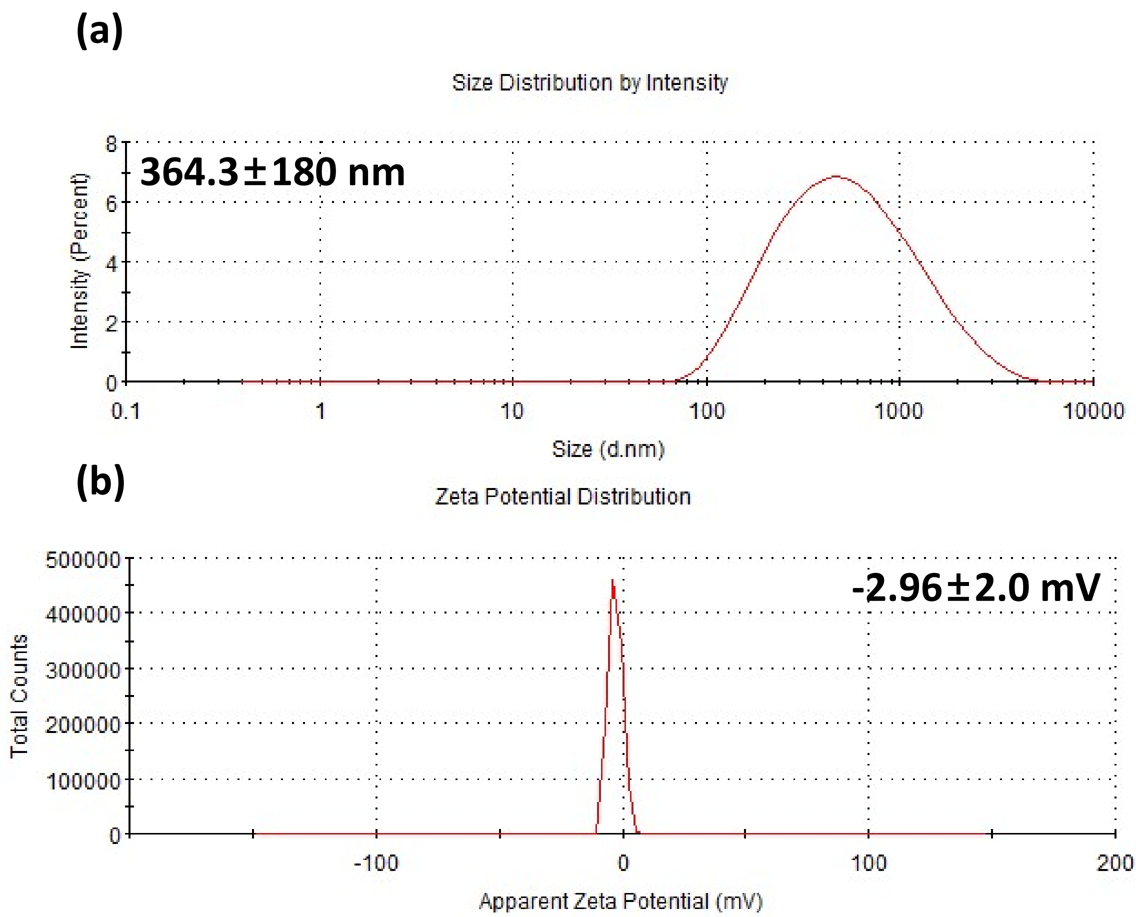

Figure S1 SQDs size distribution profile and zeta potential

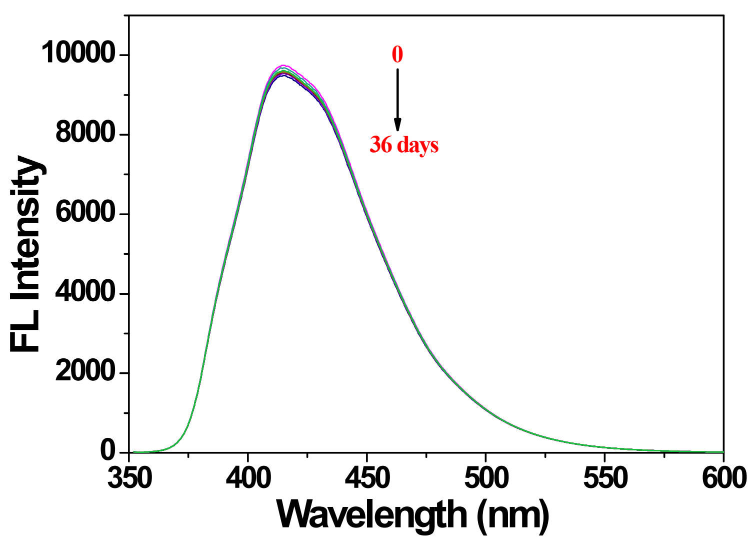

Figure S2. Emission changes of SQDs with an interval of 72 h for 36 days, after 9 months of preservation at 4 ^{o}C.

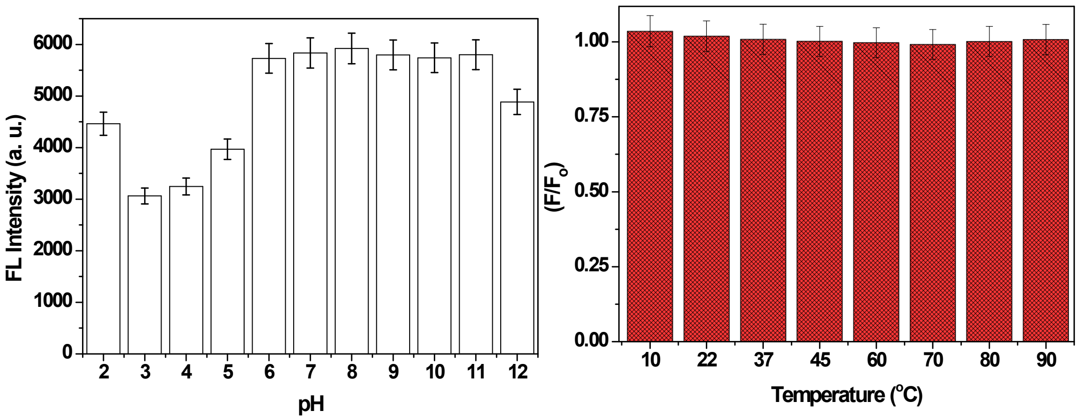

Figure S3. (a) Temperature and (b) pH influence on SQDs emission property.

Table S1. Comparison of SQDs LOD against 4-NP with the reported literature.

Material	Linear Rang(μM)	LOD(μM)	Ref.
B, N-CDs	0.5-60,60-200	0.2	1
CDs-BC	0.3-6.5,6.5-30	0.11	2
Hollow nanospheres	0-34.9	0.26	3
Au NCs	0.1-100	0.09	4
Au NCs	1-50	0.21	5
β-CD-CdTe QDs	20-100	0.3	6
N-CDs	0.25-7.5	0.05	7
N-CDs	0-250	0.4	8
Cr-CDs	0.8-150	0.27	9
B,N CDs	-	0.17	10
SQDs	0.2-30	0.07	11
SQDs	**0.12-50**	**0.046**	**This work**

Table S2. Comparison of SQDs LOD against 4-NP with the reported literature.

Material	Linear range(μM)	LOD(μM)	Ref.
Cu,I pellet	0-800	2.30	12
Curcumin	0.15-9.9	0.079	13
Si NPs	0.1-500	0.029	14
N-CDs	0.001-1	0.077	15
Poly(propyleneimine-Au NPs)	0.61-625	0.45	16
$ZnCO_2O_4$-GCE	1-4000	0.3	17
Polymethy red film	0.1-40	0.15	18
BaO nanorods	1.5-9	0.5	19
B-cyclodextrin	5-400	0.3	20
SQDs	**0.12-50**	**0.171**	**This work**

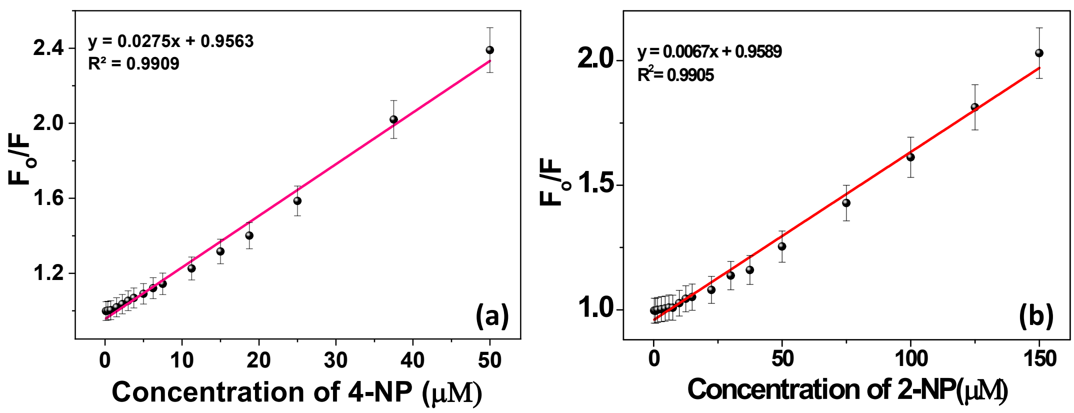

Figure S4. SQDs Stern-Volmer plots in the presence of nitrophenols: (a) 4-NP (b) 2-NP.

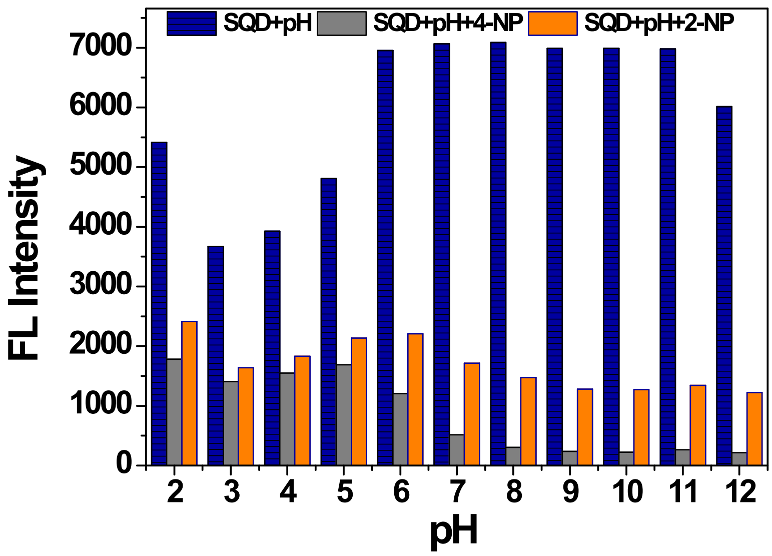

Figure S5. Influence of pH on emission and quenching property of SQDs in the presence of nitrophenols.

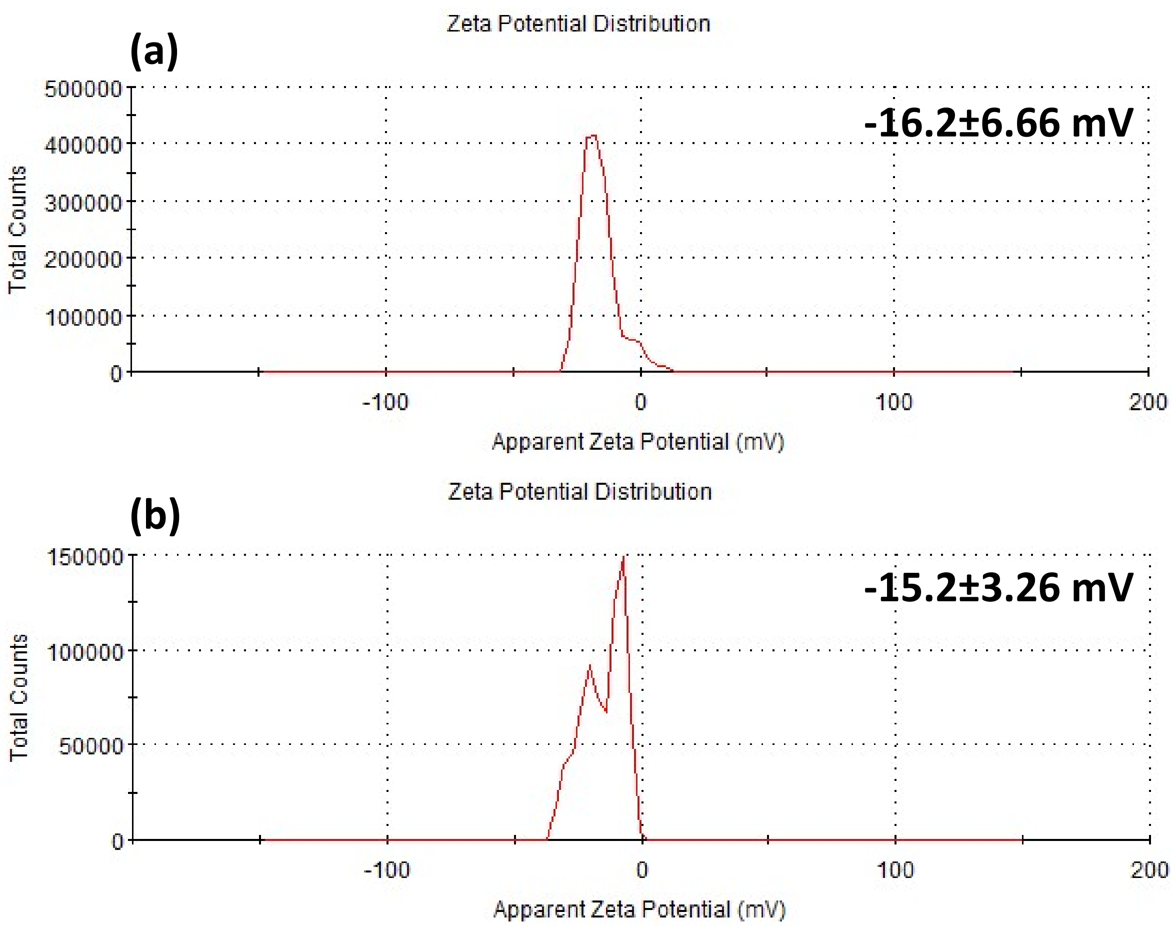

Figure S6. Zeta potential of SQDs in the presence of 4-NP(a) and 2-NP (b)

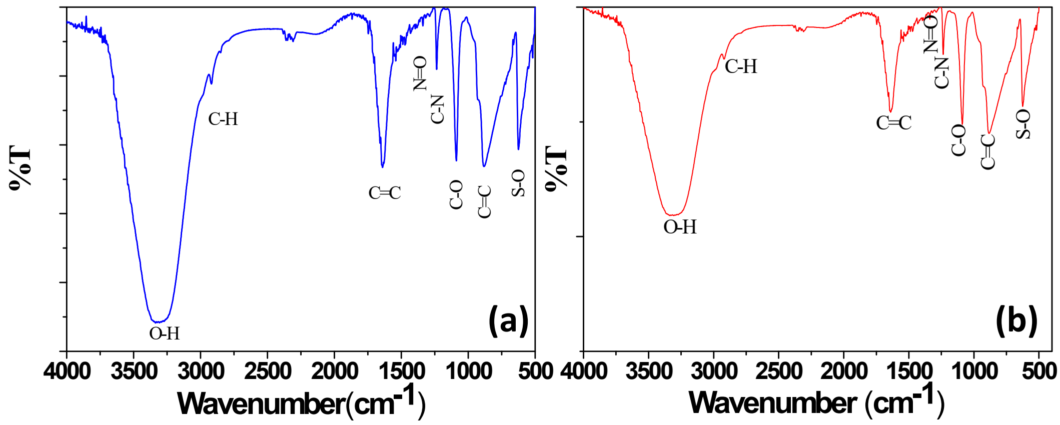

Figure S7. FT-IR spectra of SQDs in the presence of (a) 4-NP and (b) 2-NP

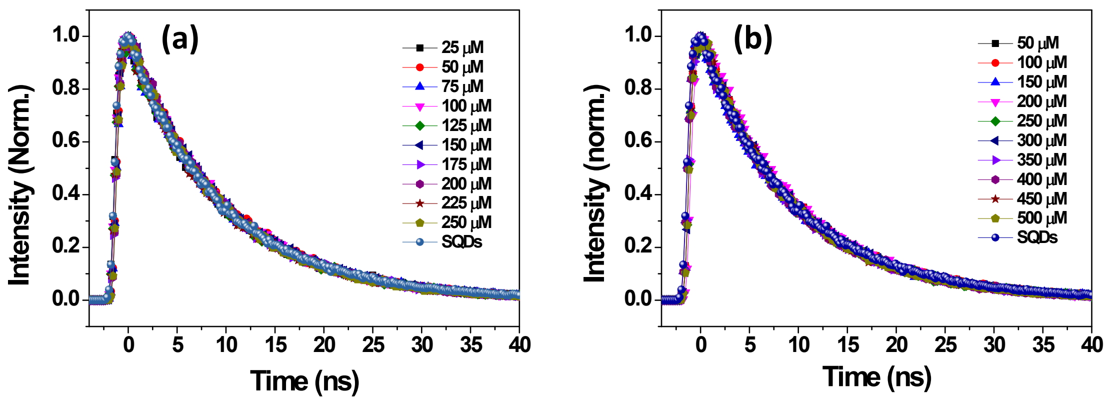

Figure S8. TRPL titration of SQDs in the presence of (a) 4-NP (25-250 μM) and (b) 2-NP (50-500 μM).

Table S3. Faster (τ_1 and τ_2), slower (τ_3) and average (τ_{avg}) decay values of SQDs in 4-NP solution

4-NP	τ_1(ns)	τ_2(ns)	τ_3(ns)	τ_{avg} (ns)
SQDs	0.78	2.7	10.3	9.64
SQDs+25 μM	0.85	3.6	10.4	10.78
SQDs+50 μM	0.82	3.2	10.2	10.73

SQDs+75 µM	0.14	4.5	10.3	9.80
SQDs+100 µM	0.84	3.0	10.0	9.75
SQDs+125 µM	0.89	3.8	10.1	10.30
SQDs+150 µM	0.92	2.4	9.8	9.90
SQDs+175 µM	0.25	3.7	10.0	9.59
SQDs+200 µM	0.59	2.9	9.88	9.57
SQDs+225 µM	0.12	2.1	97.9	9.82
SQDs+250 µM	0.14	1.5	9.70	9.78

Table S4. Faster (τ_1 and τ_2), slower (τ_3) and average (τ_{avg}) decay values of SQDs in 2-NP solution

2-NP	**τ_1(ns)**	**τ_2(ns)**	**τ_3(ns)**	**τ_{avg} (ns)**
SQDs	0.78	2.7	10.3	9.64
SQDs+50 µM	0.96	4.6	10.3	9.84
SQDs+100 µM	0.36	3.3	10.1	9.75
SQDs+150 µM	0.143	3.5	10.2	9.72
SQDs+200 µM	0.84	3.2	10.0	9.75
SQDs+250 µM	0.93	4.0	10.1	9.67
SQDs+300 µM	0.44	3.8	10.0	9.64
SQDs+350 µM	0.24	2.9	98.7	9.57
SQDs+400 µM	0.36	3.6	98.0	9.38
SQDs+450 µM	0.15	4.6	98.3	9.33
SQDs+500 µM	0.11	3.8	98.0	9.37

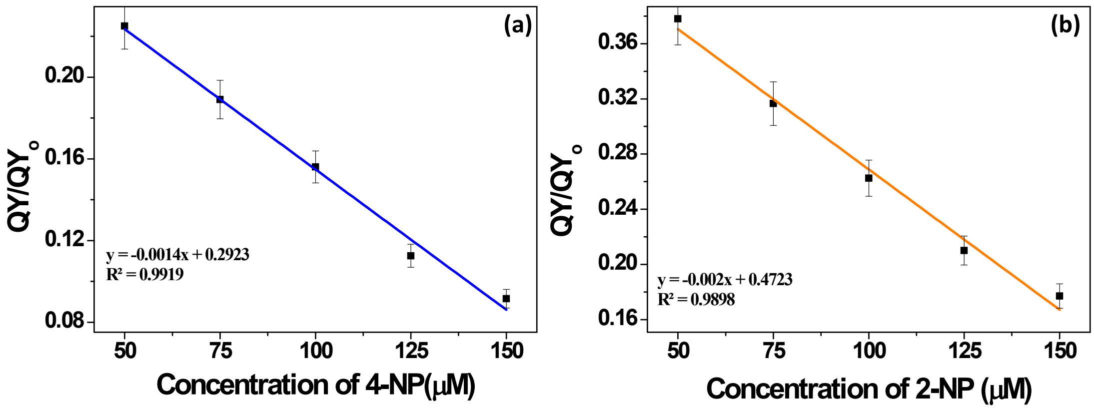

Figure S9. Influence of nitrophenols on SQDs PLQY (a) SQDs+4-NP (b) SQDs+2-NP.

1 N. Xiao, S. G. Liu, S. Mo, N. Li, Y. J. Ju, Y. Ling, N. B. Li and H. Q. Luo, *Talanta*, 2018, **184**, 184–192.

2 S. Zhang, D. Zhang, Y. Ding, J. Hua, B. Tang, X. Ji, Q. Zhang, Y. Wei, K. Qin and B. Li, *Analyst*, 2019, **144**, 5497–5503.

3 S. Jiang, S. Liu, L. Meng, Q. Qi, L. Wang, B. Xu, J. Liu and W. Tian, *Sci. China Chem.*, 2020, **63**, 497–503.

4 Y. Li, Q. L. Wen, A. Y. Liu, Y. Long, P. Liu, J. Ling, Z. T. Ding and Q. E. Cao, *Microchim. Acta*, 2020, **187**, 1–9.

5 H. Yang, F. Lu, Y. Sun, Z. Yuan and C. Lu, *Anal. Chem.*, 2018, **90**, 12846–12853.

6 Z. Zhang, J. Zhou, Y. Liu, J. Tang and W. Tang, *Nanoscale*, 2015, **7**, 19540–19546.

7 S. K. Tammina and Y. Yang, *J. Photochem. Photobiol. A Chem.*, , DOI:10.1016/j.jphotochem.2019.112134.

8 D. Das and R. K. Dutta, 2023, **06**, 47.

9 C. Li, Y. Zheng, H. Ding, H. Jiang and X. Wang, *Microchim. Acta*, 2019, **186**, 1–8.

10 S. Tummala, C. H. Lee and Y. P. Ho, *Nanotechnology*, 2021, **32**, 265502.

11 X. Peng, Y. Wang, Z. Luo, B. Zhang, X. Mei and X. Yang, *Microchem. J.*, 2021, **170**, 106735.

12 G. N. Liu, R. D. Xu, R. Y. Zhao, Y. Sun, Q. B. Bo, Z. Y. Duan, Y. H. Li, Y. Y. Wang, Q. Wu and C. Li, *ACS Sustain. Chem. Eng.*, 2019, **7**, 18863–18873.

13 Y. Wang, K. M. Wang, G. L. Shen and R. Q. Yu, *Talanta*, 1997, **44**, 1319–1327.

14 Y. Han, Y. Chen, J. Feng, M. Na, J. Liu, Y. Ma, S. Ma and X. Chen, *Talanta*, 2019, **194**, 822–829.

15 Y. Qu, G. Ren, L. Yu, B. Zhu, F. Chai and L. Chen, *J. Lumin.*, 2019, **207**, 589–596.

16 T. Ndlovu, O. A. Arotiba, R. W. Krause and B. B. Mamba, *Int. J. Electrochem. Sci.*, 2010, **5**, 1179–1186.

17 J. Zhang, S. Cui, Y. Ding, X. Yang, K. Guo and J. T. Zhao, *Biosens. Bioelectron.*, 2018, **112**, 177–185.

18 W. A. Adeosun, A. M. Asiri and H. M. Marwani, *Synth. Met.*, 2020, **261**, 116321.

19 M. M. Alam, A. M. Asiri and M. M. Rahman, *Chem. – An Asian J.*, 2021, **16**, 1475–1485.

20 J. Liu, Y. Chen, Y. Guo, F. Yang and F. Cheng, *J. Nanomater.*, , DOI:10.1155/2013/632809.