Electronic Supplementary Material (ESI) for RSC Advances.

Zinc ion detection using a benzothiazole-based highly selective fluorescence "turn-on" chemosensor and its real-time application

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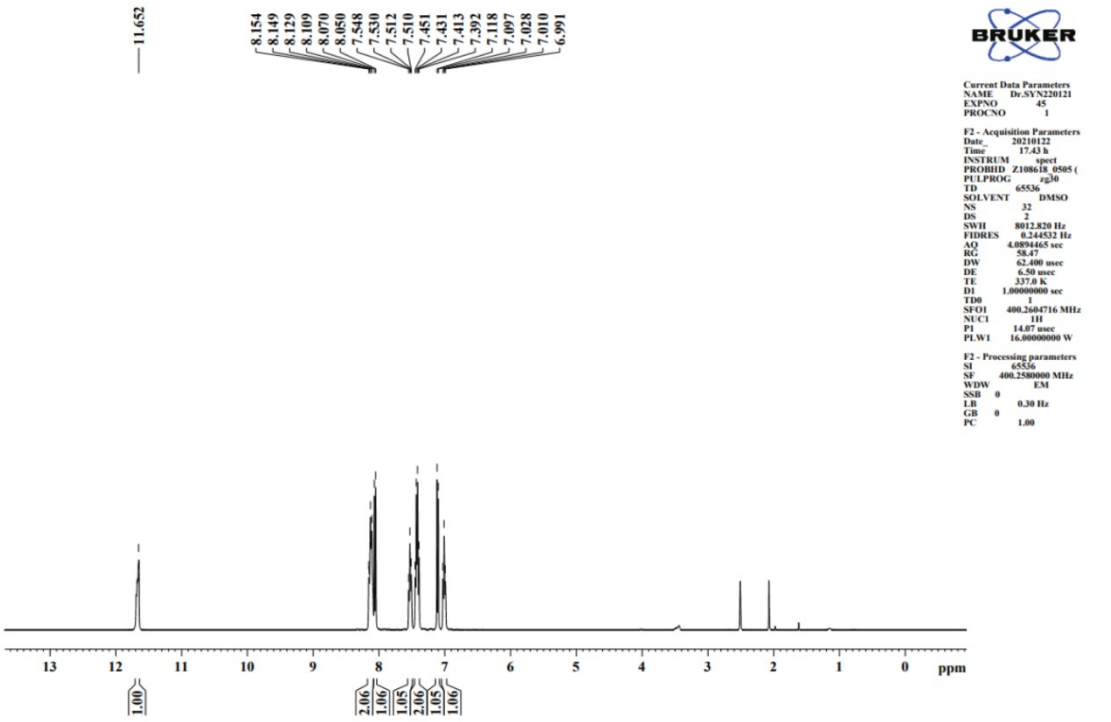
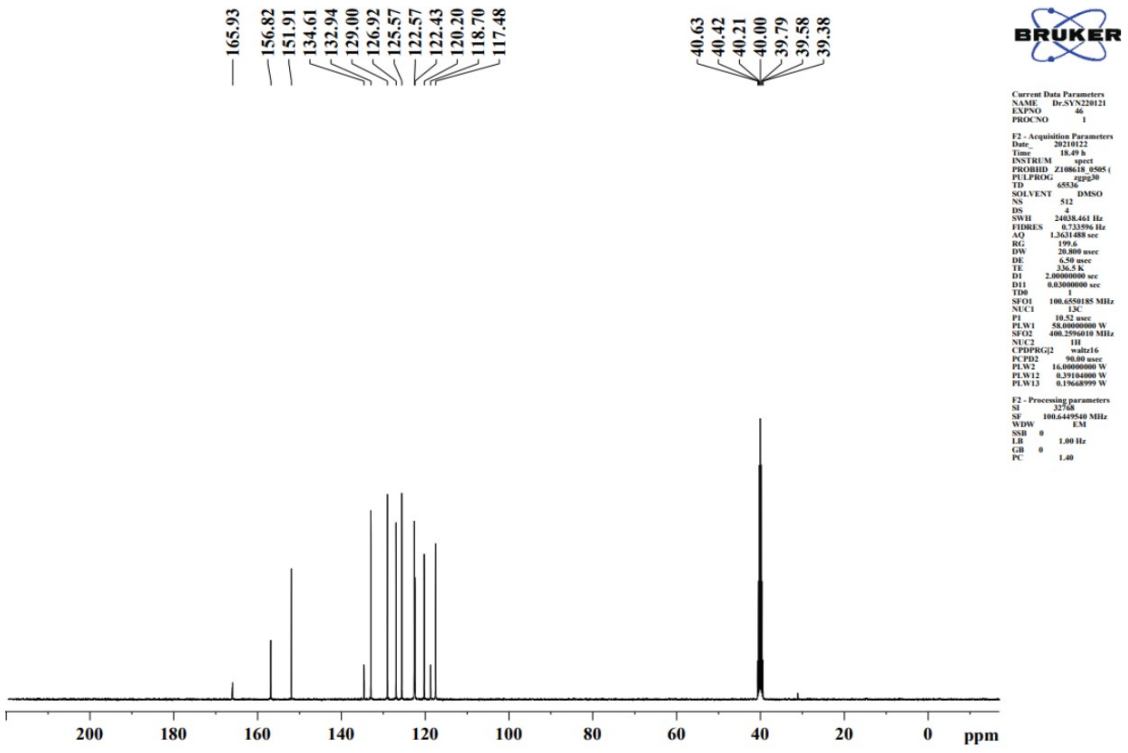
SI Figure S15. Cytotoxicity assay of **BIPP.**

BTP



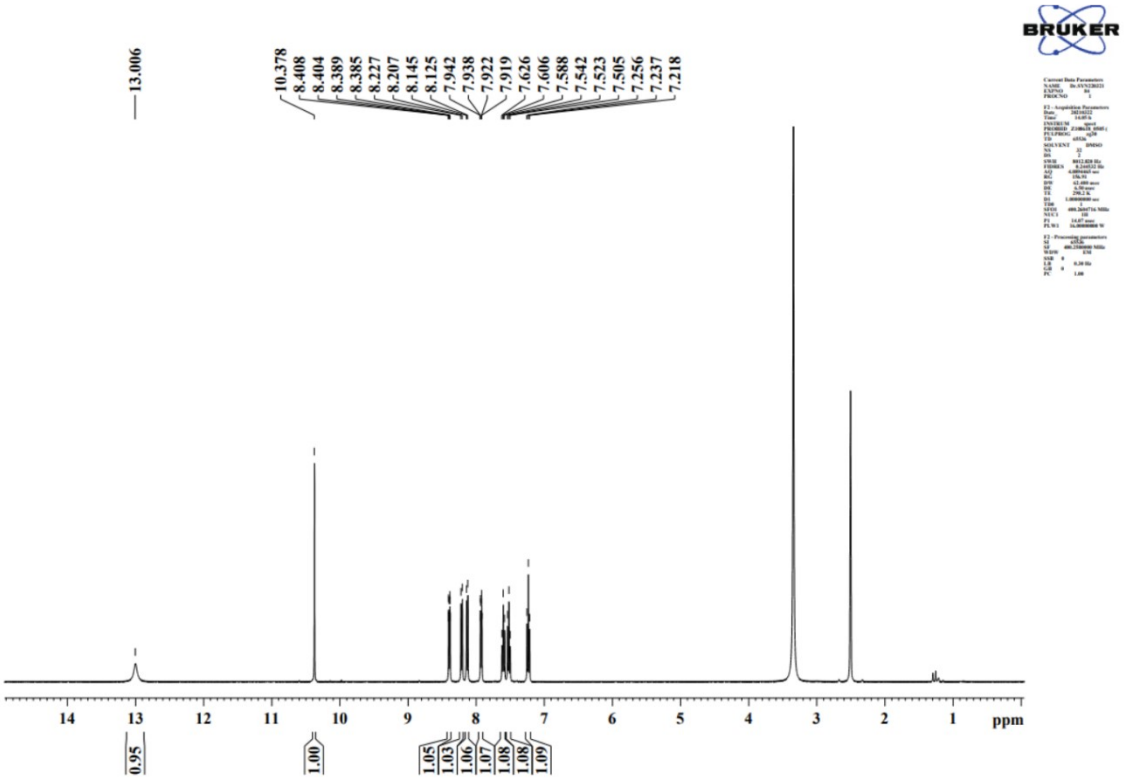
SI Figure S1 ^{1}H NMR spectra of **BTP.**

BTP



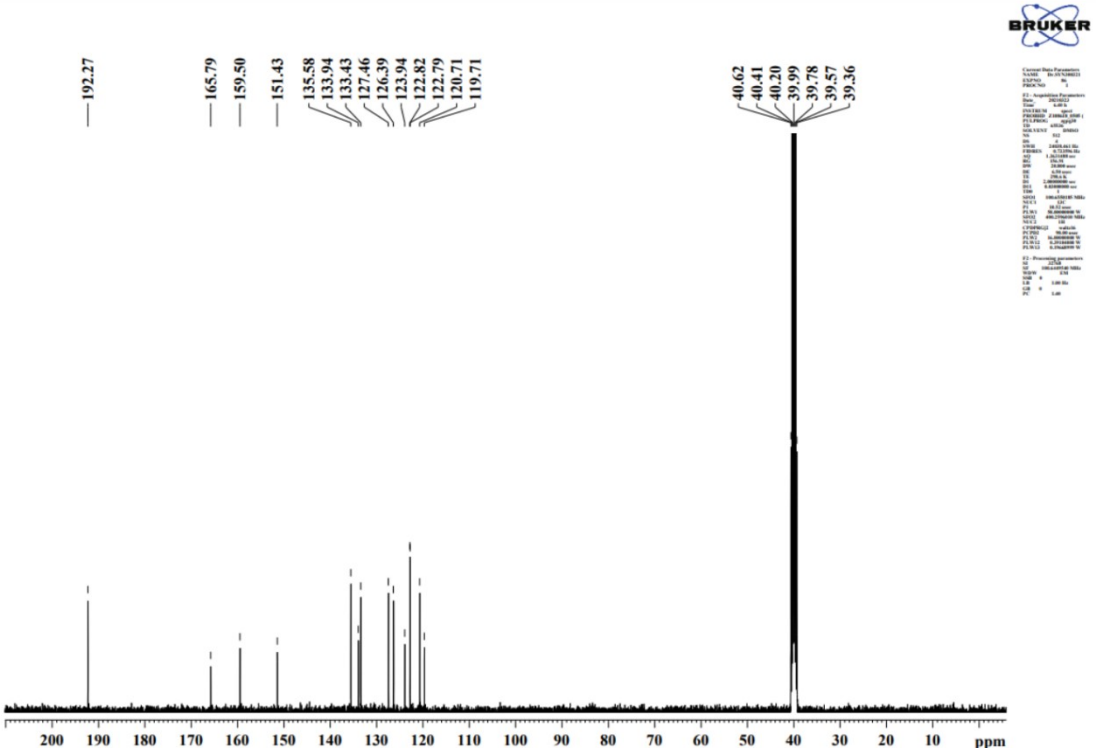
SI Figure S2. ^{13}C NMR spectra of **BTP.**

BTH



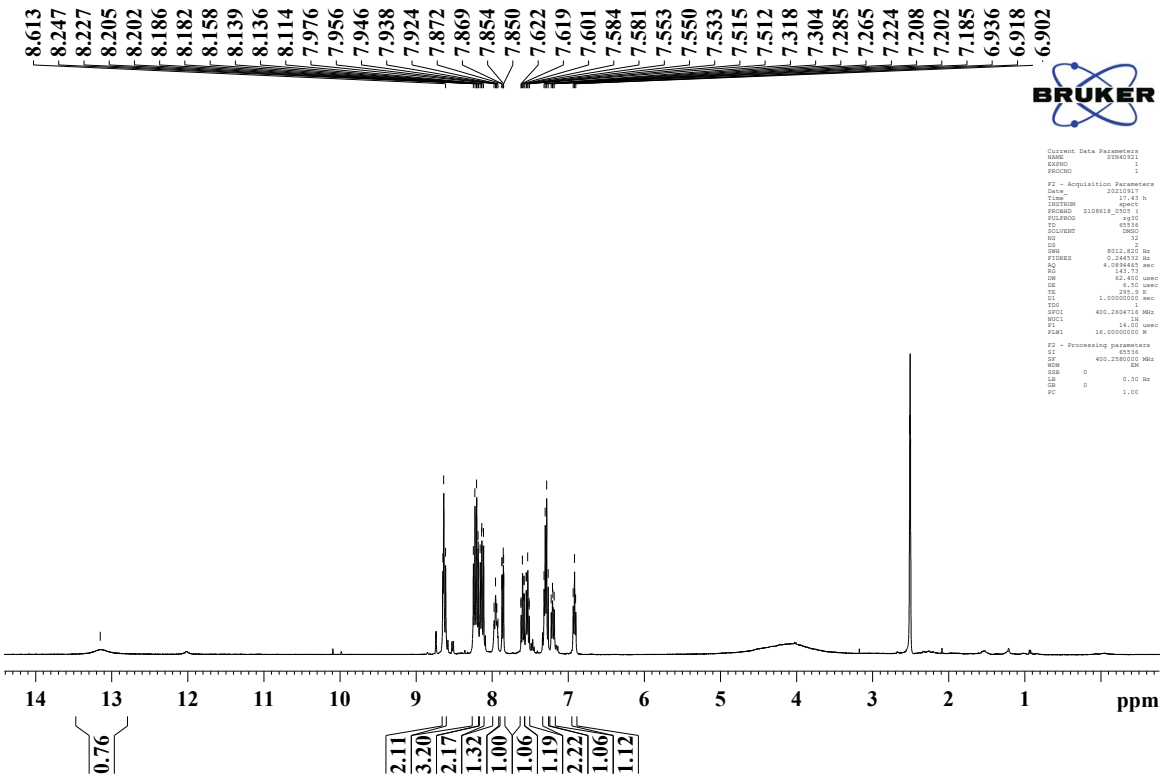
SI Figure S3. ^{1}H NMR spectra of **BTH.**

BTH



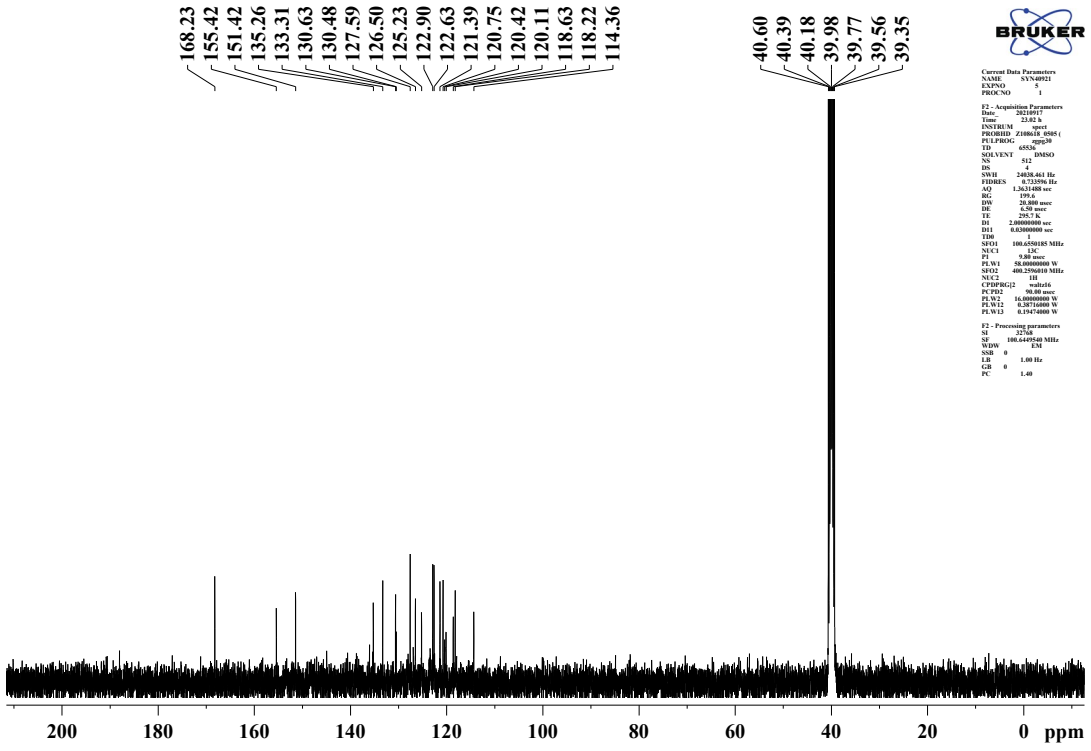
SI Figure S4. ^{13}C NMR spectra of **BTH.**

BIPP

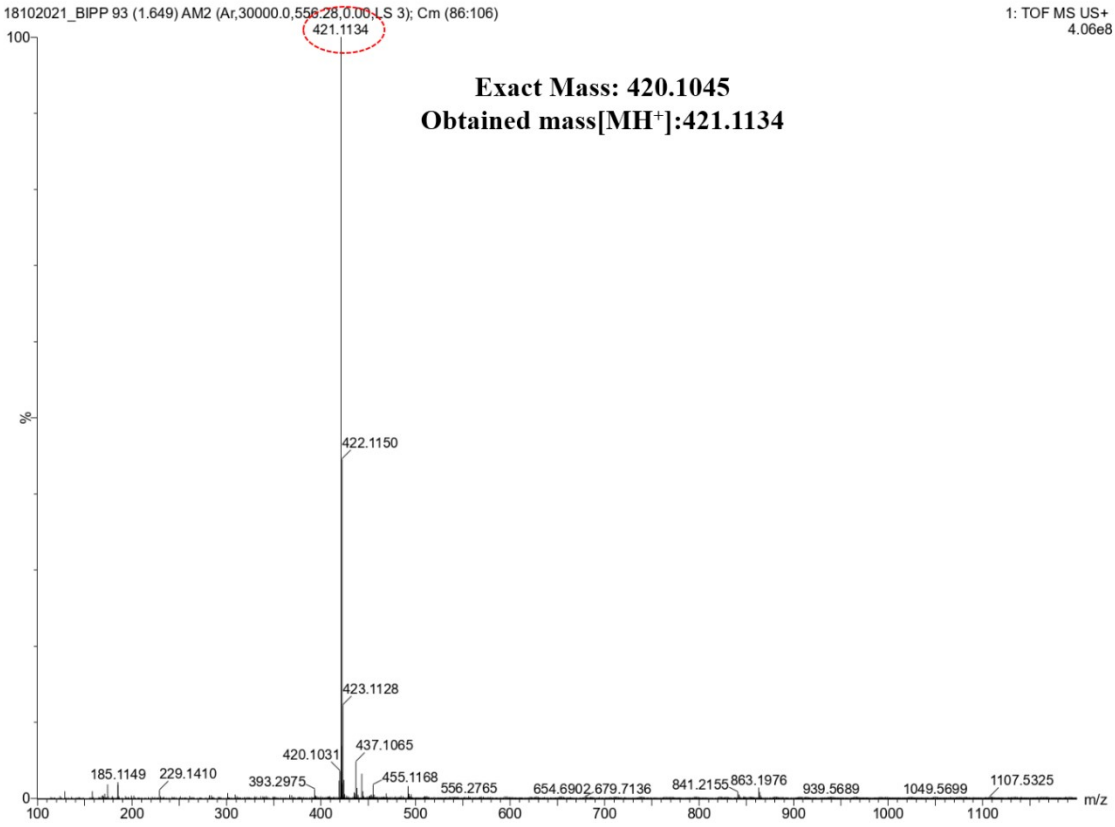


SI Figure S5. ^{1}H NMR spectra of **BIPP.**

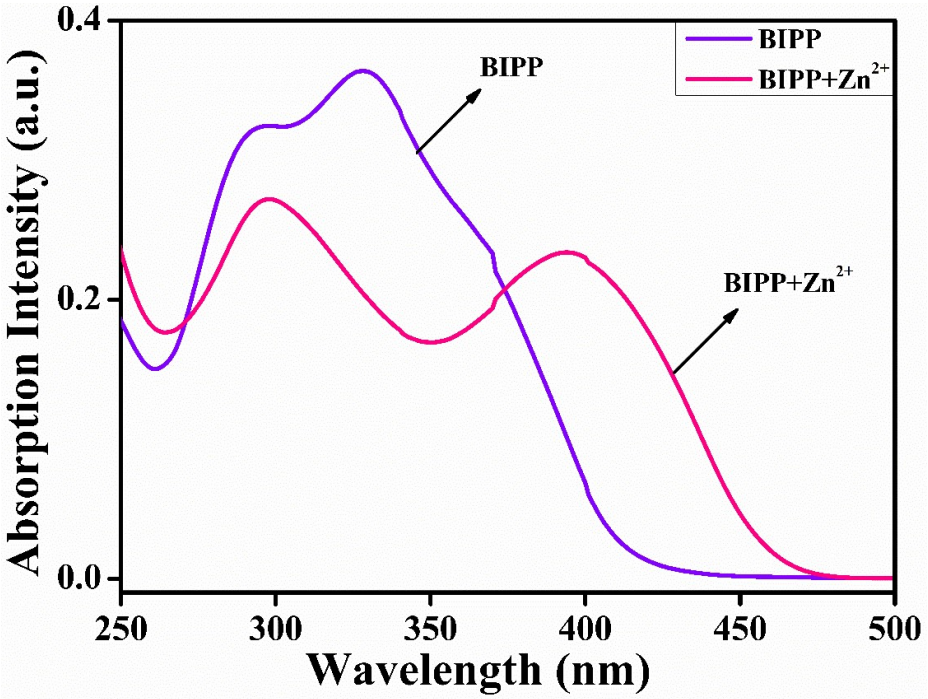
BIPP



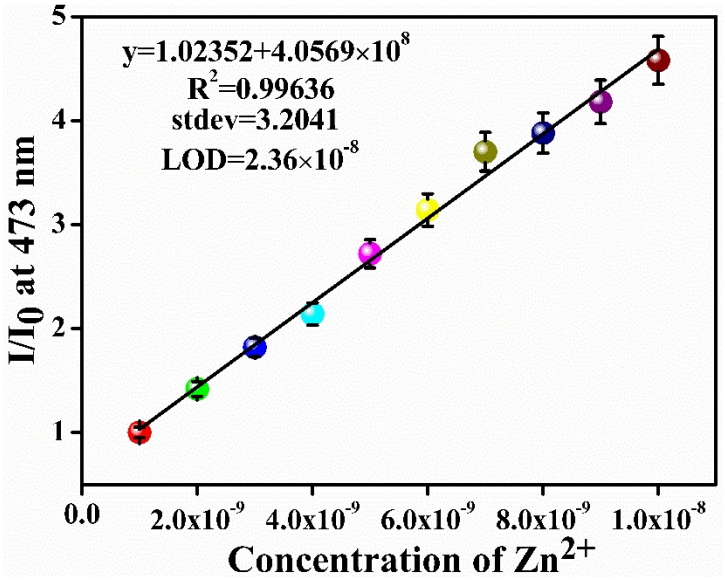
SI Figure S6. ^{13}C NMR spectra of **BIPP.**



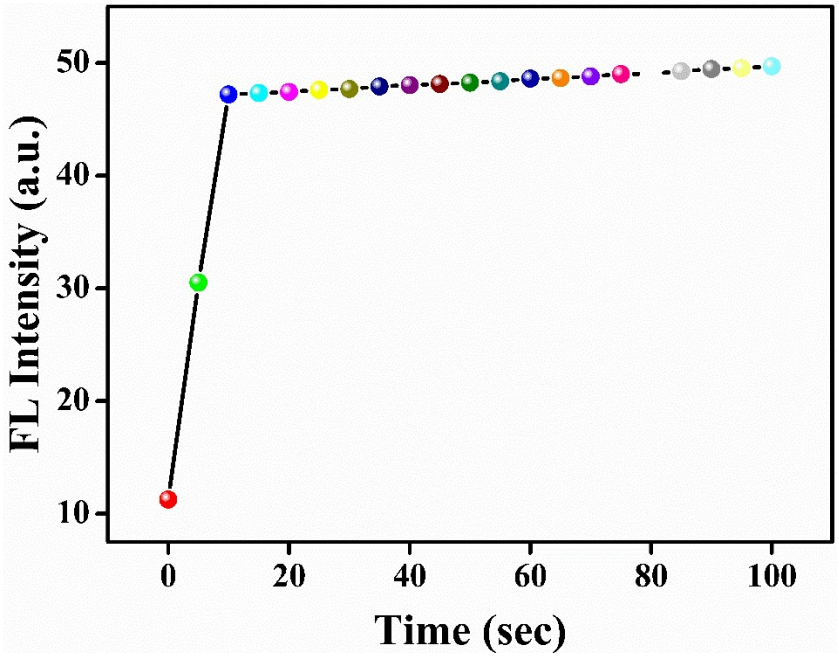
SI Figure S7. HRMS spectra of **BIPP.**



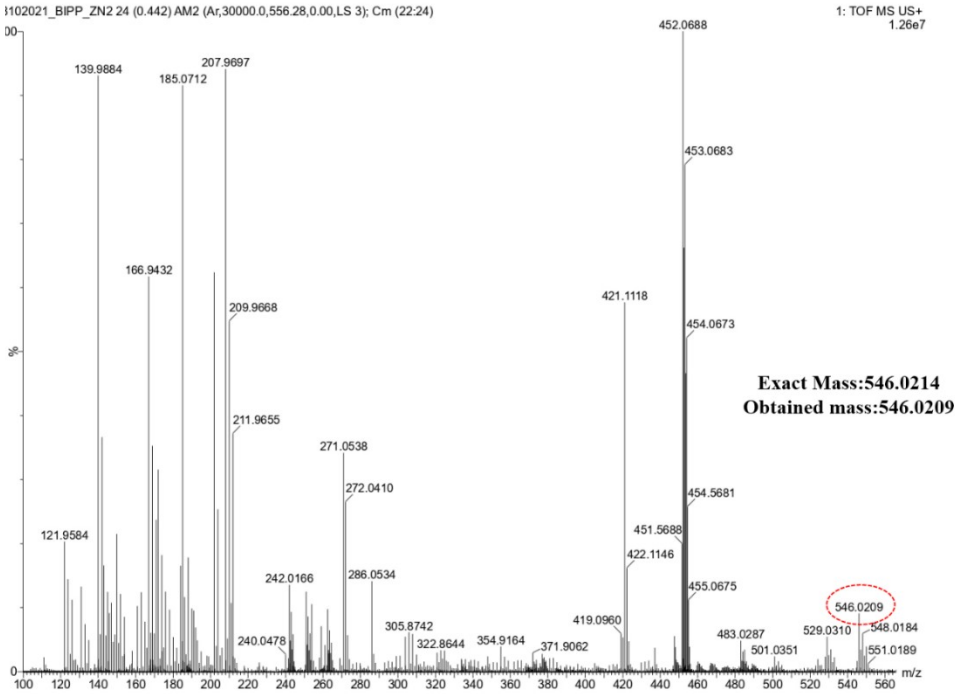
SI Figure S8. Absorption spectra of **BIPP** presence and absence of Zn^{2+}.



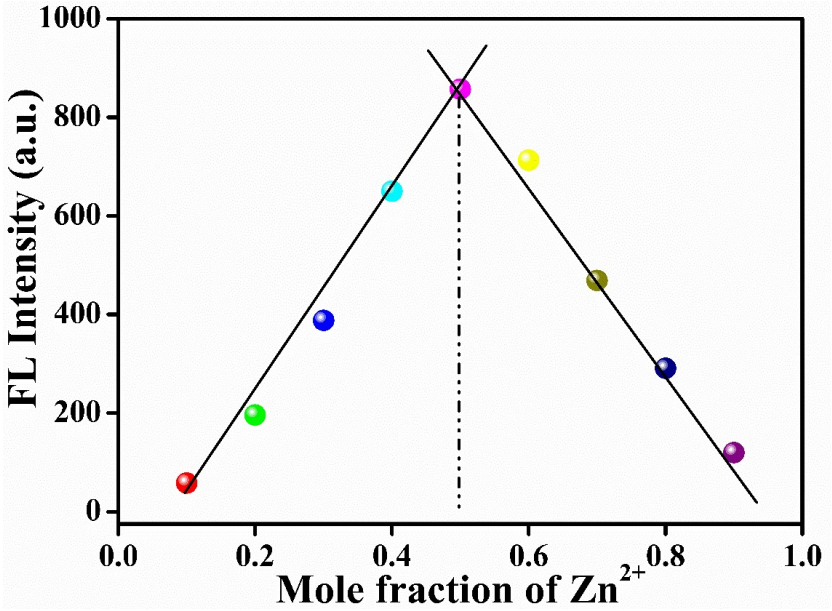
SI Figure S9. LOD of **BIPP** with Zn^{2+} at 473nm.



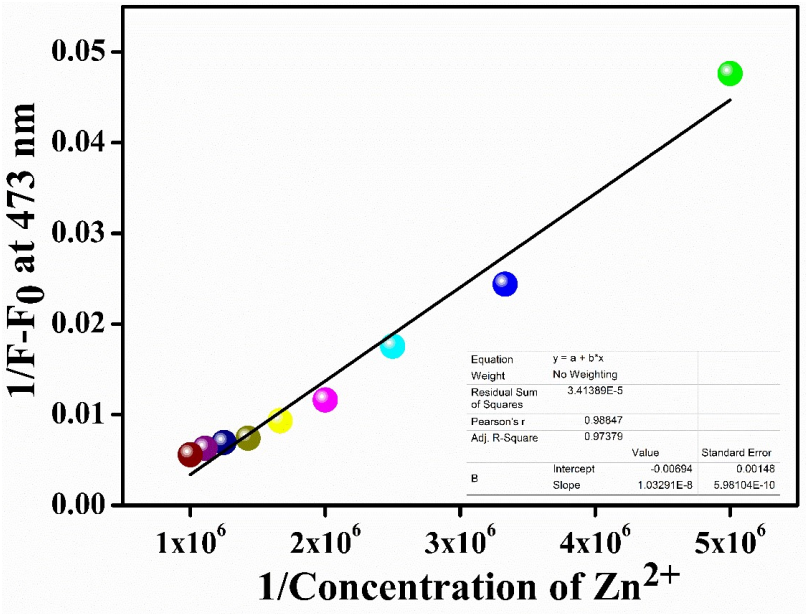
SI Figure S10. Time response of **BIPP** in the presence of Zn^{2+}.



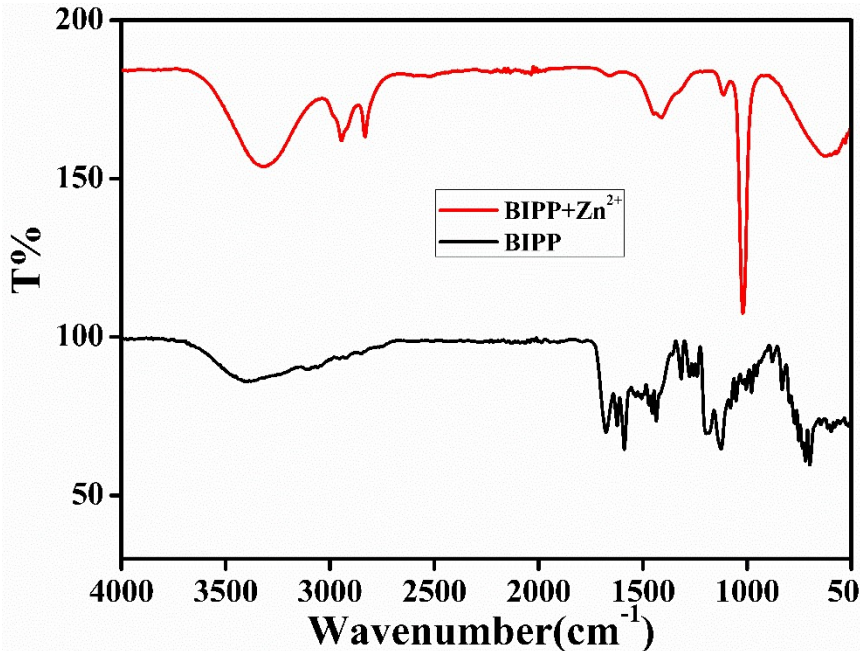
SI Figure S11. HRMS spectra of **BIPP+ Zn^{2+}.**



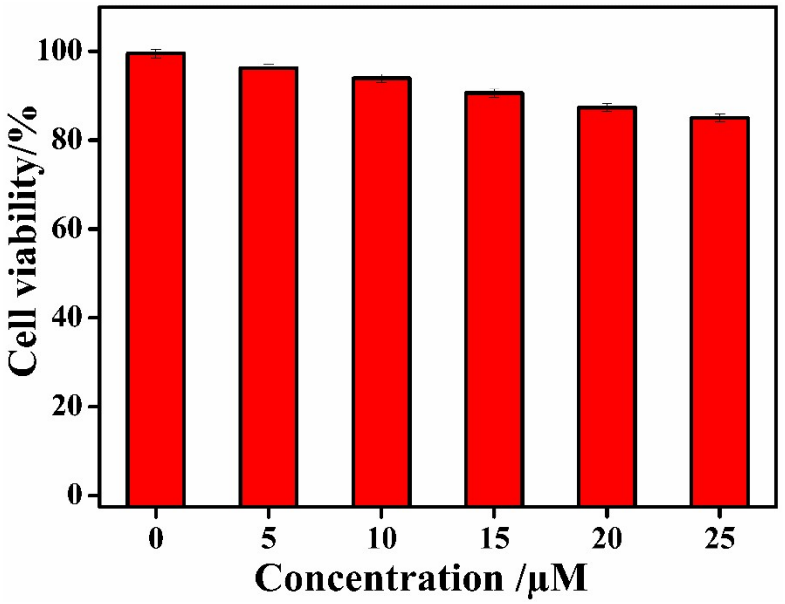
SI Figure S12. Job's plot exemplifies the 1:1 complex of **BIPP** with Zn^{2+}.



SI Figure S13. The binding constant of **BIPP** with Zn^{2+}.



SI Figure S14. FT-IR spectra variations of **BIPP** upon the addition of Zn^{2+}ion.



SI Figure S15. Cytotoxicity assay of **BIPP.**

SI Table S1 the comparison table of probe **BIPP** in earlier and current studies for detection of Zn2+ ion.

S. NO	PROBES	MEDIUM	SENSING TYPE	Binding mode	LOD	APPLICATION	REFERENCE
1	dipyrromethene based		OFF-ON	1:1	0.236 μM	Cell images	Sensors and Actuators B 203 (2014) 719–725
2	1-(2-hydroxynaphthylmethylene)-2-(2-hydroxybenzylidene)	DMF/H2O (9:1 to 1:9, v/v, containing 10 mM PBS at pH 7.4)	OFF-ON	1:1	46 nM	-	doi.org/10.1016/j.jlumin.2017.10.064
3	2-((3-morpholinopropyl)amino)-N-((quinolin-8-yl)acetamide)	acetonitrile–water solution(v/v¼ 7: 3, 10mM Hepes, pH 7.0)	OFF-ON	1:1	0.29 μM	Cell images	*New J. Chem.*, 2020, 44, 442
4	benzoxazole	DMSO: H2O (1:9 v/v, 50 mM	OFF-ON	1:1	0.52 μM	Cell images	10.1016/j.jphotochem.2018.10.036

		HEPES buffer)					
5	quinoline-based	MeOH:HEPES=3:7, v/v, pH 7.4	OFF-ON	1:1	2.1 ×10-8 M	Cell imaging	10.1016/j.snb.2016.04.175
6	Benzoxazole baesd	EtOH : HEPES ¼ 1 : 1 (pH ¼ 7.2)	OFF-ON	1:1		Cell imaging	J. Mater. Chem. B, 2014, 2, 2008–2012
7	8-aminoquinoline	acetonitrile–Tris-HCl (50 mM, pH 7.40) (9 : 1, v/v)	OFF-ON	1:1	1.96 μM	Cell images	Dalton Trans., 2014, 43, 1881
8	Tris(3-(2-hydroxyacetophenone)propyl)amine	Tris-HCl buffer	OFF-ON	1:1	8.8×10-8 M		10.1016/j.snb.2014.03.06
9	1,2,3-triazole moieties via a diaminopropyl	EtOH	OFF-ON	1:2	1 μM	Cell images	10.1016/j.snb.2016.01.045
10	acylhydrazone group	H2O/DMSO, 8:2, v/v	OFF-ON	1:1	9.3 × 10-8 M	Cell images	Sensors and Actuators B 208 (2015) 581–587
11	8-hydroxyquinoline	DMSO/H2O (4:1, v/v) in HEPES buffer (20 mM, pH 7.4)	OFF-ON	1:3	9.87 μM	logic gates, Cell images	Sensors and Actuators B 200 (2014) 123–131
12	8-aminoquinoline-based	Tris–HCl (50 mM, pH 7.4)	ratiometric	2:1	8.85 × 10-8 M	Cell images	Bioorganic & Medicinal Chemistry Letters Volume 23, Issue 12, 15 June 2013, Pages 3511-3514
13	quinoline-based	MeOH-Tris buffer (7/3, v/v, pH 7.3)	OFF-ON	1:1	3.8 × 10-8 M	Cell images	Tetrahedron Volume 75, Issue 49, 6 December 2019, 130710
14	quinoline-based	CH CN/H O, 2/98, v/v	ratiometric	1:1	0.063 μM	Cell images	Dyes and Pigments Volume 102, March 2014, Pages 301-307

15	PoPAP based	Ethanol.	OFF-ON	2:1			Dyes and Pigments 193 (2021) 109567
16	naphthalimide based	Ethanol	OFF-ON	1:1	0.18μM		Journal of Molecular Structure 1261 (2022) 132901
17	1,2,3-triazolyl function and 2,2-dipicolylamine	HEPES buffer, pH = 7.4.	OFF-ON	1:1	107 nM		Journal of the Taiwan Institute of Chemical Engineers 139 (2022) 104507
18	o-chlorobenzoic acid and p-phenylenediamine.		OFF-ON		0.09 μM	cell image	Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 261 (2021) 120028
19	4-hydroxycoumarin	CH3CN/H2O	OFF-ON	1:1	3.58×10^{-8} M.	cell image	Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 207 (2019) 16–22
20	2-((2-morpholinoethylimino)methyl)-4-bromophenol	water: methanol (9: 1, v/v) (pH = 7.4)	OFF-ON	1:1	4.41×10^{-7} M.	cell image	Inorganica Chimica Acta 519 (2021) 120258
21	dansyl chloride with a pseudo salen moiety	Ethanol.	OFF-ON	1:1	83 nM	cell image	Talanta 125 (2014) 301–305
22	1,8-naphthalimide derivative	(CH3CN/ HEPES, V/V = 6:4).	OFF-ON		0.2 1 μM	cell image	Tetrahedron Letters 54 (2013) 3353–3358
	Benzathiazole and imidazole	**ACN/H_2O (8:2, v/v)**	**OFF-ON**	**1:1**	**2.36×10^{-8}**	**Real sample anaylsis, cell image**	**Current paper**