

Entry		2.0x10 <sup>-5</sup>	$\lambda_{em (nm)}^{a}$		
No	Toluene	DEM	EA	<sup>2</sup> CH <sub>3</sub> CN	THF
1	437	40 <b>3</b> , 424 and	437	440	438
2	430	445 399 <sub>22</sub> 0x10 <sup>s</sup> 442	430	434	430
3	399, 425 and 448	-3.0x10° <u>+</u> 402, 424 and 452	395, 421, and (v) 441	<sup>1</sup> 425 <sup>2</sup>	407, 432 and 457
4	399 and 423	401, 424 and 449	433	439	436

thiophene are present at the intraannular position of the cyclophane.



**Figure S4.** Cyclic voltammograms of fluorescent amidophanes **2**, **3** and **4** in DCM at room temperature (scan rate at 100 mV s<sup>-1</sup>) and 0.1 M TBAP as a supporting electrolyte in dry DCM.



**Figure S4a.** Cyclic voltammograms of fluorescent amidophanes **1**, **2**, **3** and **4** in DCM at room temperature (scan rate at 100 mV s<sup>-1</sup>) and 0.1 M TBAP as a supporting electrolyte in dry DCM.



<sup>1</sup>H (CDCl<sub>3</sub>) NMR (300 MHz) spectrum of Compound 7



<sup>13</sup>C (CDCl<sub>3</sub>) NMR (75 MHz) spectrum of Compound 7







<sup>1</sup>H (CDCl<sub>3</sub>) NMR (300 MHz) spectrum of Compound 2



<sup>13</sup>C (CDCl<sub>3</sub>) NMR (75 MHz) spectrum of Compound 2



<sup>1</sup>H (CDCl<sub>3</sub>) NMR (300 MHz) spectrum of Compound 3





<sup>1</sup>H (CDCl<sub>3</sub>) NMR (300 MHz) spectrum of Compound 4



<sup>13</sup>C (CDCl<sub>3</sub>) NMR (75 MHz) spectrum of Compound 4