

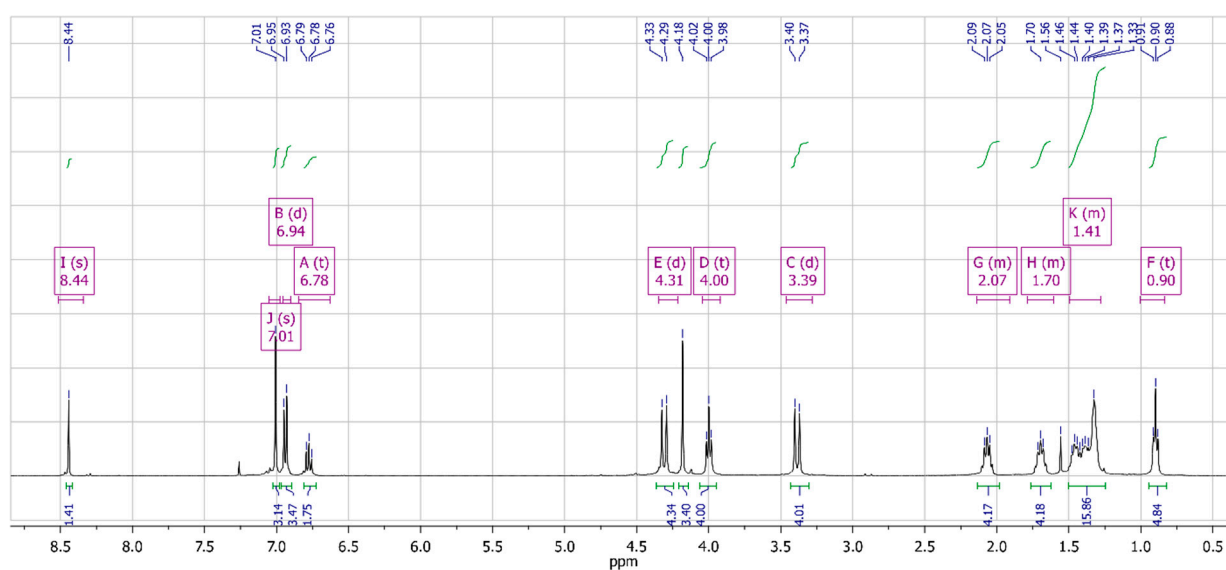
# New calix[4]arene – fluoresceine conjugate by click approach – synthesis and preparation of photocatalytically active solid lipid nanoparticles

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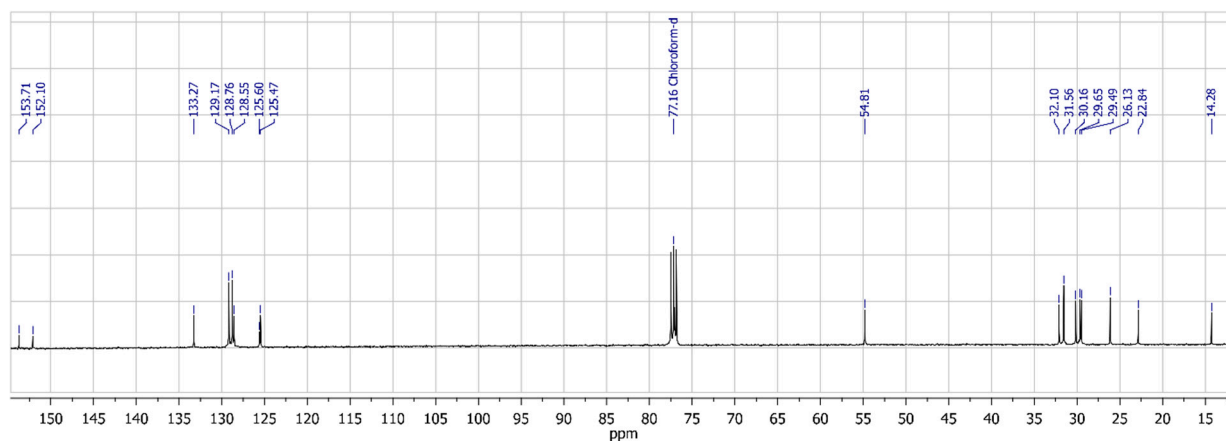
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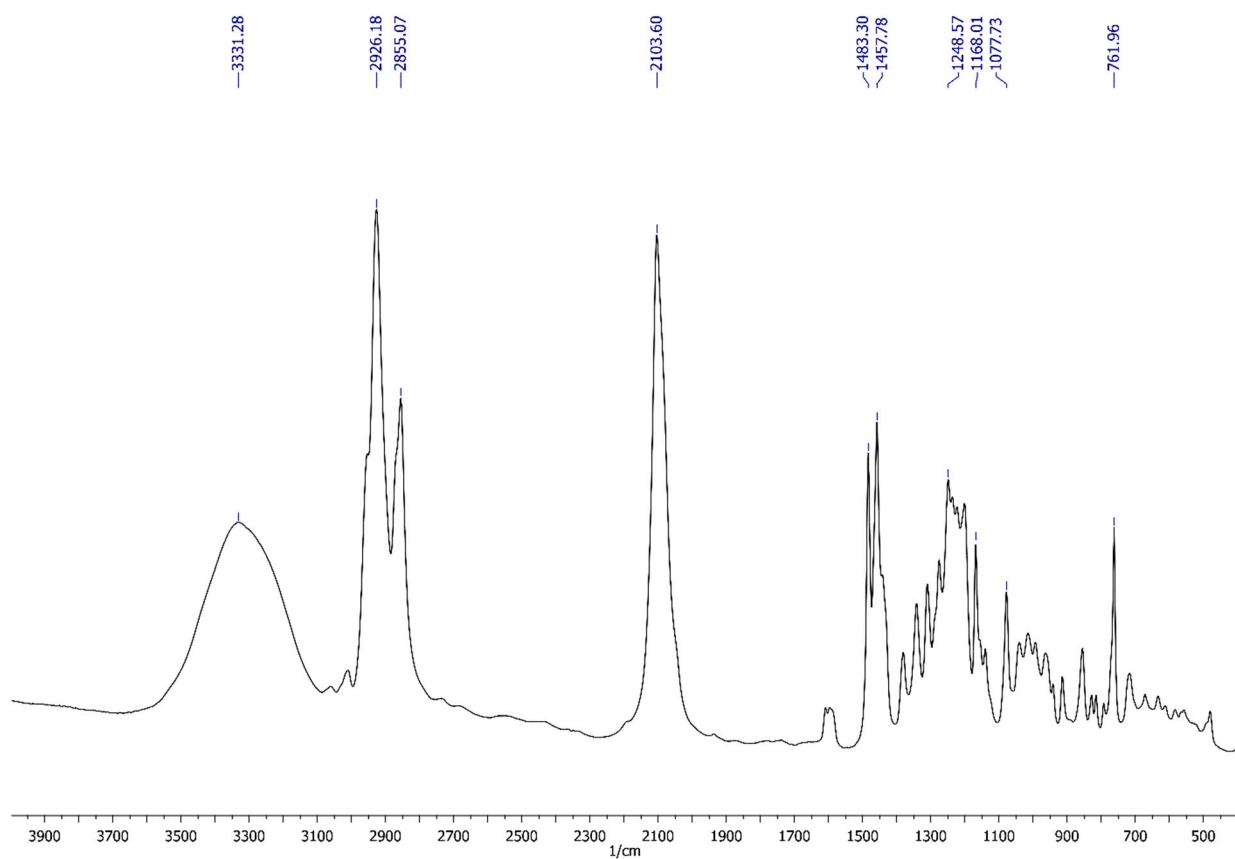
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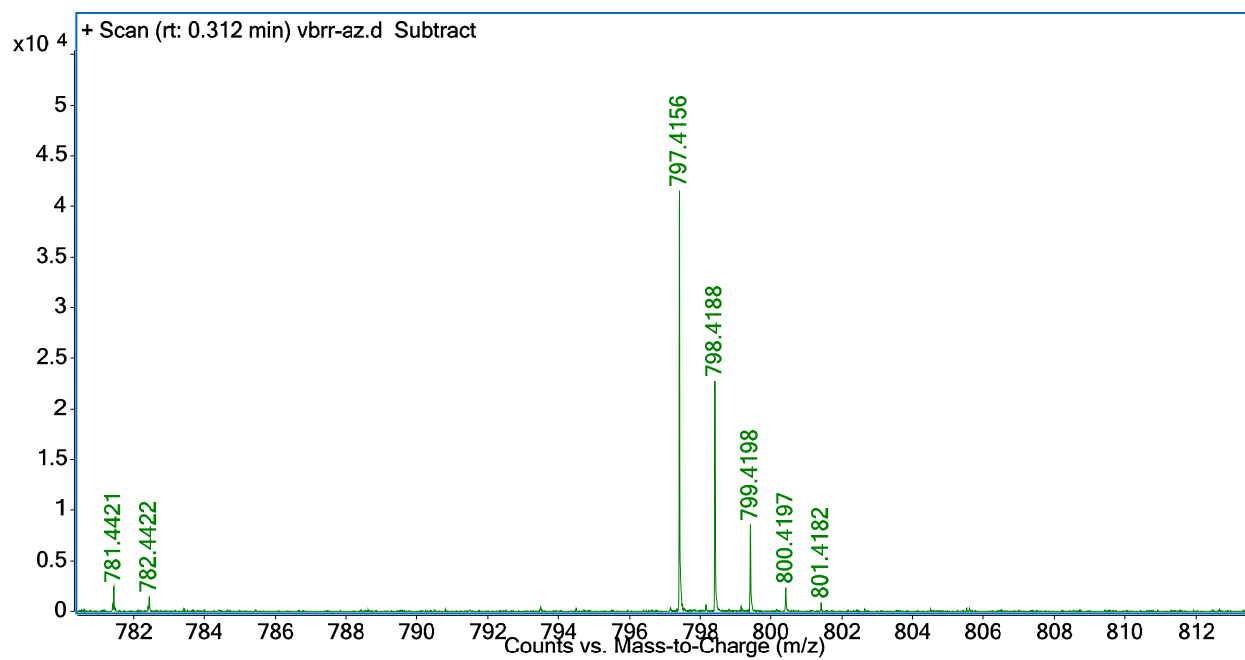
(a)



(b)

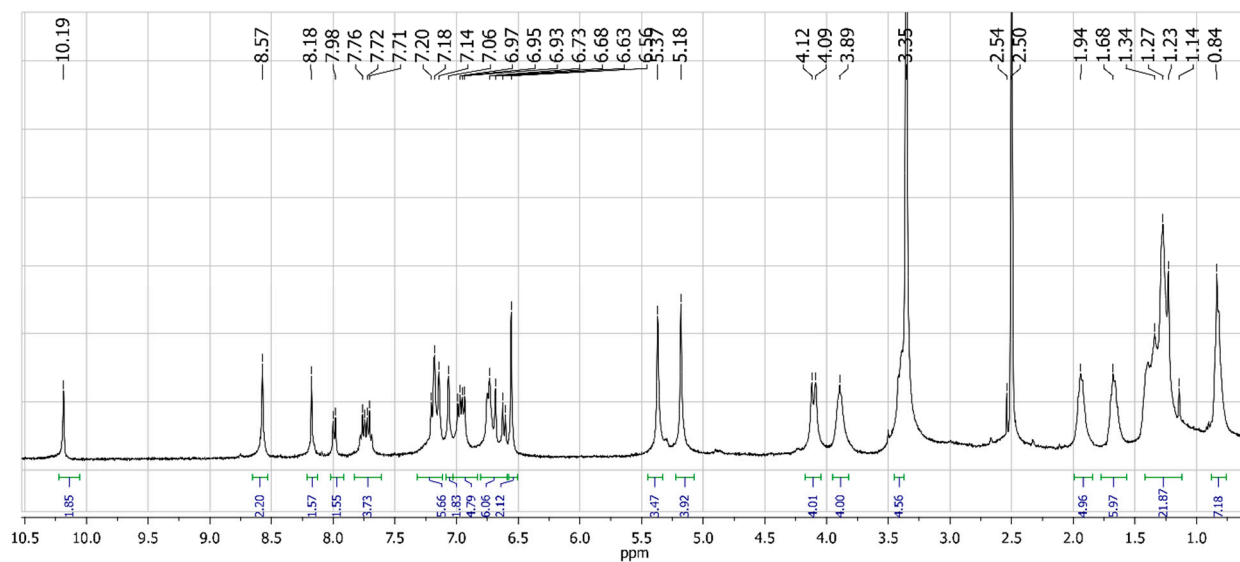


(c)

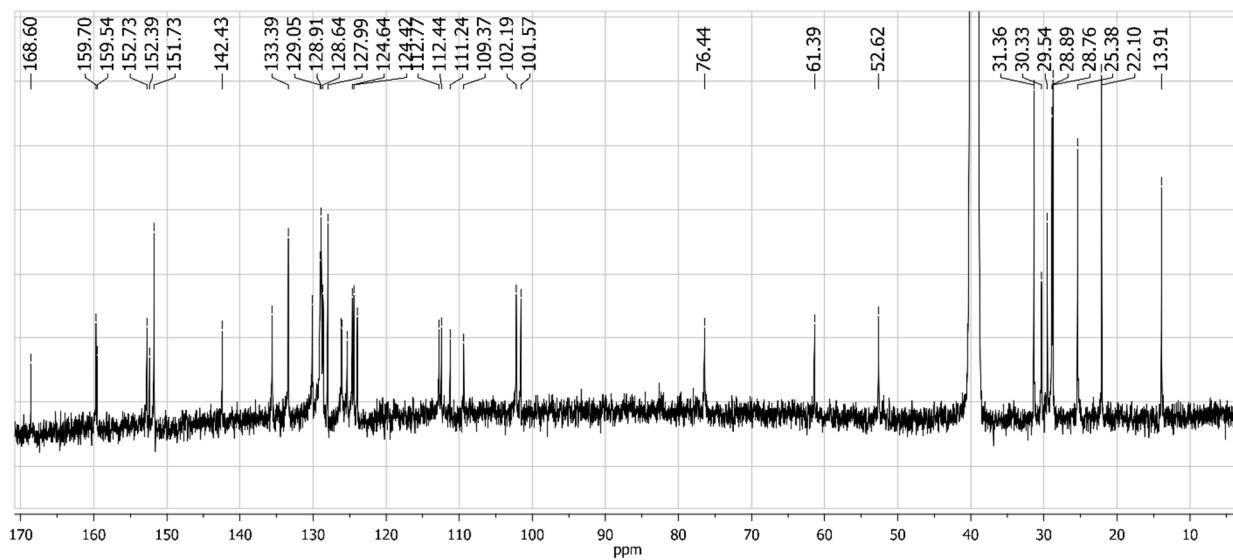


(d)

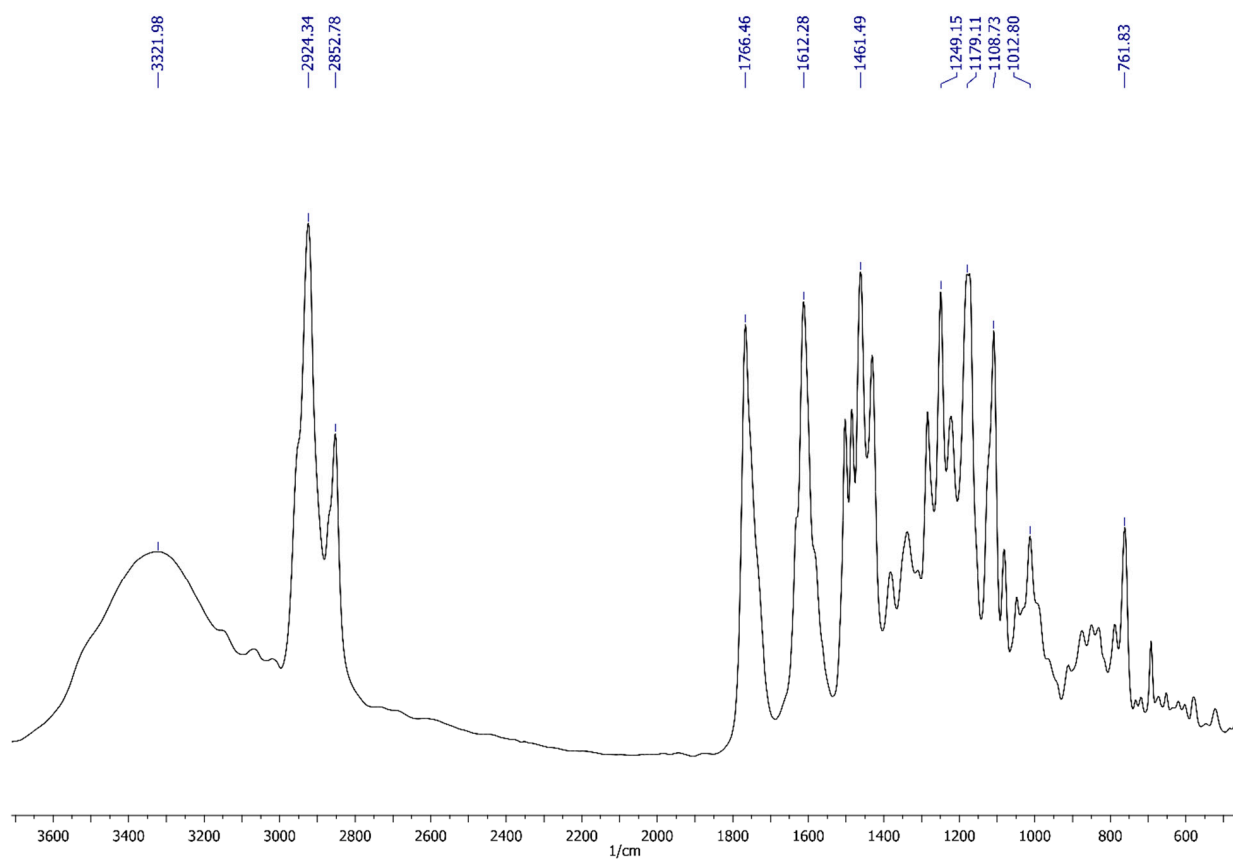
**Figure S1.** NMR  $^1\text{H}$  (a),  $^{13}\text{C}$  (b), FT IR (c) and HRESI MS (d) spectra of 11,23-Bis(azidomethyl)-25,27-dihydroxy-26,28-dioctyloxy-calix[4]arene (**2**).



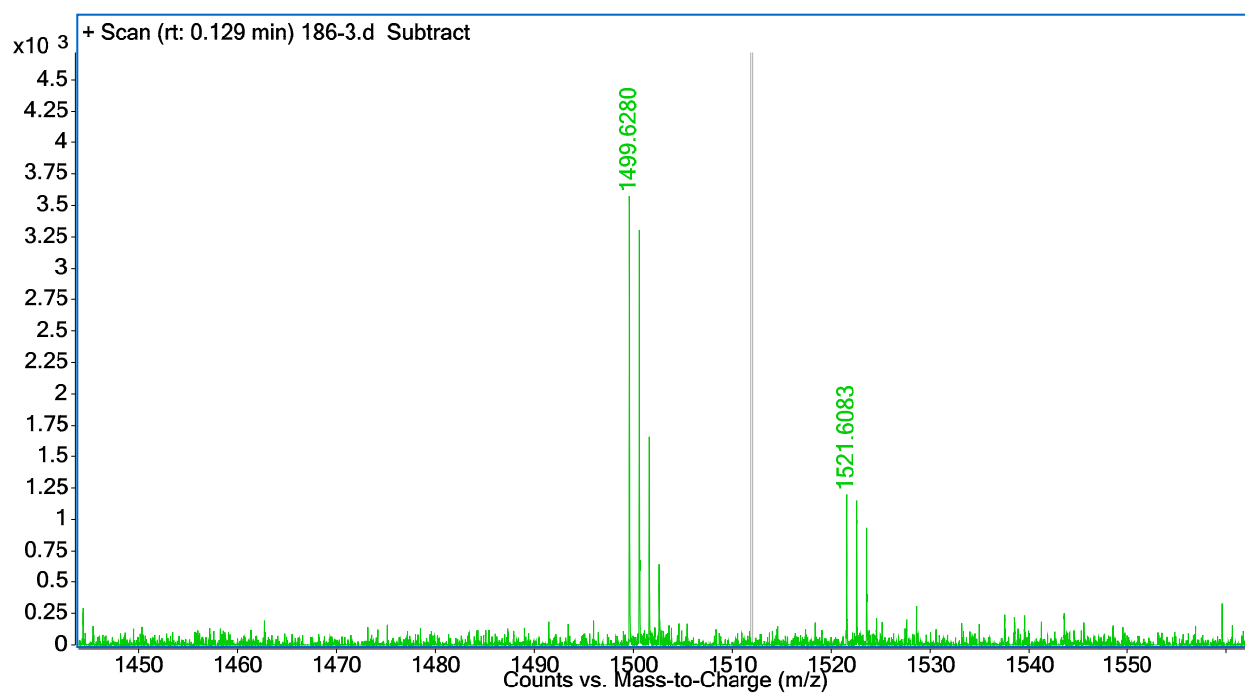
(a)



(b)

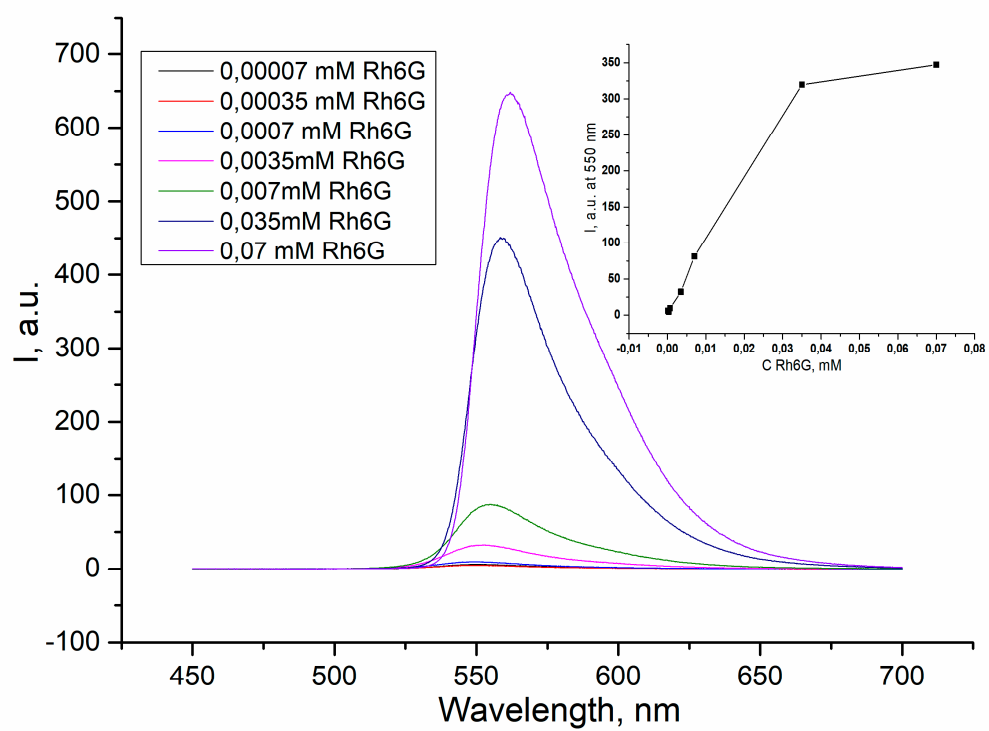


(c)

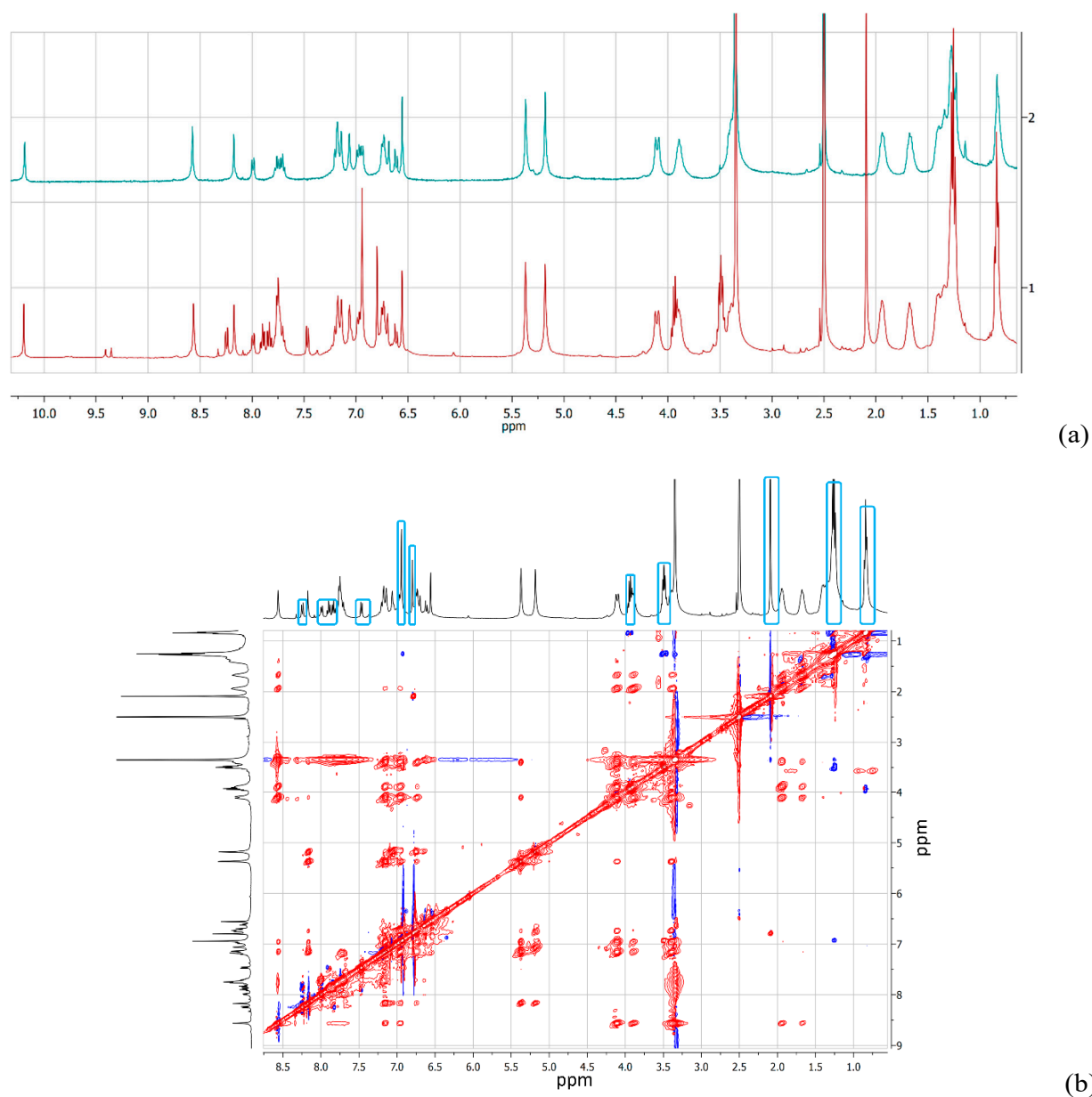


(d)

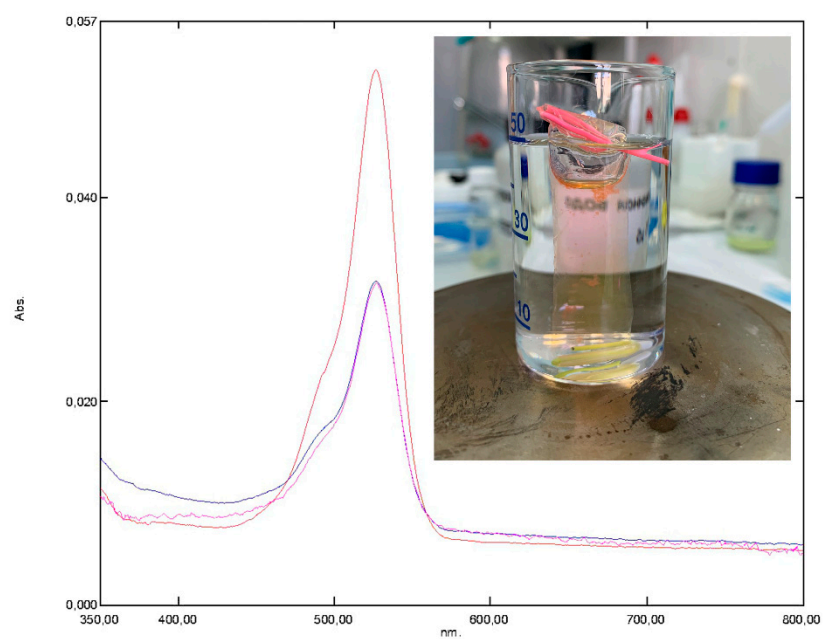
**Figure S2.** NMR  $^1\text{H}$  (a),  $^{13}\text{C}$  (b), FT IR (c) and HRESI MS (d) spectra of 11,23-Bis-((4-(((3'-hydroxy-3-oxo-3H-spiro[isobenzofuran-1,9'-xanthen]-6'-yl)oxy)methyl)-1H-1,2,3-triazol-1-yl)methyl)-25,27-dihydroxy-26,28-dioctyloxycalix[4]arene (**5**).



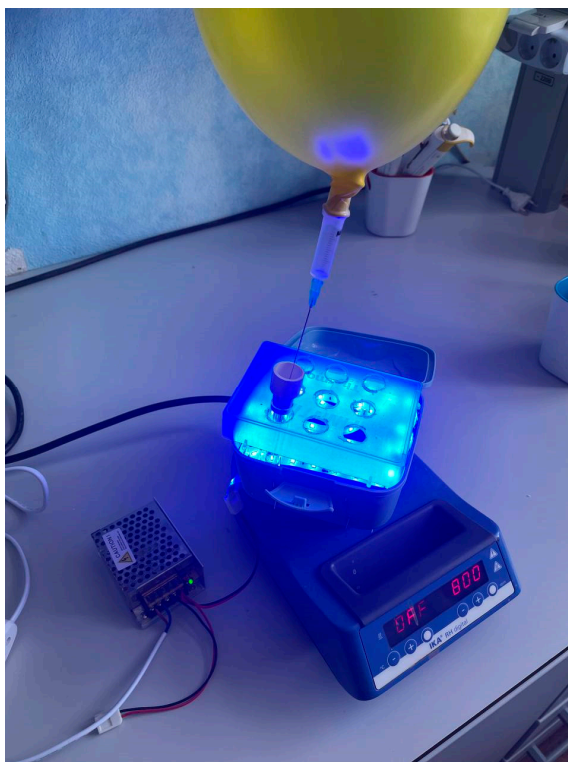
**Figure S3.** Emission spectra of Rh6G (0.07  $\mu$ M - 0.07mM),  $\lambda_{ex} = 430$  nm.



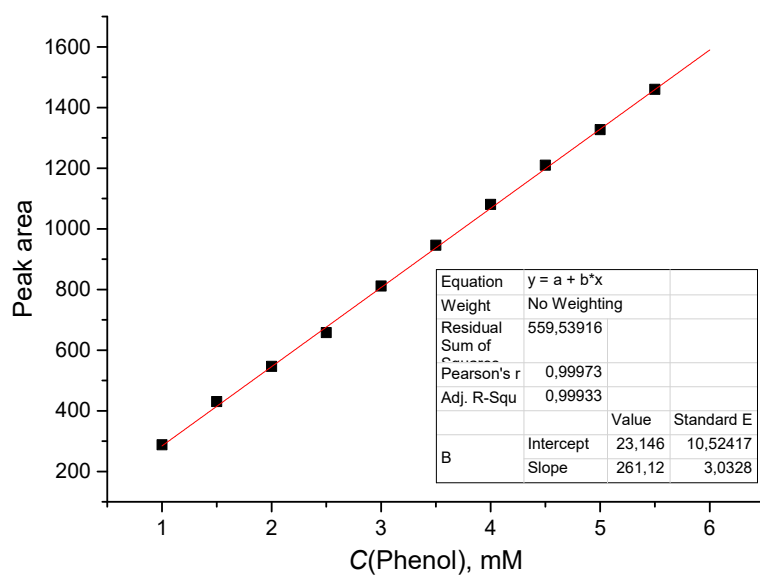
**Figure S4.** NMR  $^1\text{H}$  spectra of 11,23-Bis-((4-(((3'-hydroxy-3-oxo-3H-spiro[isobenzofuran-1,9'-xanthen]-6'-yl)oxy)methyl)-1H-1,2,3-triazol-1-yl)methyl)-25,27-dihydroxy-26,28-dioctyloxy-calix[4]arene (**5**) (up) and its mixture with Rh6G (bottom) (a); 2D NMR  $^1\text{H}$ - $^1\text{H}$  NOESY spectra of **5**-Rh6G (b),  $C(\text{5}) = C(\text{Rh6G}) = 0.001 \text{ mM}$ , DMSO- $d_6$ , 25  $^\circ\text{C}$ .



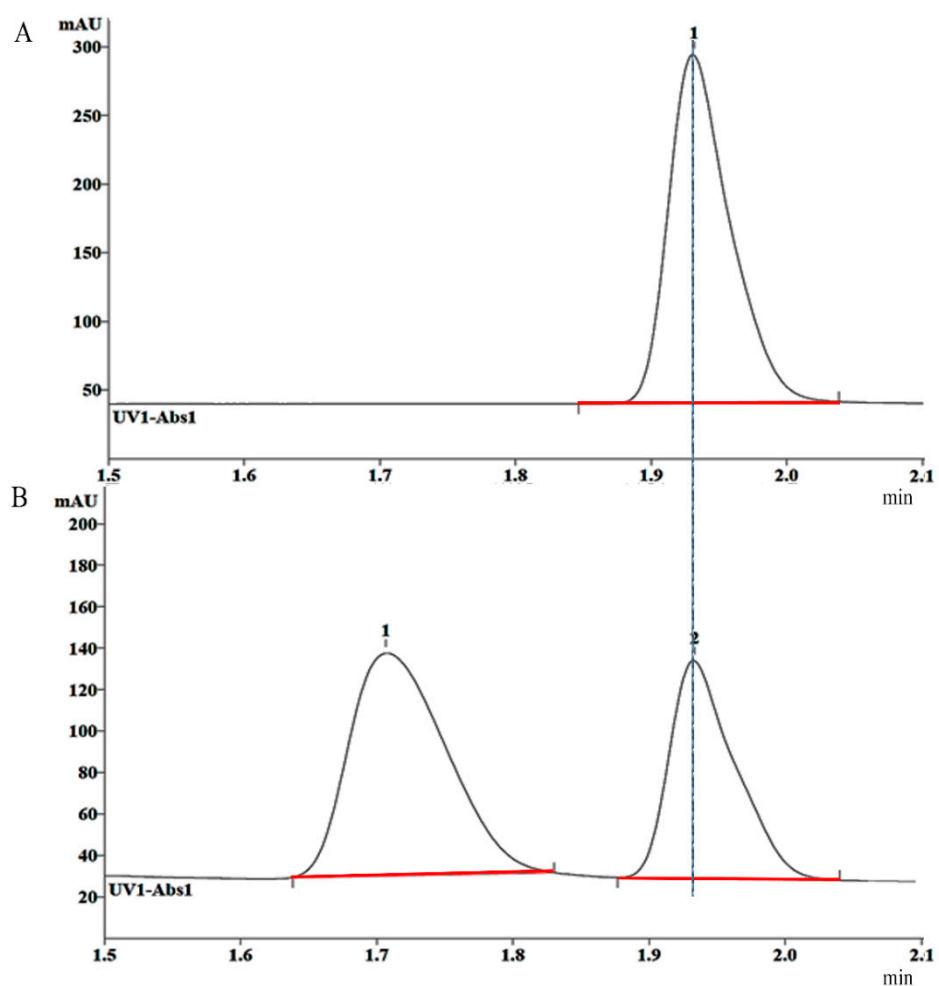
**Figure S5.** UV-vis spectra of aqueous solution of Rh6G before sorption (red line) and after 1 hour (black line) of 24 hours (cyan line) of sorption by SLN's and photography of the sorption experiment setup (insert).  $C(\text{SLN's}) = 1 \text{ mg/ml}$ ,  $V = 3 \text{ ml}$ ;  $C(\text{Rh6G}) = 0.007 \text{ mM}$ ,  $V = 50 \text{ ml}$



**Figure S6.** Photoredox blue-LED reactor setup.

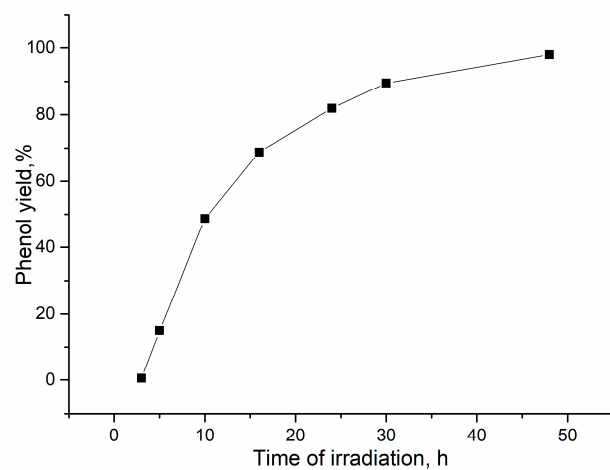


**Figure S7.** HPLC –UV calibration curve.



**Figure S8.** Chromatograms of pure phenol (A) and reaction mixture of phenol with phenylboronic acid (B) (Macherey-Nagel EC 250 / 4.6 NUCLEODUR C18 column using 1.5 ml/min  $\text{CH}_3\text{CN-H}_2\text{O}$  (80:20) eluent).





**Figure S9.** HPLS –UV yield of phenol from photoredox hydroxylation of phenylboronic acid using SLN's+Rh6G catalytic system vs time of irradiation, 0.1 mmol PhB(OH)<sub>2</sub>, 0.2 mmol NEt<sub>3</sub>, 0,7 μmol SLN's + 0,035 μmol Rh6G, blue LED7.45 W.