Supplementary Material (ESI) for Chemical Communications

Chiral luminescent CdS nano-tetrapods

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Electronic Supplemental Information

Cell Culture and Cell Viability Assay

Murine NG108-15 neuroblastoma cells were cultured at 37°C and under 5% CO_2 atmosphere in Dulbecco's Modified Eagle's Medium (DMEM) without sodium pyruvate supplemented with 0.1 mM hypoxanthine, 400 nM aminopterin, 0.016 mM thymidine, 10% fetal bovine serum, 100 units/ml penicillin, and 100 µg/ml streptomycin. For cell viability study, cells suspended in 0.5 ml of medium were seeded in each well of a 24-well plate and allowed to attach for 24 h at 37°C. The medium was then replaced with fresh medium containing CdS-penicillamine tetrapods at various concentrations (0.4 µg/ml, 4 µg/ml, and 40 µg/ml). The cells were cultured for another 24 h at 37°C, after which the medium was removed, the cells were washed twice with phosphate buffered saline, and the cells were incubated with fresh serum-free and phenol red-free DMEM containing 1 mg/ml of MTT for 3 hours at 37°C. The medium was then removed and centrifuged to separate and obtain the dark formazan product formed by reduction of MTT by the mitochondrial reductase of viable cells. The formazon product was then dissolved in DMSO, producing a violet solution whose absorbance at 570 nm (reference at 690 nm) was measured and correlated with the number of viable cells.

Spectra for tetrapod synthesis monitoring

Spectroscopic monitoring of the synthesis for *D*-Pen and *Rac*-Pen samples during 2 hour period was conducted. The spectra show a gradual red shift in band-edge peaks as well as a gradual drop in general intensity. It was noted that the samples also show a change in the intensity of PL signals produced by the samples.

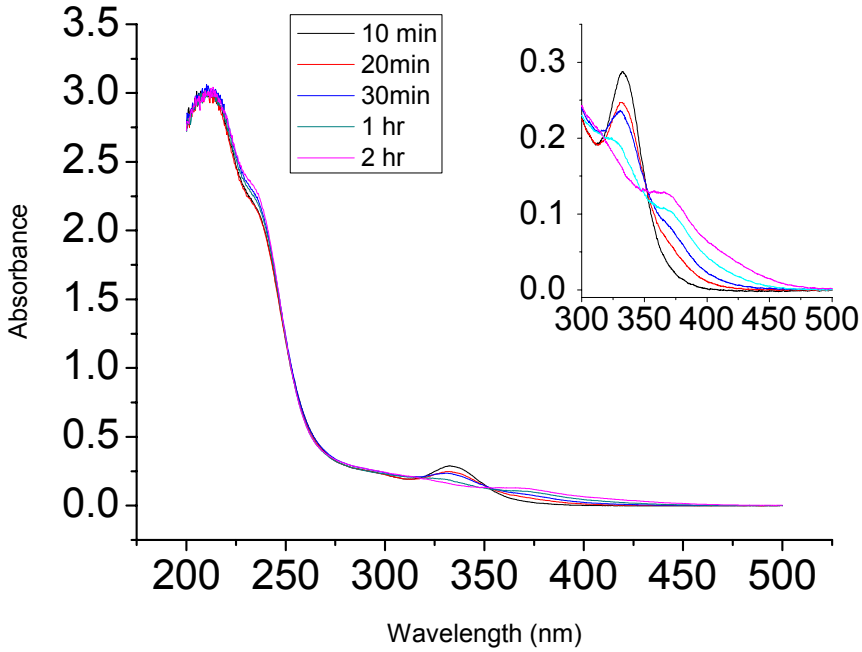

Fig. 1 UV-VIS Spectra for L-Penicillamine stabilised CdS nano-tetrapod synthesis.

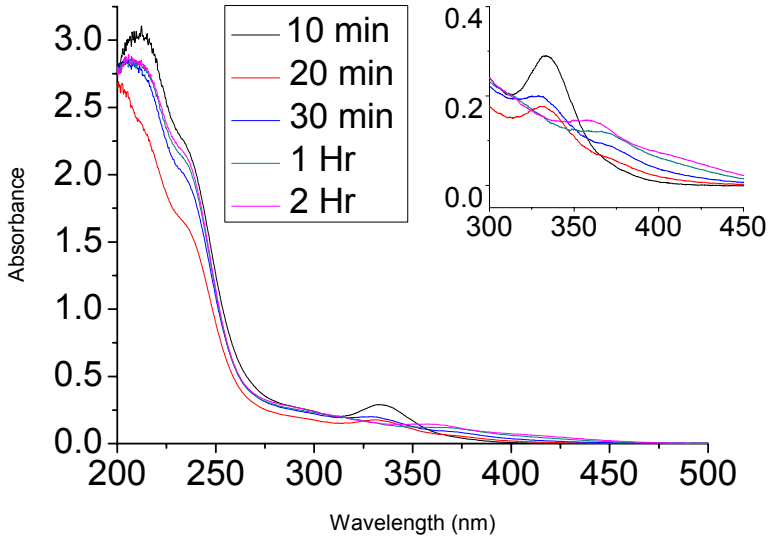

Fig. 2 UV-VIS Spectra of *D*-Penicillamine stabilised CdS nano-tetrapod synthesis.

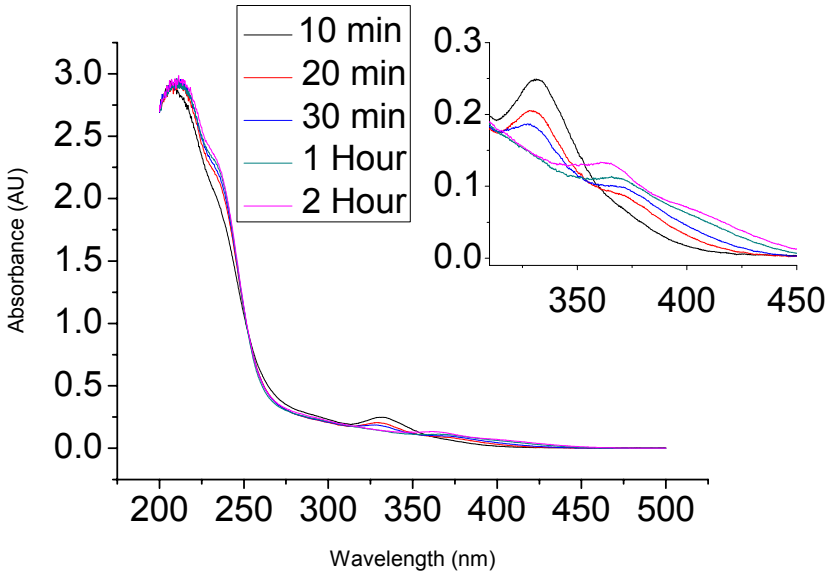

Fig. 3 UV-VIS Spectra of *Rac*-Penicillamine stabilised CdS nano-tetrapod preparation.

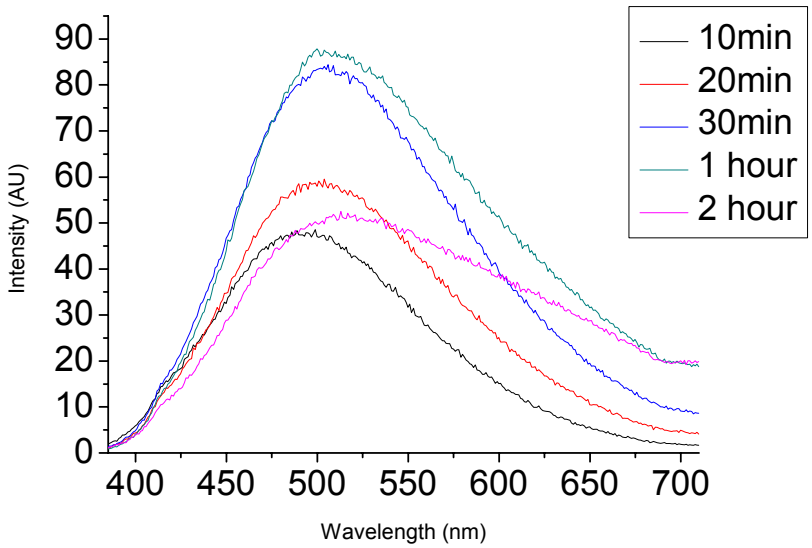

Fig. 4 PL Spectra of *D*-Penicillamine stabilised CdS nano-tetrapods preparation.

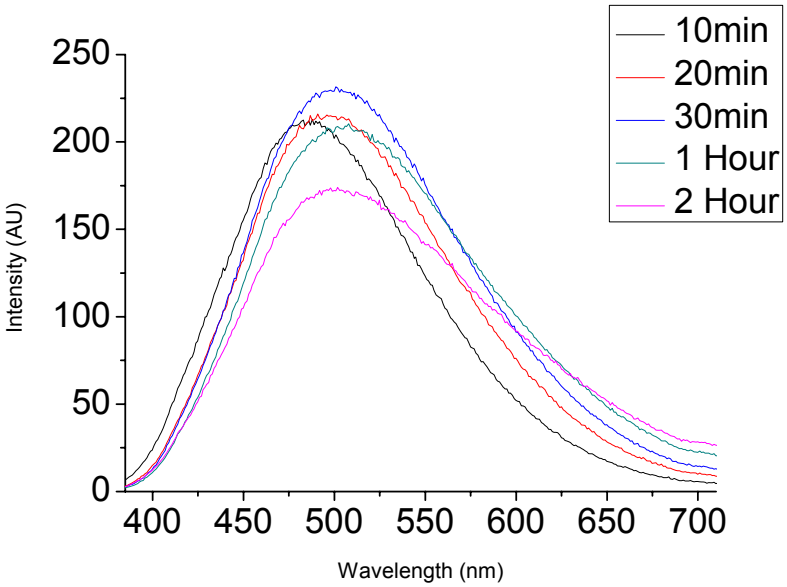

Fig. 5 PL Spectra of *Rac*-Penicillamine stabilised CdS nano-tetrapod preparation.

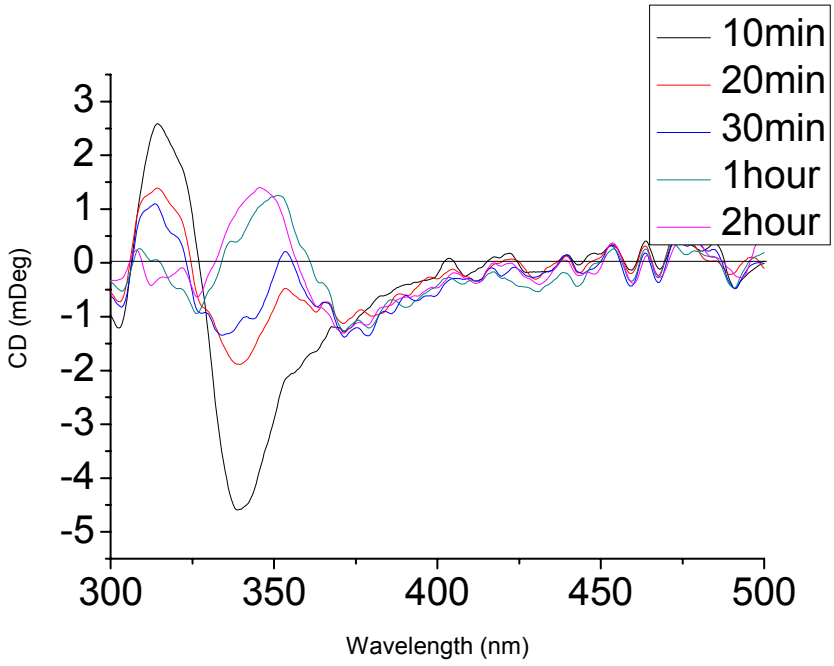

Fig. 6 CD Spectra of the synthesis of D-Pen stabilised CdS nano-particles.

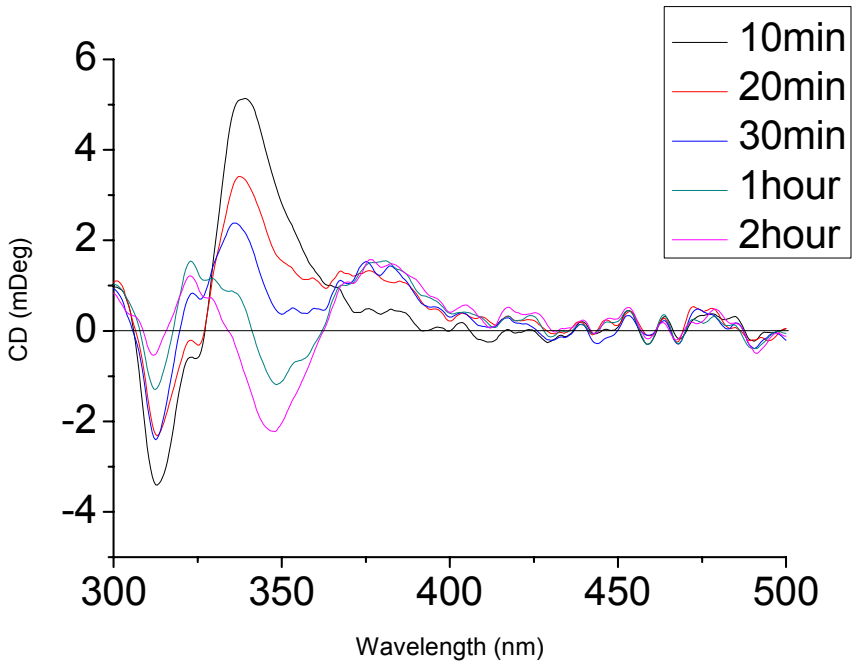

Fig. 7 CD Spectra of the synthesis of L-Pen stabilised CdS nano-particles.

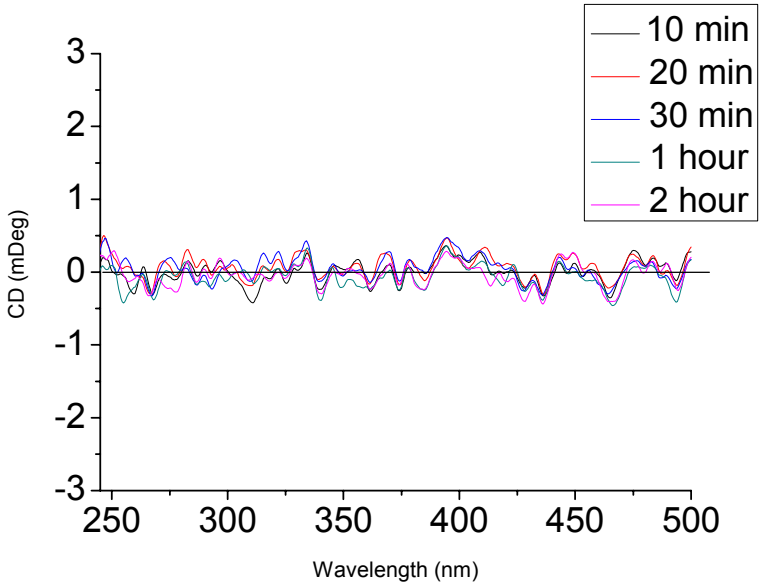

Fig. 8 CD Spectra of *Rac*-Penicillamine stabilised CdS nano-tetrapod preparation.

Fluorescent lifetimes were determined using a Horiba Jobin Yvon Fluorolog using a nanoLED source a sample decay graph looks a follows

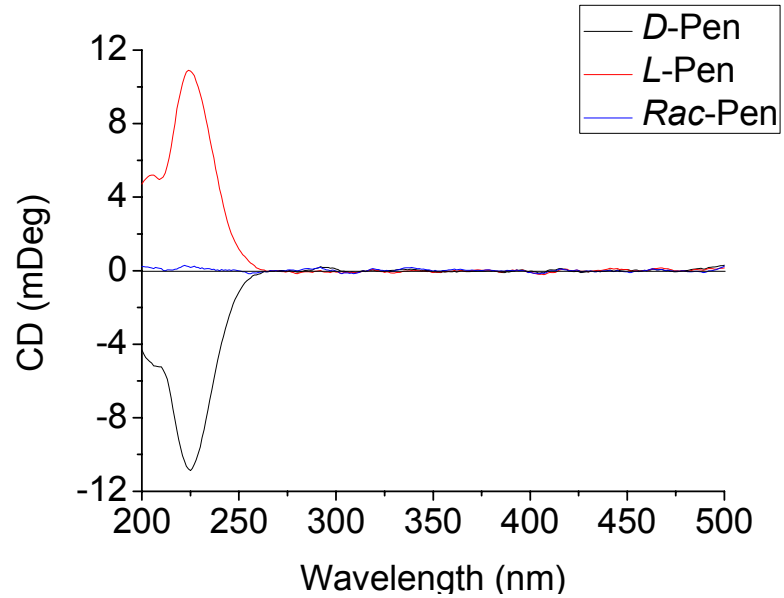

Fig. 9 CD Spectra of pure *D* (black)-, *L* (Red)- and *Rac* (blue) - penicillamine stabiliser solutions.

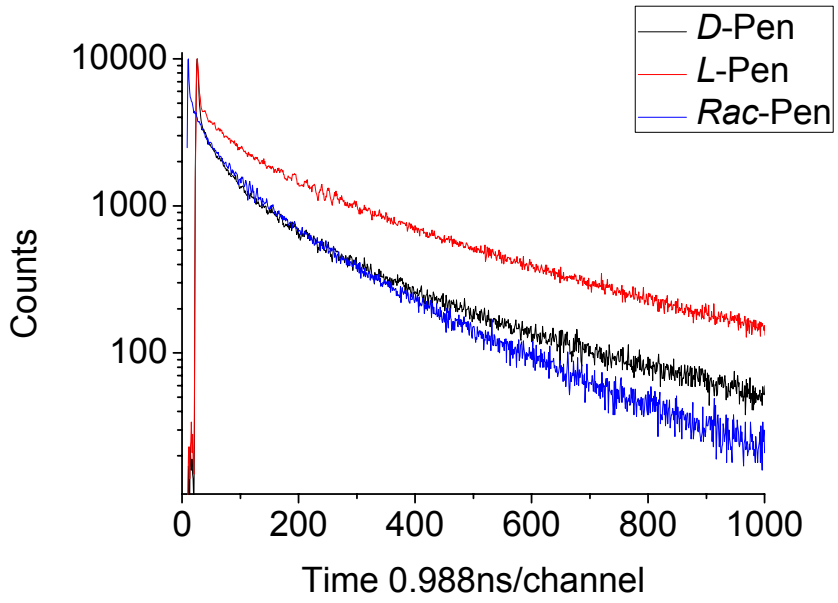

Fig. 10 Decay graph of luminescence of Penicillamine stabilised CdS tetrapods.

TEM imaging was also conducted of *L*- and *Rac*-Penicillamine stabilised CdS and these were also found to exhibit tetrapodal morphology.

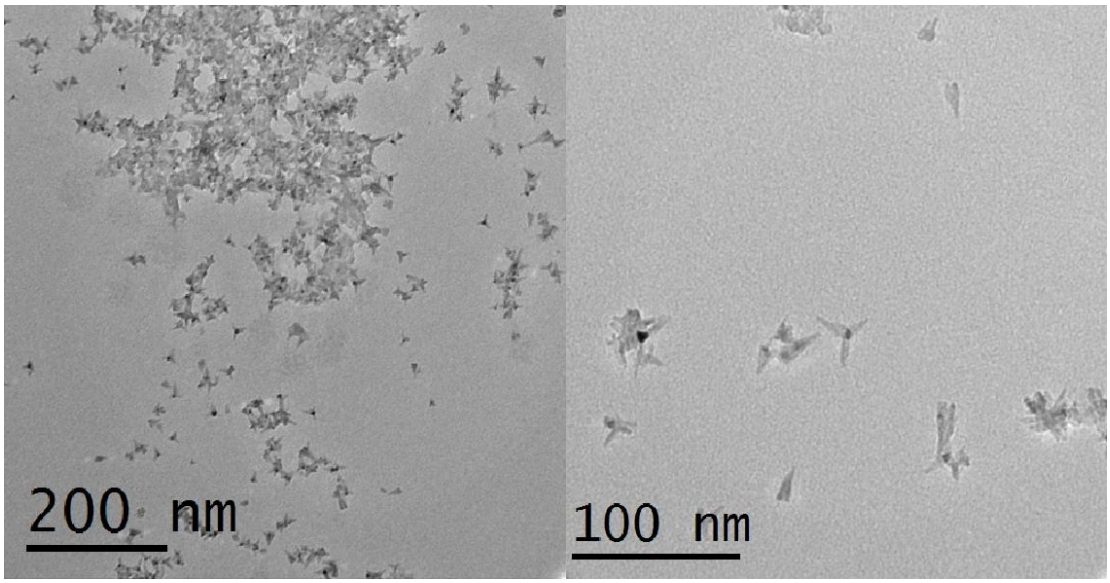

Fig. 11 TEM images of *L*-Penicillamine (Left) and *Rac*-Penicillamine (Right) stabilised CdS tetrapods.

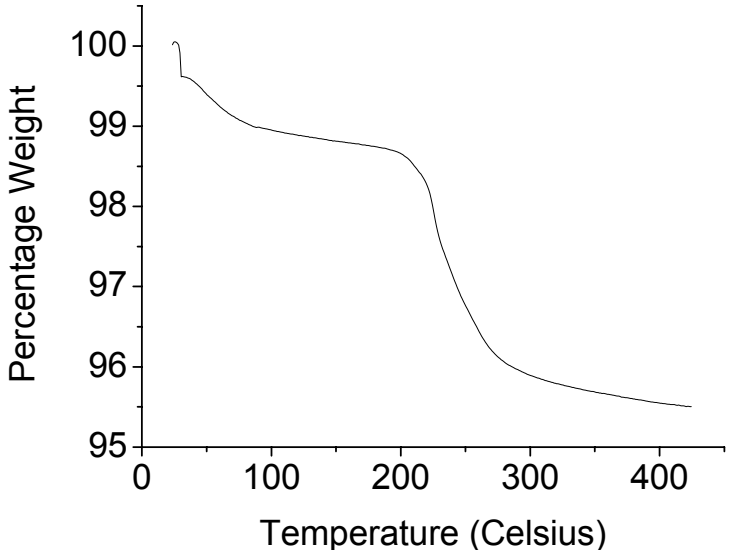

Fig. 12 TGA of *D*-Penicillamine stabilised CdS nano-tetrapods.

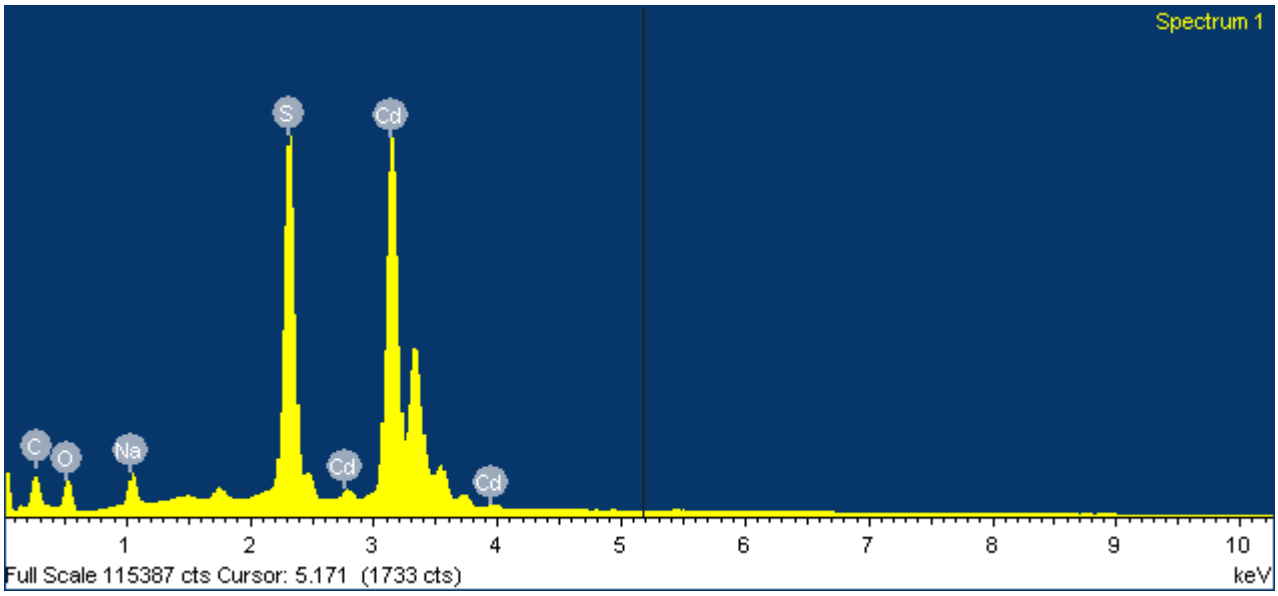

Fig. 13 EDX spectra of *D*-Penicillamine stabilised CdS nano-tetrapods.