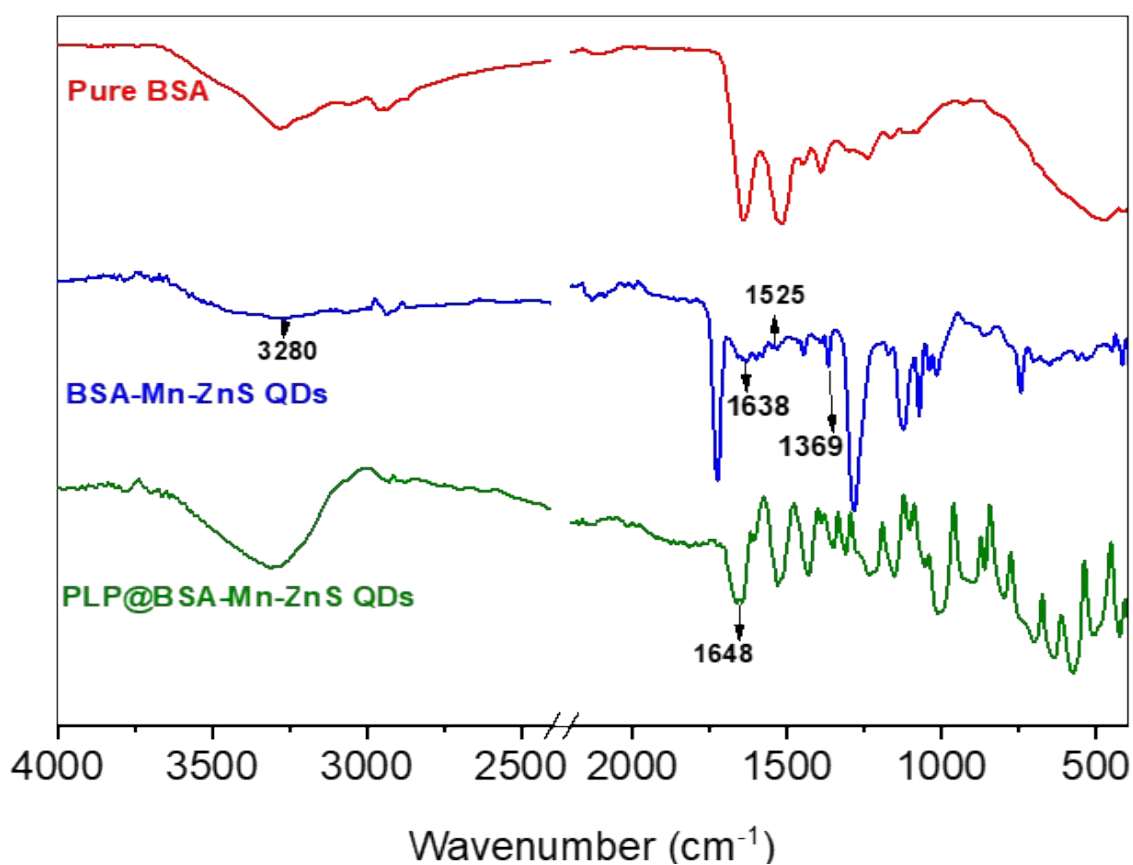


**Vitamin B<sub>6</sub> cofactor directed fluorescent turn-on detection of alkaline phosphatase activity  
using bovine serum albumin functionalized Mn-ZnS quantum dots**

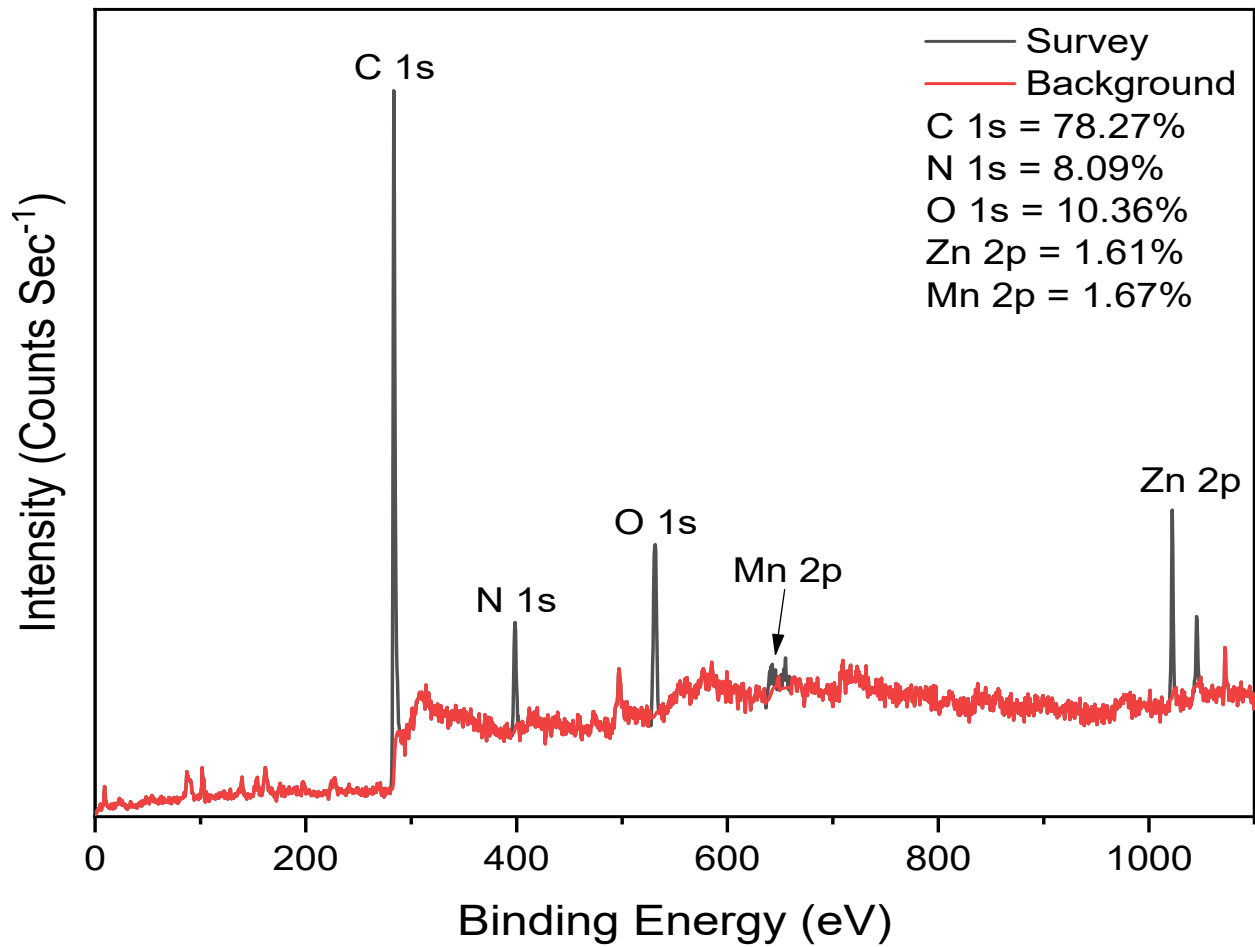
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Gujarat, India.

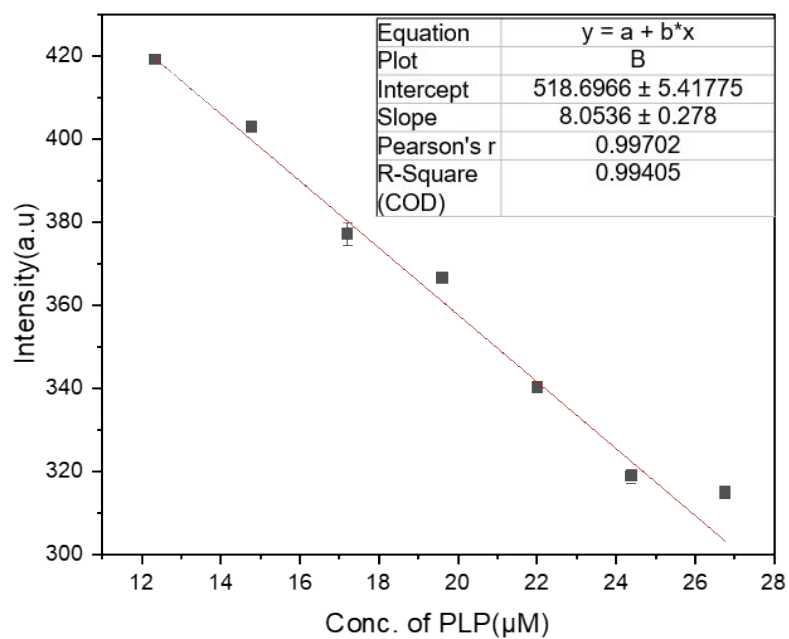
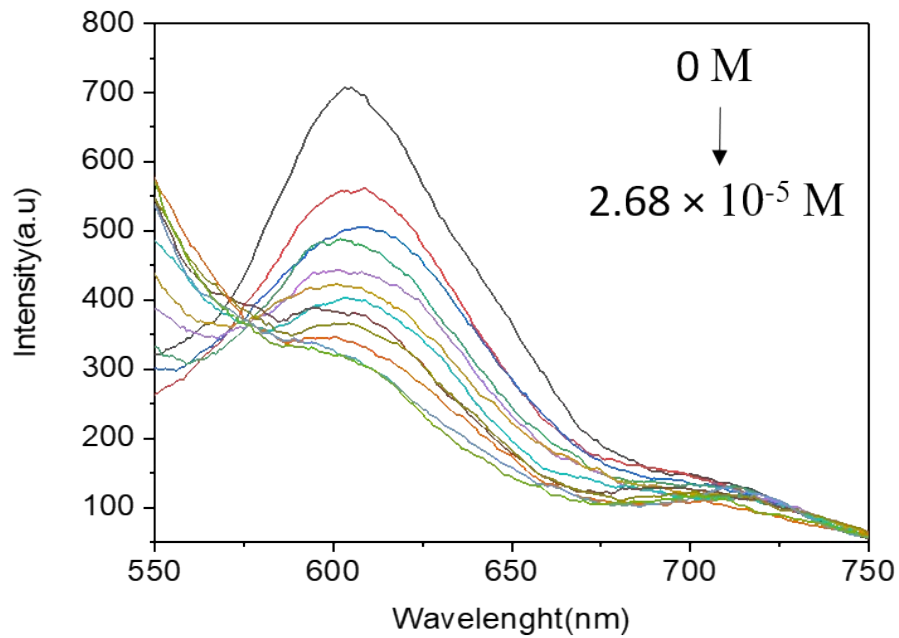
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**Fig. S1.** FT-IR graph of BSA, BSA-Mn-ZnS QDs and PLP@BSA-Mn-ZnS QDs.



**Fig. S2.** XPS spectrum of PLP@BSA-Mn-ZnS QDs.



**Fig. S3.** Fluorescence spectral changes of BSA-Mn-ZnS QDs with increasing concentration of PLP (a) and the calibration curve to estimate the LOD of PLP (b).

**Table S1.** Comparison of different detection methods reported for ALP.

Probes	Linearity range	LOD	Intermediate used	Ref.
CQDs	4.6–383.3 U/L	1.4 U/L	Ce <sup>3+</sup> , ATP	1
BSA-AuNCs	1.0–200.0 U/L	0.05 U/L	PLP	2
AuNCs	0.01–450 U/L	0.002 U/L	AA2P	3
CuNPs	0.06–600 U/L	0.035 U/L	PPi	4
CyP	0.01–2.0 U/mL	0.003 U/mL	-	5
Phosphate-modified tetraphenylethylene probe	3–526 U/L	0.2 U/L	-	6
Eu <sub>3</sub> TC	2.5–17.5 μmol/L	4 μmol/L	Phenyl phosphate	7
DEA	0.01–10 U/L	0.01 U/L	4-Aminophenyl phosphate	8
<i>m</i> -HPP	0.02–2 U/L	0.0023 U/L	Hydroxyphenyl phosphate	9
<b>BSA-Mn-ZnS QDs</b>	<b>0.005-0.047 U/L</b>	<b>0.003 U/L</b>	<b>PLP</b>	<b>This work</b>

PPi: Pyrophosphate; AA2P: ascorbic acid 2-phosphate; ATP: Adenosine tri-phosphate; CyP: hemicyanine-based fluorescent probe; Eu<sub>3</sub>TC: europium(III)-tetracycline; DEA: Diethanolamine; *m*-HPP: *m*-hydroxyphenyl phosphate sodium salt

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