

Synthesis and DSSC application of BODIPY decorated triazole bridged and benzene nucleus cored conjugated dendrimers

Velautham Saravanan^a, Shanmugam Ganesan,^b and Perumal Rajakumar^{*a}

^aDepartment of Organic Chemistry, University of Madras, Guindy Campus, Chennai

600 025, Tamil Nadu, India E-mail: perumalrajakumar@gmail.com; Fax: +91 044 22300488;

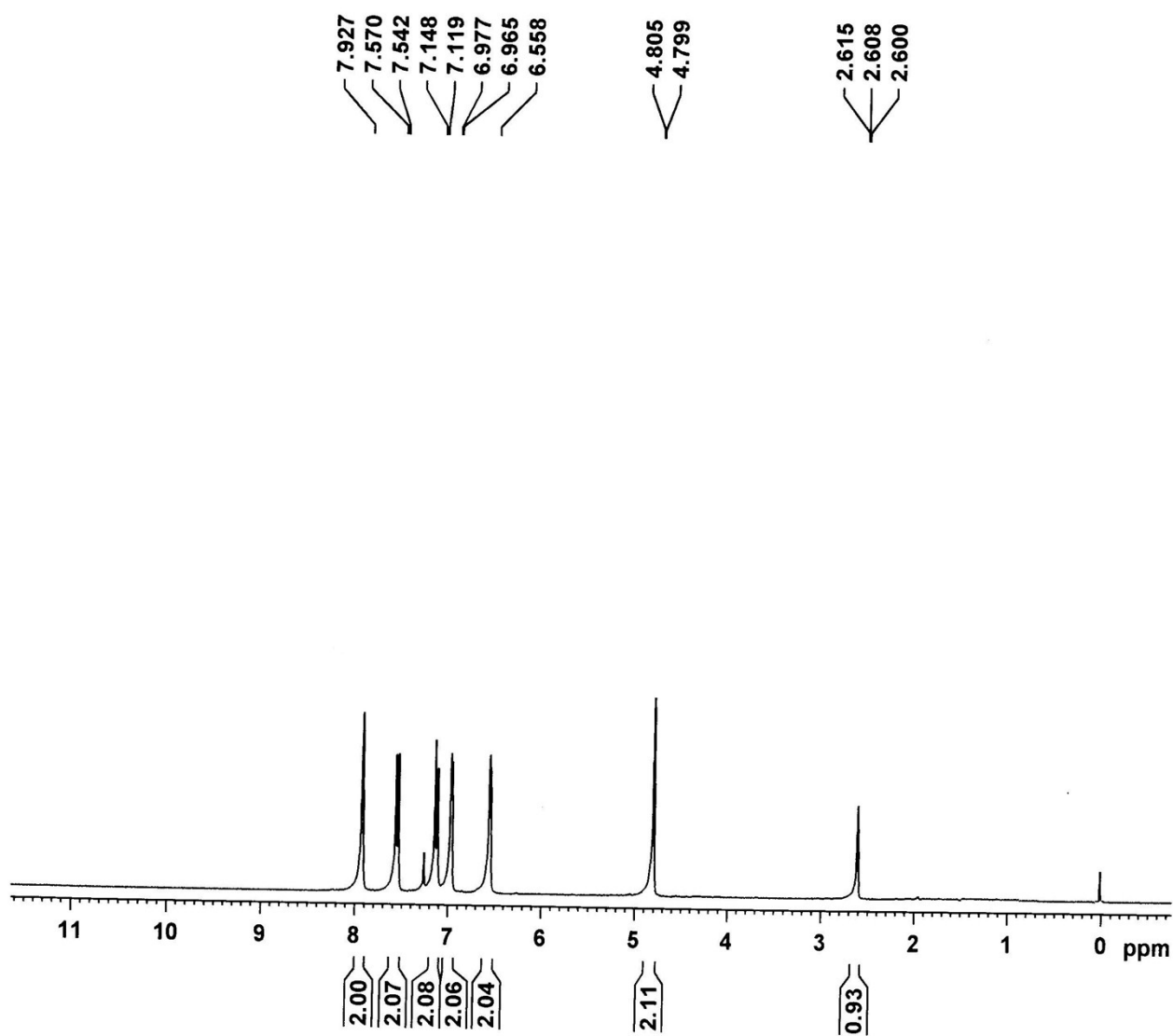
Tel: +91 044 22202814; 9551379907

^bDepartment of Chemistry, SRM Nagar, SRM Institute of Science and Technology,

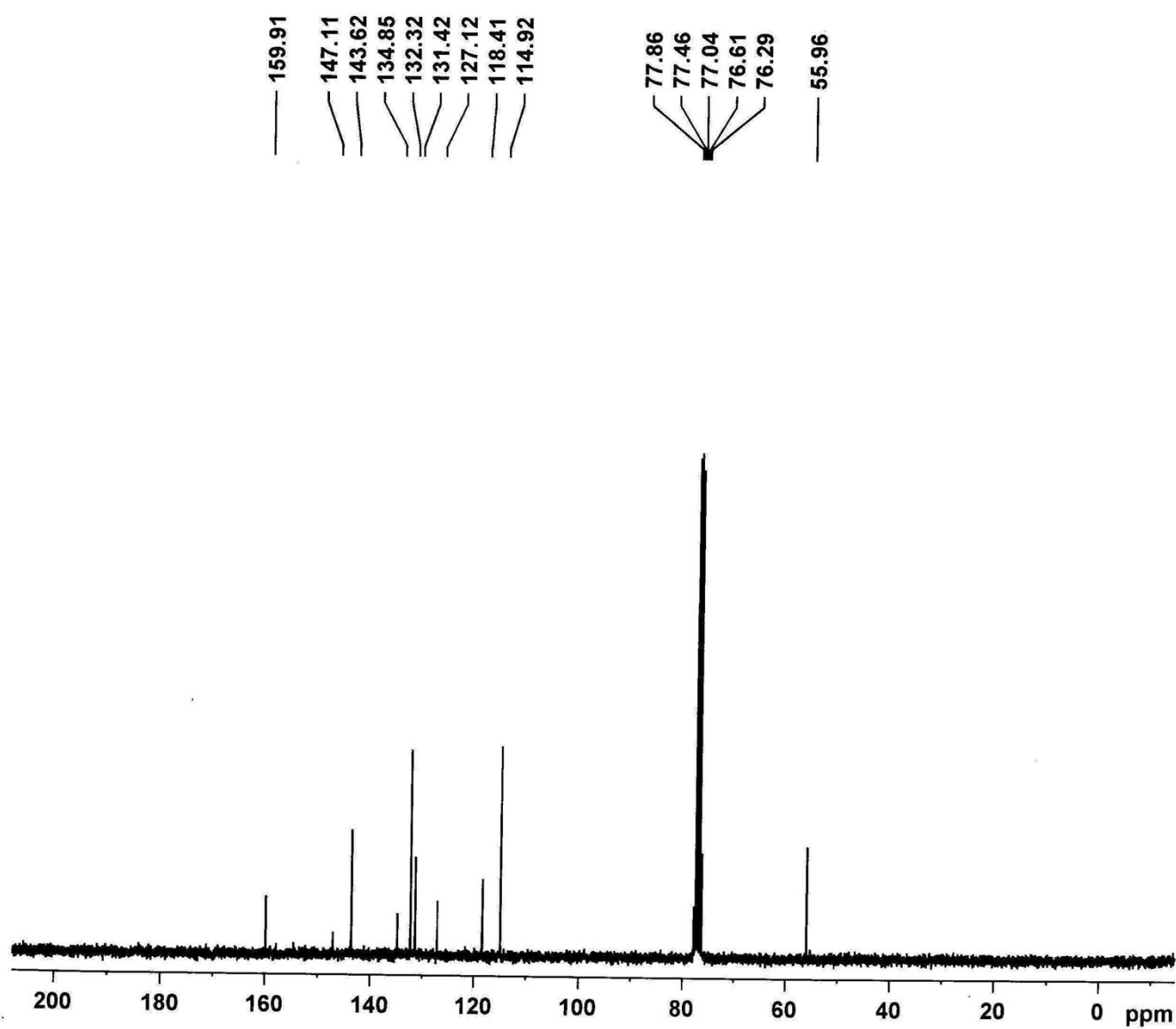
Kattankulathur-603203, Tamil Nadu, India

SUPPORTING INFORMATIONS

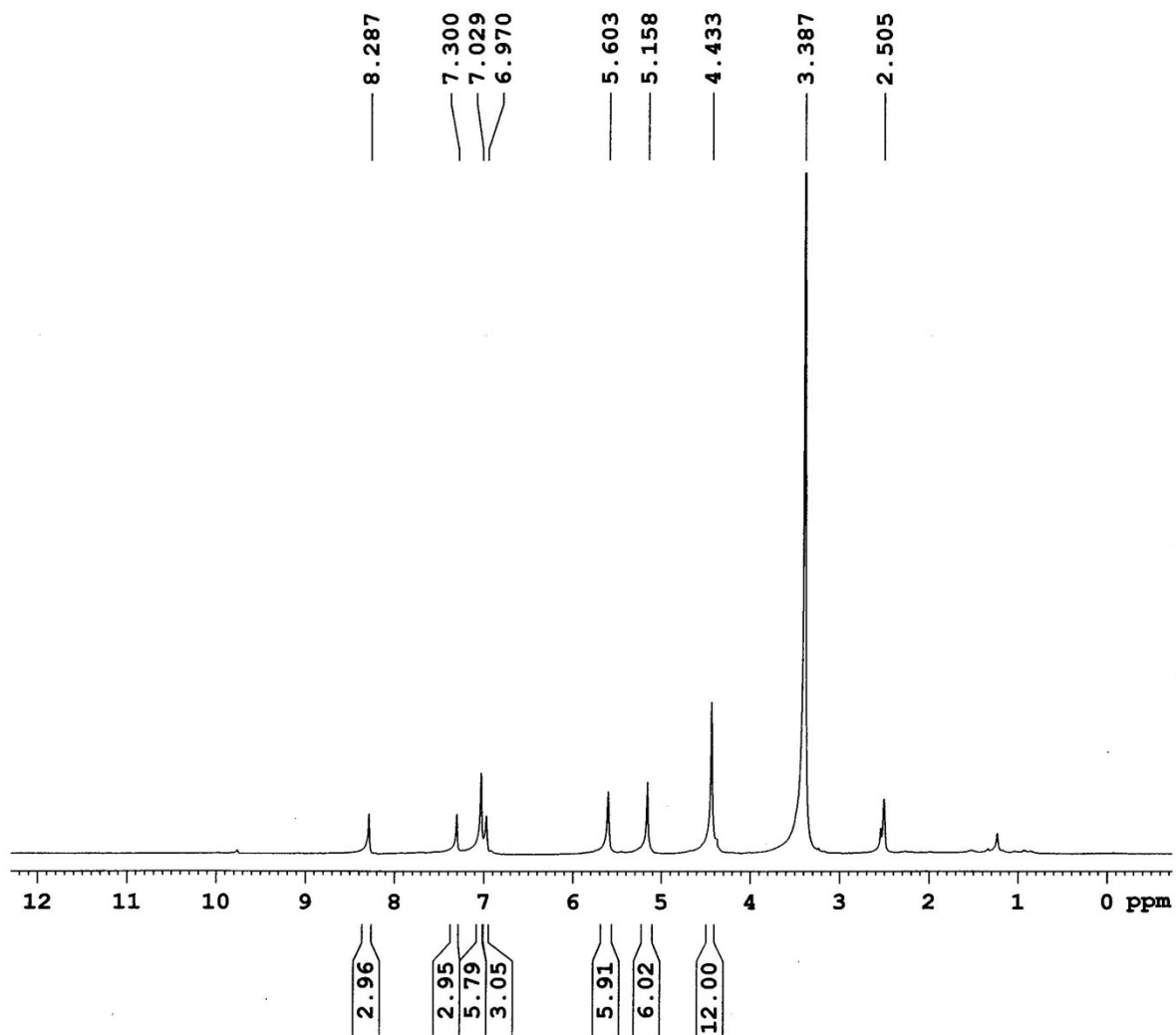
1. ¹H and ¹³C NMR spectra of compounds **7**, **9**, **11**, **1**, **2** and **3** p 9-21
2. BODIPY dendrimers **1**, **2** and **3** for UV-Vis absorption spectra of dye-adsorbed TiO₂ electrode P 16
3. The SEM analysis of a) TiO₂ coated b) BODIPY with TiO₂ P 17
4. The anchoring group in the dendrimer for DSSC studies core and surface; P 17



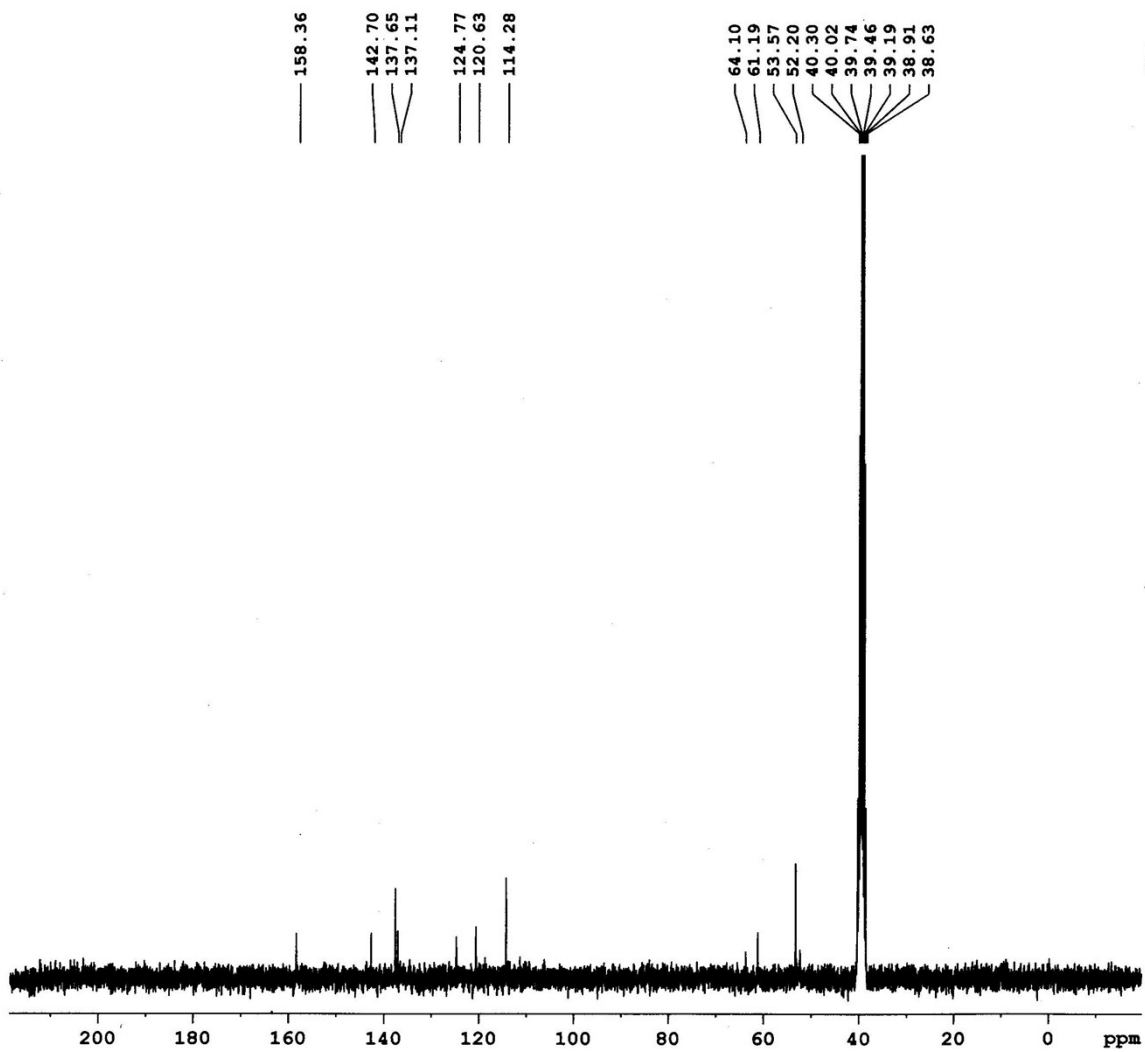
¹H NMR spectrum (300 MHz, CDCl₃) of BODIPY 12



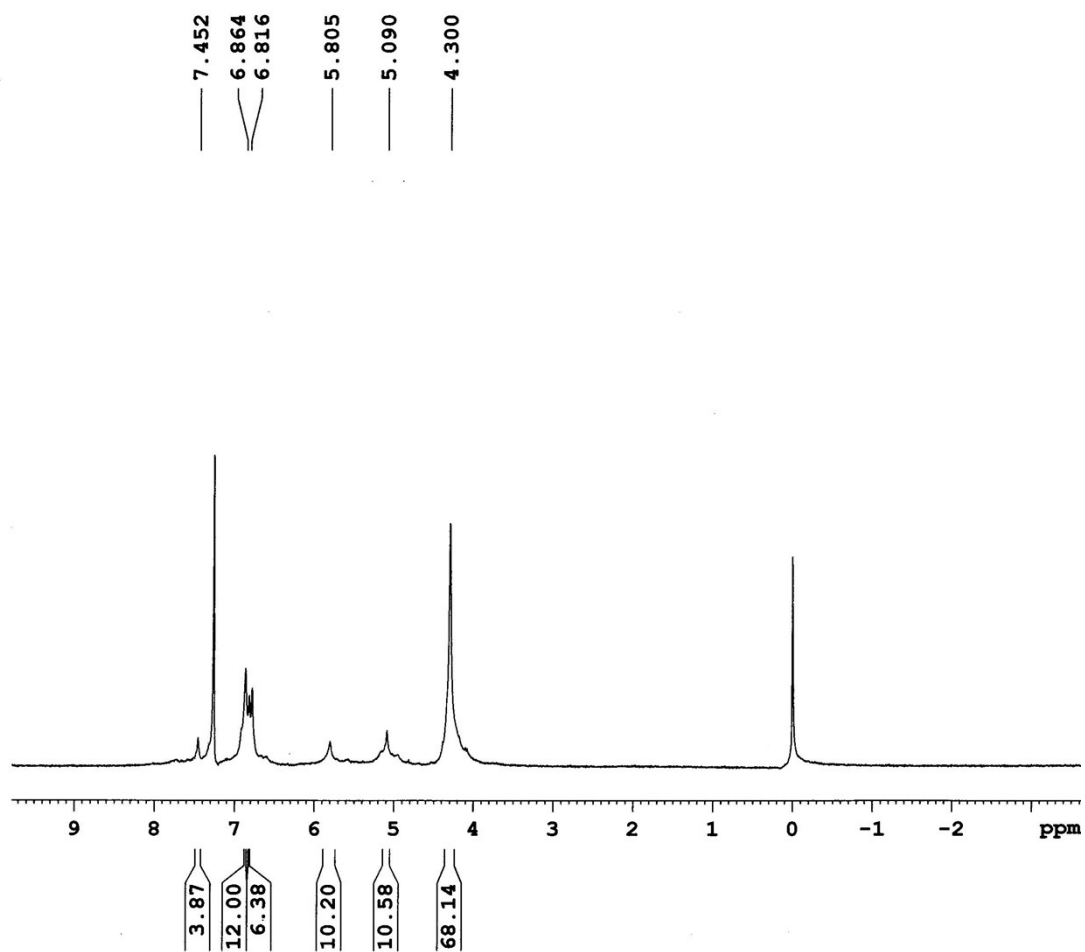
^{13}C NMR spectrum (75 MHz, CDCl_3) of BODIPY 12



¹H NMR spectrum (300 MHz, CDCl₃) of the first generation chlorodendron 6

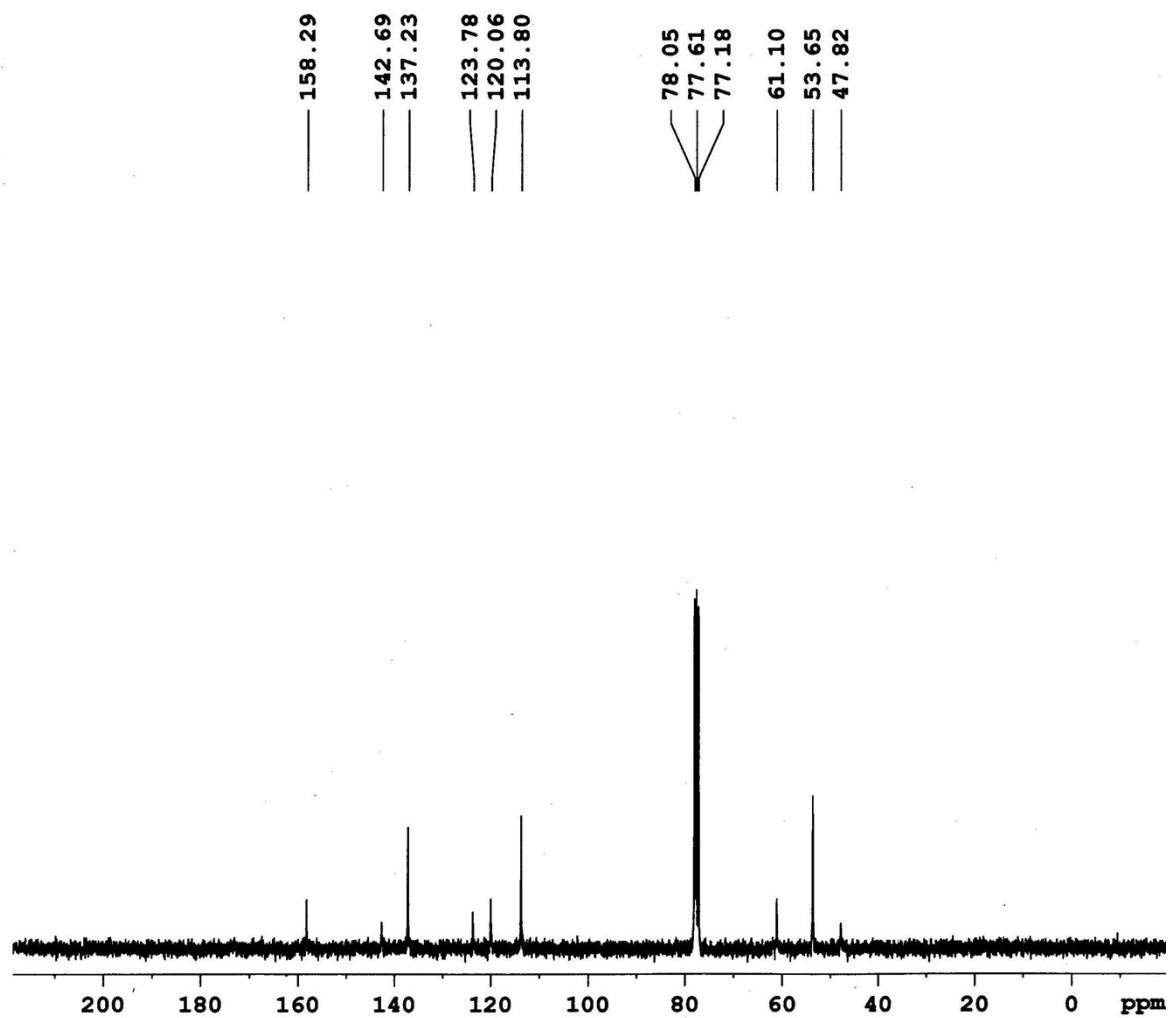


^{13}C NMR spectrum (75 MHz, CDCl_3) of the first generation chlorodendron 6

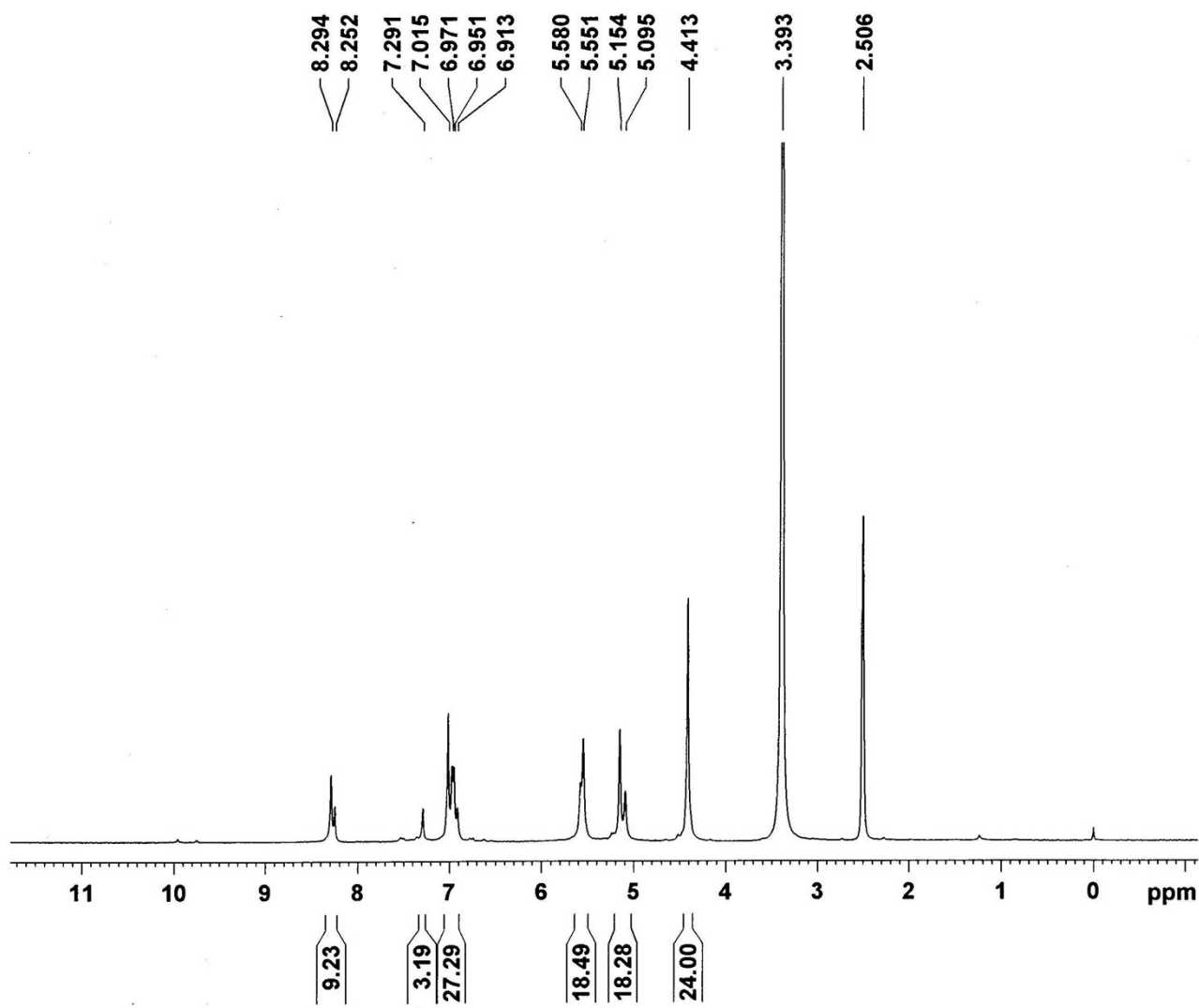


^1H NMR spectrum (300 MHz, CDCl_3) of the first generation azidodendron 7

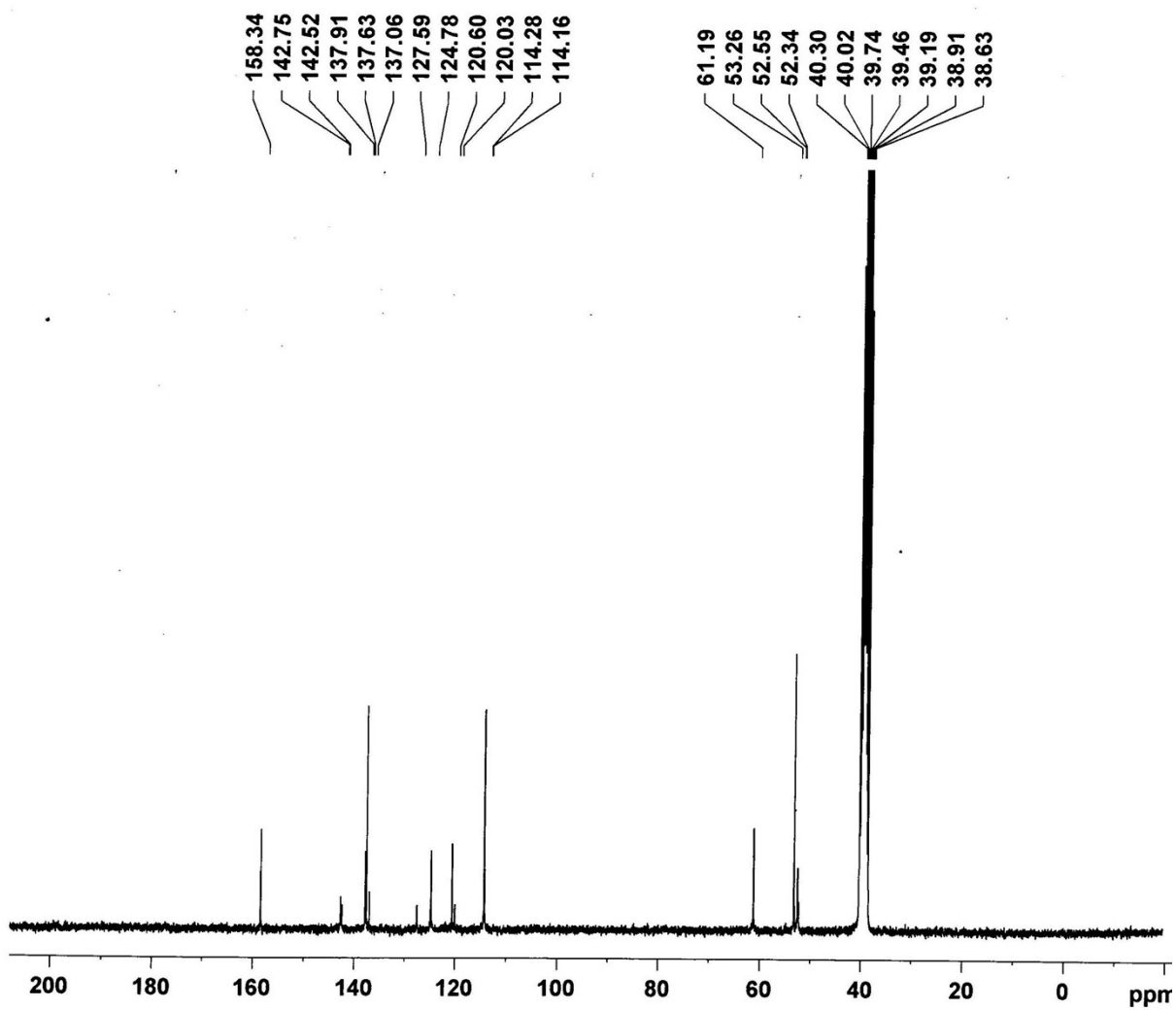
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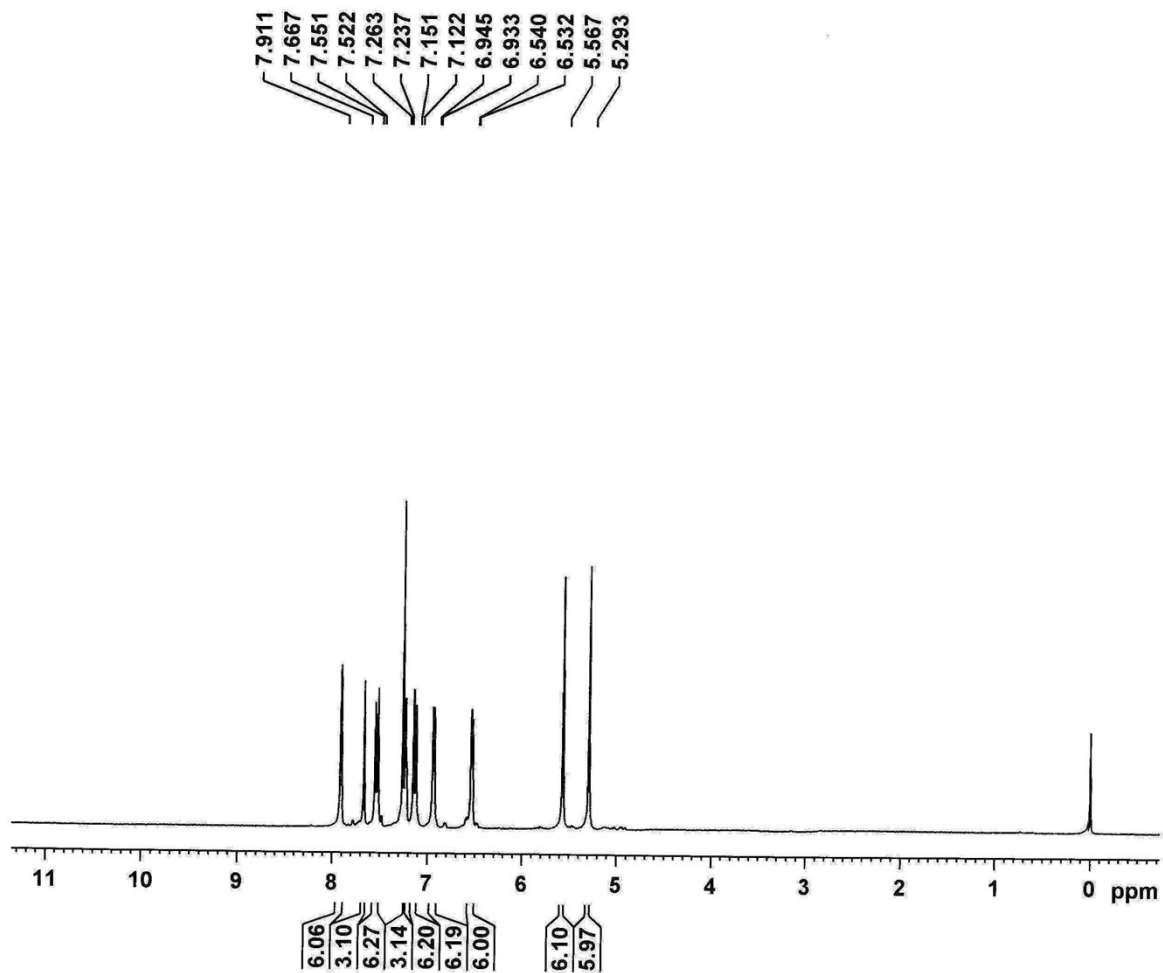
^{13}C NMR spectrum (75 MHz, CDCl_3) of the first generation azidodendron 7



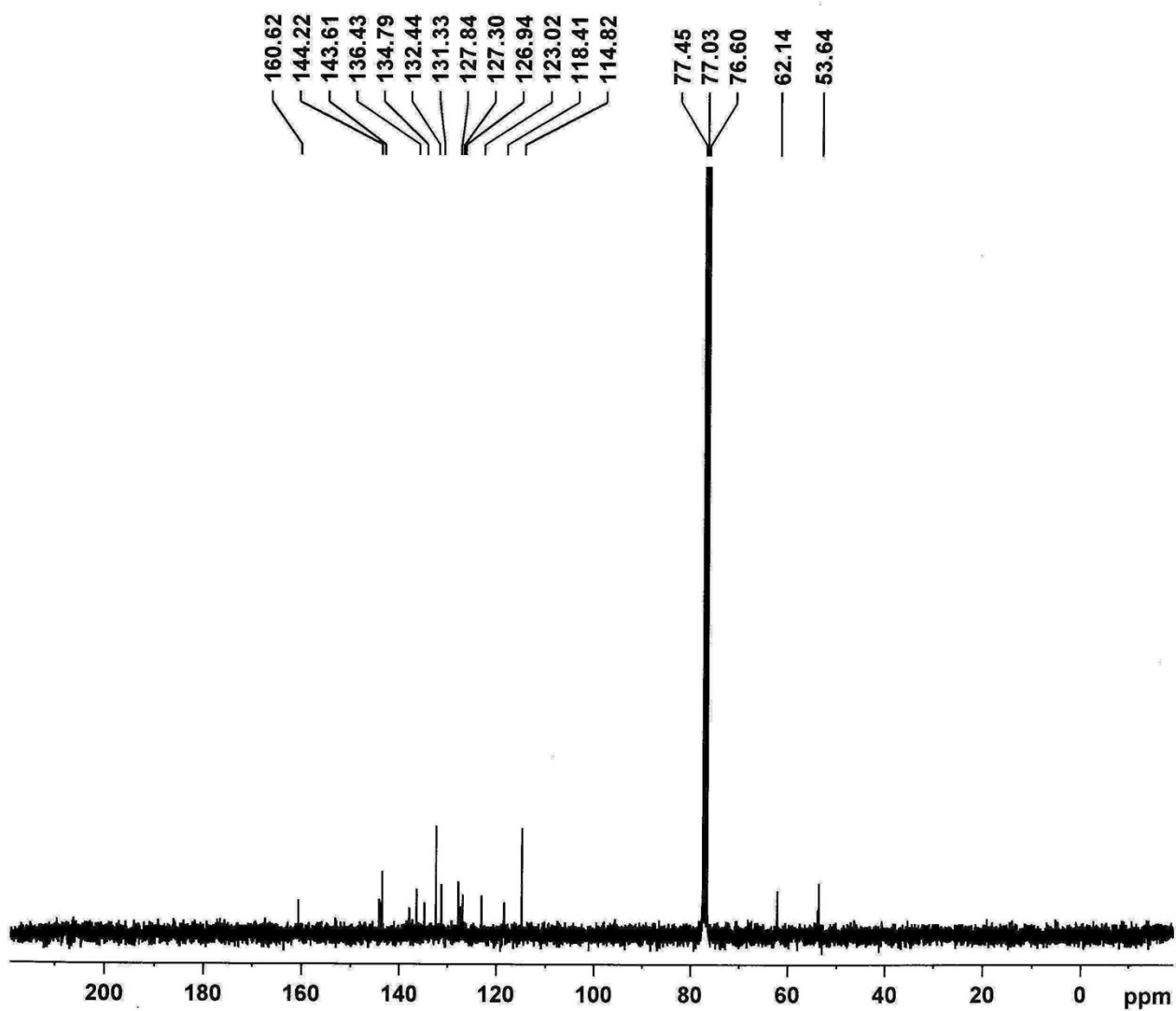
^1H NMR spectrum (300 MHz, CDCl_3) of the second generation azidodendron 9



^{13}C NMR spectrum (75 MHz, CDCl_3) of the second generation azidodendron 9:

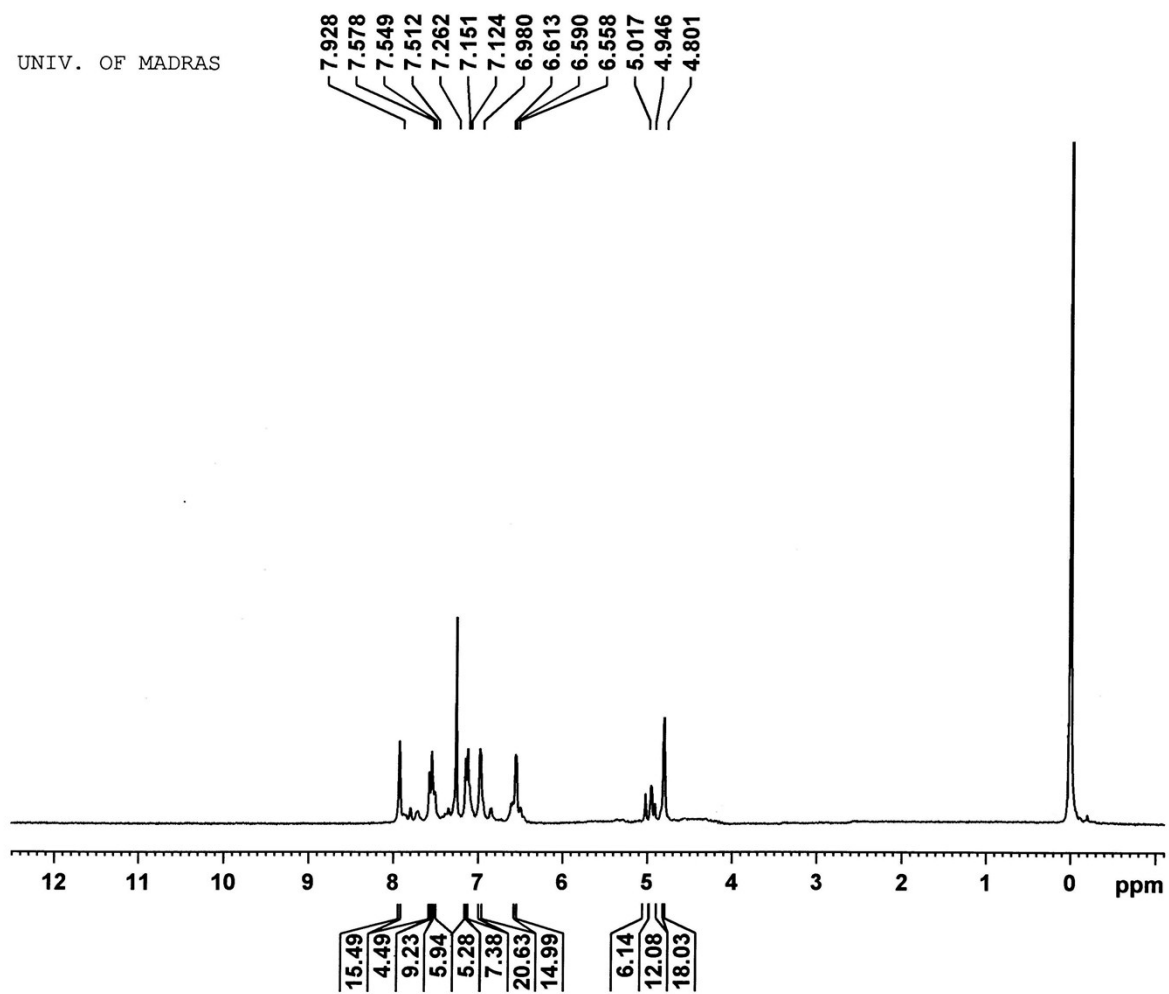


^1H NMR spectrum (300 MHz, CDCl_3) of the BODIPY dendrimer 1

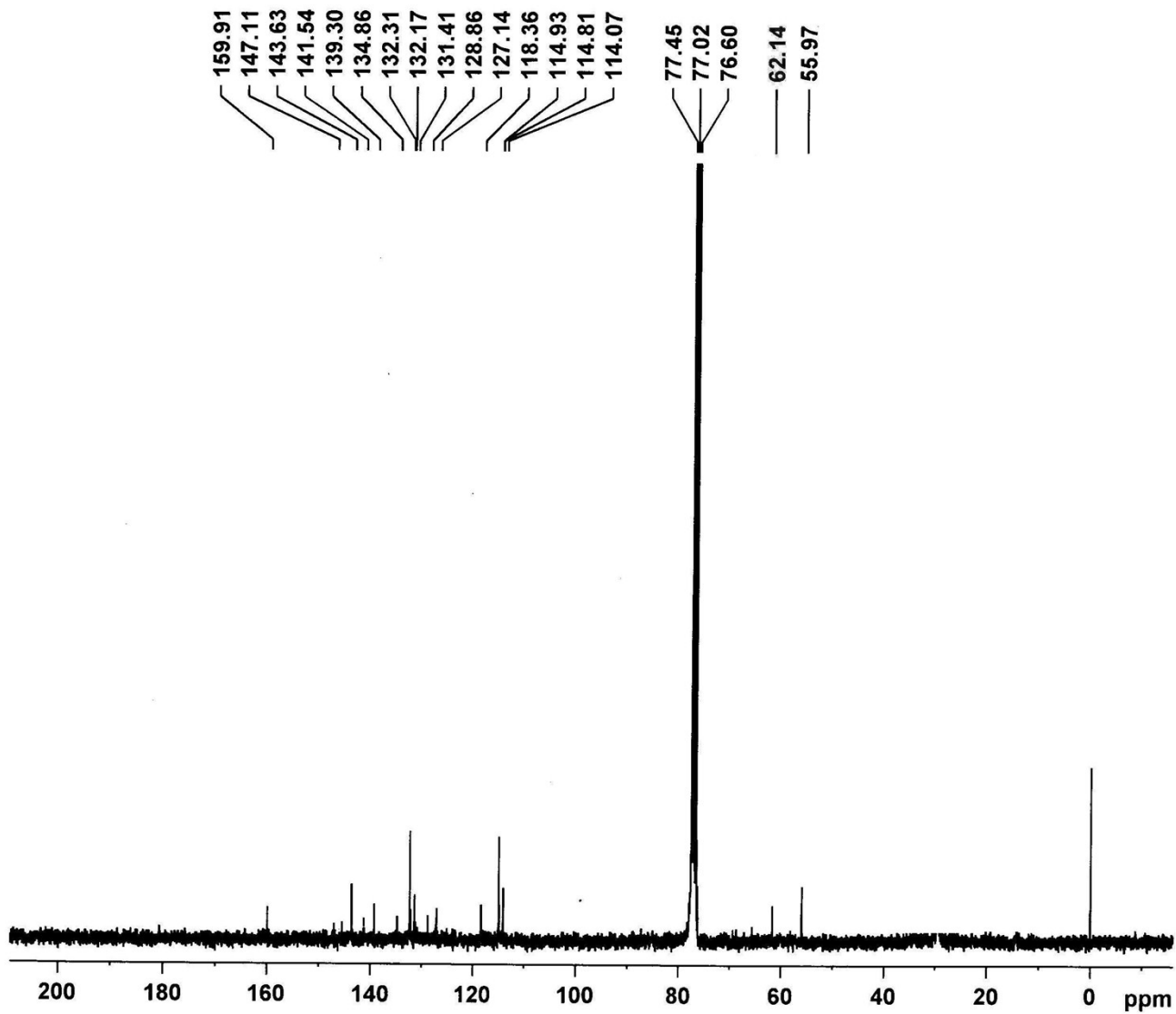


^{13}C NMR spectrum (75 MHz, CDCl_3) of the BODIPY dendrimer 1

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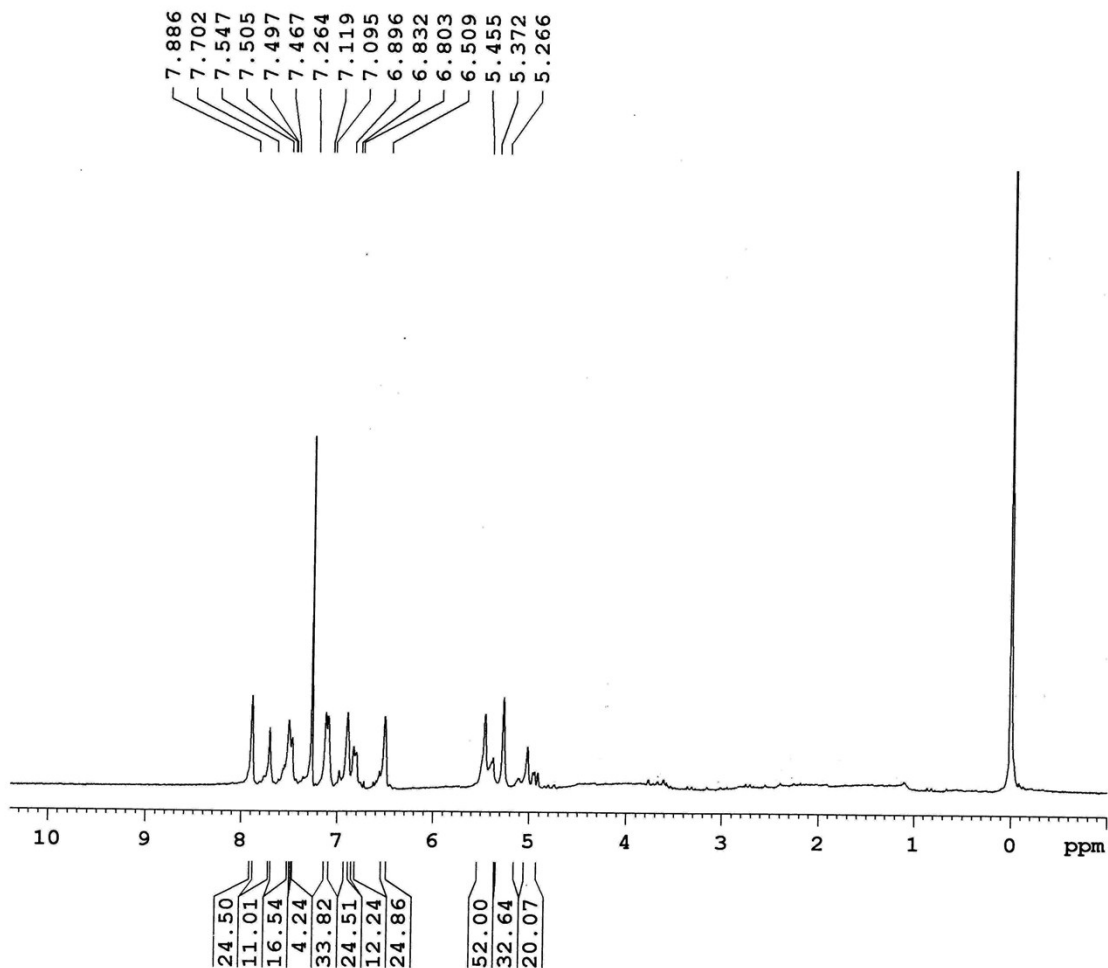


^1H NMR spectrum (300 MHz, CDCl_3) of the BODIPY dendrimer 2

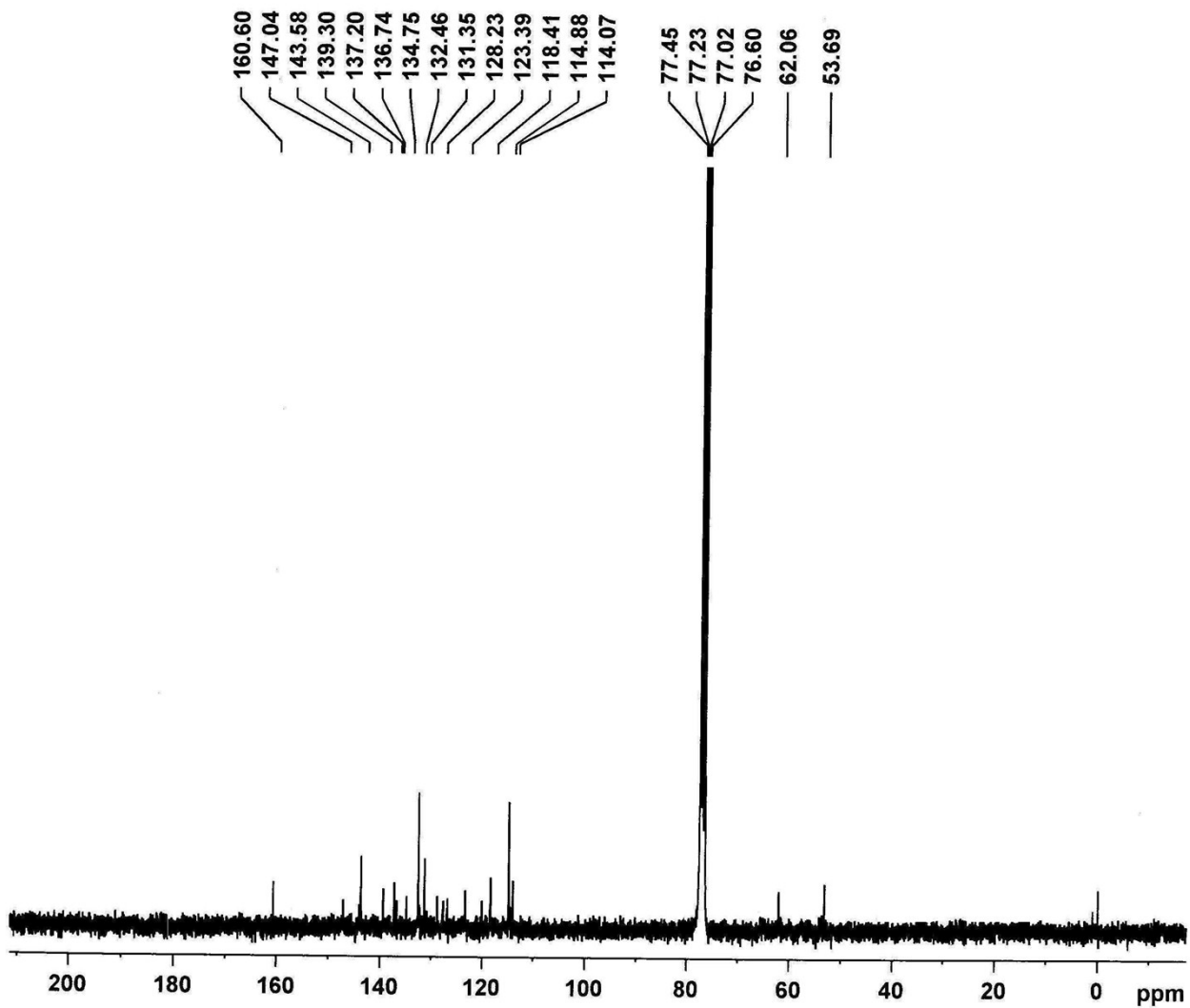


^{13}C NMR spectrum (75 MHz, CDCl_3) of the BODIPY dendrimer 2

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^1H NMR spectrum (300 MHz, CDCl_3) of the BODIPY dendrimer 3



^{13}C NMR spectrum (75 MHz, CDCl_3) of the BODIPY dendrimer 3

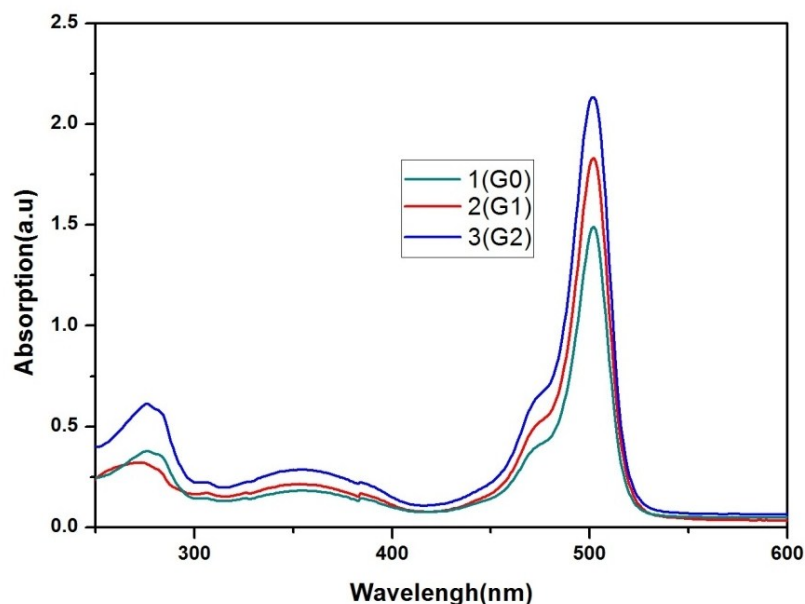


Figure S1: BODIPY dendrimers 1, 2 and 3 for UV-Vis absorption spectra of dye-adsorbed TiO₂ electrode

Table S1: BODIPY dendrimers 1, 2 and 3 for UV-Vis absorption spectra of dye-adsorbed TiO₂ electrode

Entry No	$\lambda_{\text{abs max}}$ (nm) (Figure 2A)
1 (Go)	276, 384, 501
2 (G1)	277, 385, 502
3 (G2)	278, 386, 503

The SEM analysis of the TiO₂ without BODIPY dye thickness is 914 nm, while the BODIPY coated TiO₂ is 1310 nm and the amount of BODIPY is on TiO₂ is 396 nm

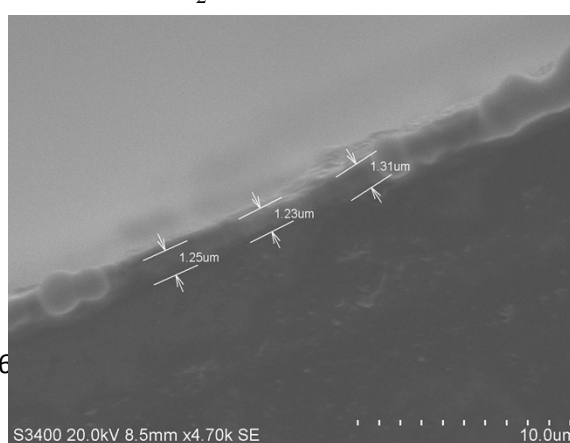
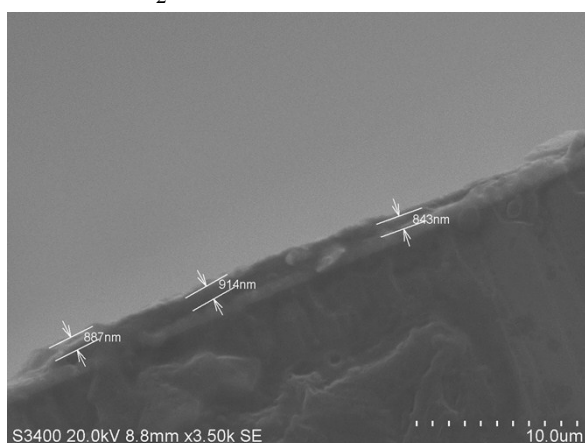


Figure S2 The SEM analysis of a)TiO₂ coated b) BODIPY with TiO₂

BODIPY dendrimer **1**, **2**, **3** dye has anchoring group such as triazolyl and BODIPY group as a result the power conversion efficiency was increases from lower to higher generation dendrimer due to the increasing BODIPY group in the

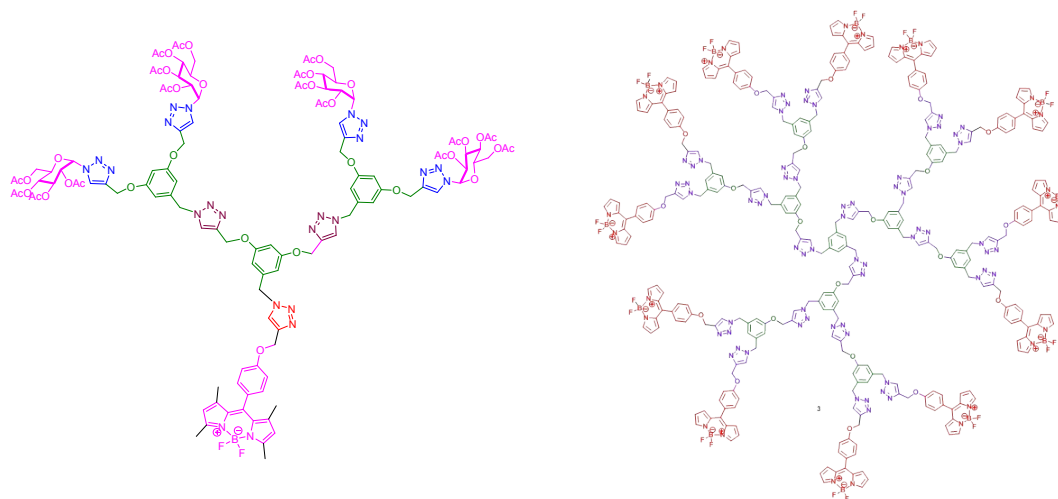


Figure S3:The anchoring group in the dendrimer for DSSC studies core and surface;

Table S2 :The anchoring group in the dendrimer for DSSC studies core and surface;

System	Voltage (mV)	Current (mA)	Fillfactor	Efficiency (η) %
TiO ₂ / BODIPY dye core /KI/I ₂ /Pt/1	604	2.4	0.5	0.72
TiO ₂ / BODIPY dye core /KI/I ₂ /Pt/2	620	2.6	0.51	0.82
TiO ₂ / BODIPY dye core /KI/I ₂ /Pt/3	640	2.9	0.5	0.93
TiO ₂ / BODIPY dye surface /KI/I ₂ /Pt/1	670	3.4	0.51	1.7
TiO ₂ / BODIPY dye surface/KI/I ₂ /Pt/2	698	4	0.52	2.1
TiO ₂ / BODIPY dye surface /KI/I ₂ /Pt/3	725	4.7	0.52	2.5