

Modulating mediation medium for Few layered Dichalcogenides enhances Inhibition of common pathogens

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Analysis of XRD spectra of MoS₂ and WS₂ nanosheets

Crystallographic information related to the MoS₂ and WS₂ nanosheets exfoliated in the process described in *method 1*.

Table TS1 Calculation of *d*-spacing for MoS₂ nanosheets

2 θ	FWHM	<i>d</i> -spacing (in nm)
14.55817	0.13735	0.607723
29.20407	0.2381	0.30543
32.87867	0.16076	0.272085
33.6952	0.16392	0.265676
40.81548	0.20578	0.220821
39.7348	0.23798	0.226574
44.16611	0.18212	0.204814
49.80842	0.2747	0.182853
56.01794	0.31399	0.163966
58.33801	0.20417	0.157985
60.33647	0.75305	0.153221
62.81533	0.31635	0.147758
68.51011	0.22057	0.136797
70.23377	0.52387	0.133856
72.80813	0.32854	0.129744

Table TS2 Calculation of *d*-spacing For WS₂ nanosheets

2 θ	<i>d</i> -spacing (in nm)
13.82942	0.639578903
14.18114	0.623794171

22.80843	0.389420991
28.63777	0.311339562
28.29726	0.315008168
32.44733	0.27560267
33.18591	0.269635665
33.74472	0.265297151
39.2079	0.2294969
43.66333	0.20705553
49.39115	0.184300072
49.181	0.185038316
58.09987	0.158575965
58.32341	0.15802129
59.59279	0.154954719
60.12902	0.153700361

Analysis of HRTEM micrographs

1. **Measurement of interlayer spacing (d -spacing) in MoS₂ nanosheets, *method 1*.**

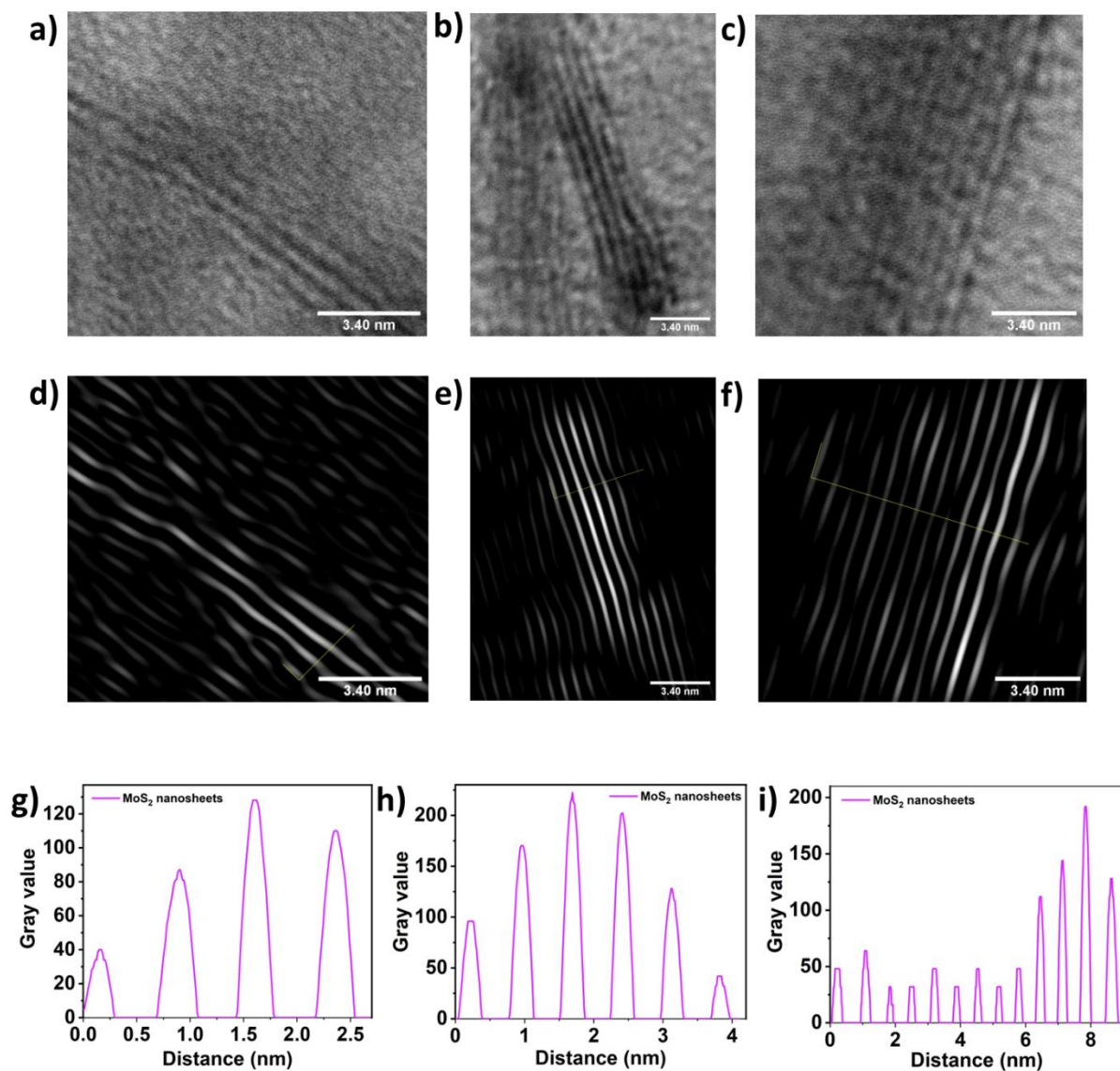


Fig S1. (a), (b), (c) micrographs of MoS₂ nanosheets taken at different positions; (d), (e), (f) the inverse first fourier transformation (IFFT) of (a), (b) and (c) respectively; (d), (e), (f) gray value vs distance graphs of the straight lines drawn perpendicular to the fringe lines drawn on (d), (e) and (f) respectively.

Table TS3. Calculation of *d*-spacing from the data obtained from plot details in **Fig S1** (g), (h) and (i).

Figure	Starting point (X1)	Ending point (X2)	Number of peaks (N)	Interlayer distance
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				$(X2-X1)/N$ (nm)
g	0	2.54	4	0.63
h	0.04	3.97	6	0.65
i	0.05	8.85	13	0.67
Average <i>d</i> -spacing				0.65

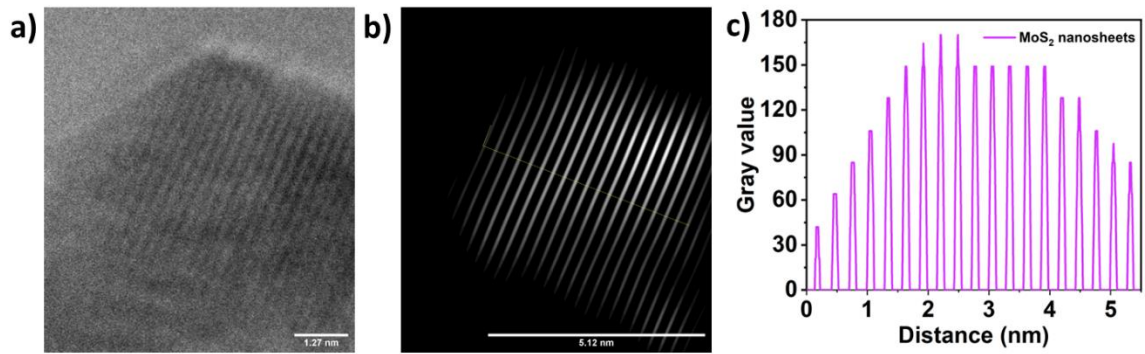


Fig S2. (a) micrographs of MoS₂ nanosheets; (b) IFFT of (a); (c) gray value vs distance graphs of the straight line drawn perpendicular to the fringe lines drawn on (b).

Table TS4. Calculation of *d*-spacing from the data obtained from plot detail in **Fig S2 (c)**.

Figure	Starting point (X1)	Ending point (X2)	Number of peaks (N)	Interlayer distance (X2-X1)/N (nm)
c	0.13	5.38	19	0.27

2. Measurement of interlayer spacing (d -spacing) in WS₂ nanosheets:

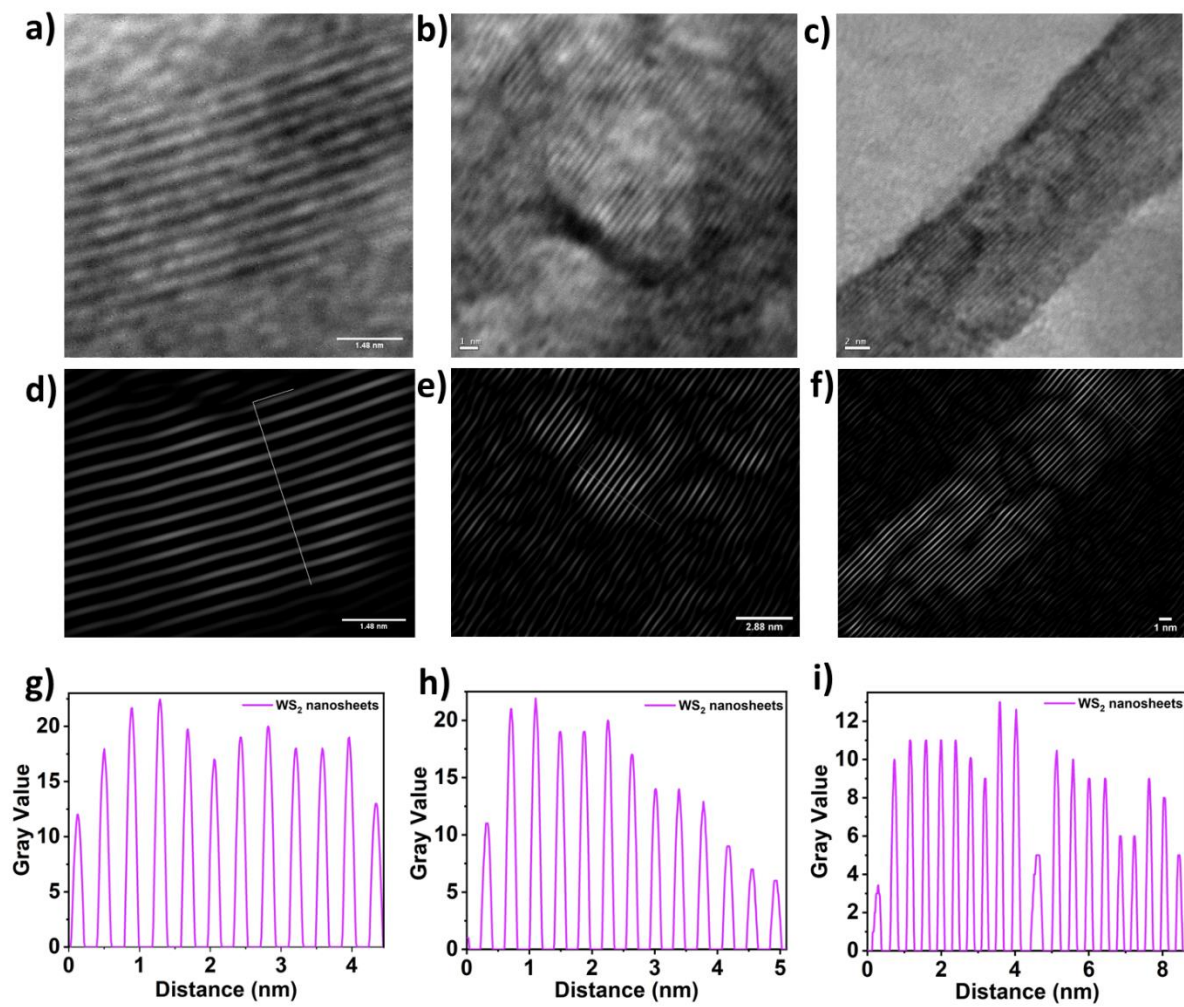


Fig S3. (a), (b), (c) HRTEM micrographs of WS₂ nanosheets taken at different positions; (d), (e), (f) IFFT of (a), (b) and (c) respectively; (g), (h), (i) gray value vs distance graphs of the straight lines drawn perpendicular to the fringe lines on (d), (e) and (f) respectively.

Table TS5. Calculation of d -spacing from the data obtained from plot detail in **Fig S3 (g), (h), (i)**.

Figure	Starting point (X1)	Ending point (X2)	Number of peaks (N)	Interlayer distance (X2-X1)/ N (nm) (rounding off)
g	0	4.45	12	0.37
h	0.19	4.87	13	0.37
i	0.11	8.58	20	0.42
Average d -spacing				0.39

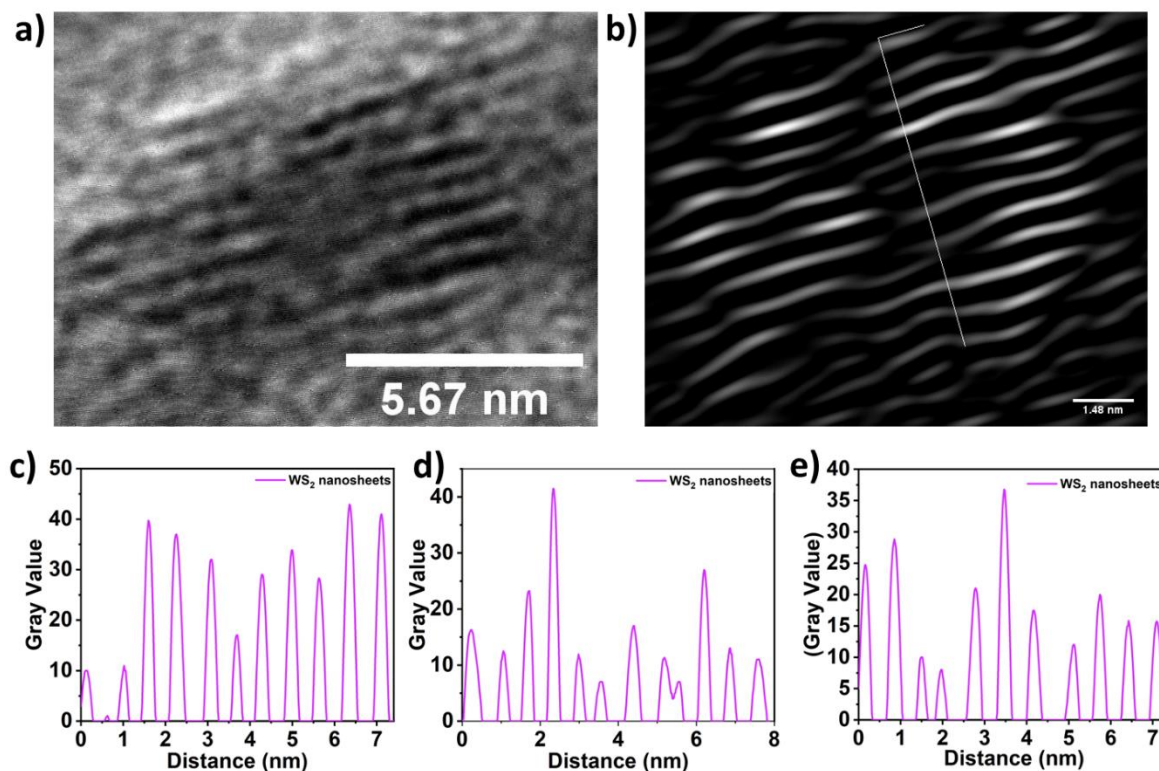


Fig S4. (a) Micrograph of WS₂ nanosheets (b) IFFT of (c), (d), (e) gray values vs distance graphs of three different straight lines drawn perpendicular to the fringe lines in the image (b).

Table TS6. Calculation of d -spacing from the data obtained from plot details in **Fig S4 (c), (d) and (e)**.

Figure	Starting point (X1)	Ending point (X2)	Number of peaks (N)	Interlayer distance (X2-X1)/N (nm) (Rounding off)
c	0	7.31	12	0.61
d	0	7.85	12	0.65
e	0	7.29	11	0.66
Average d -spacing				0.64

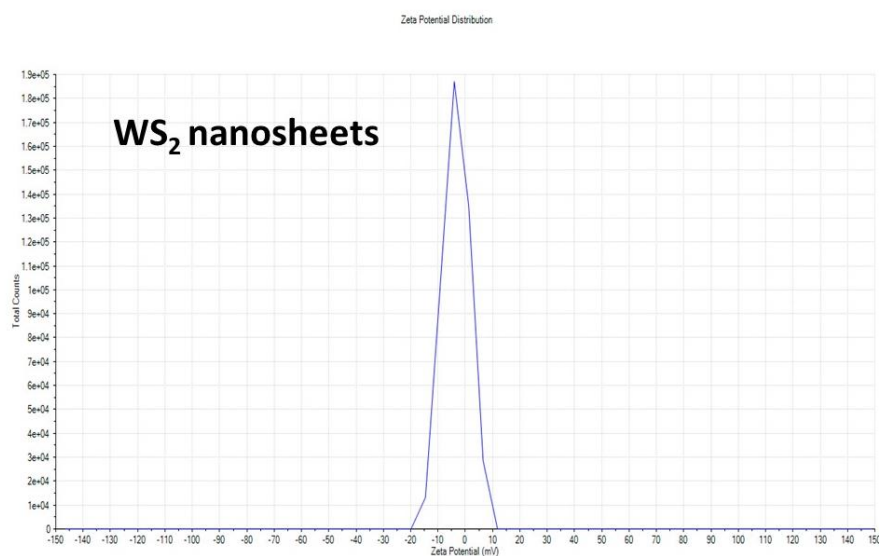


Fig S5. Zeta potential of WS₂ nanosheets.

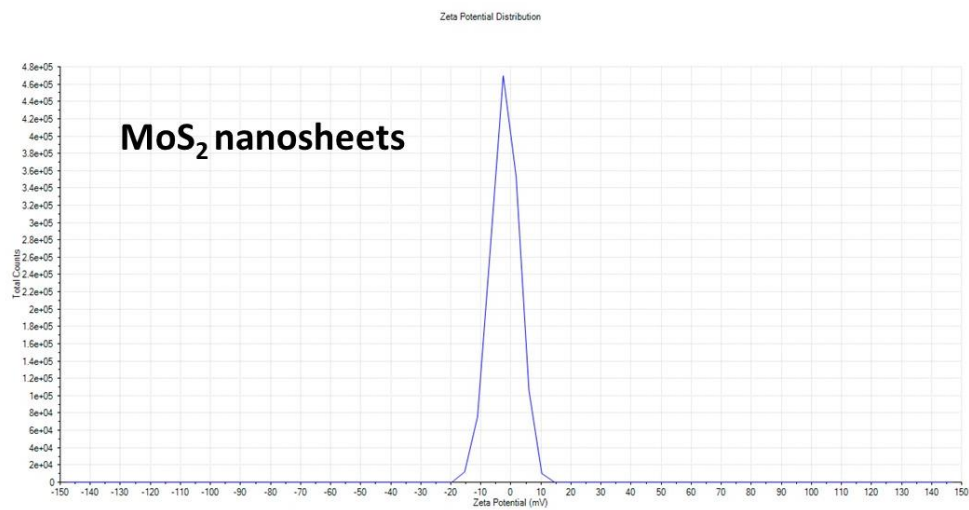


Fig S6. Zeta potential of MoS₂ nanosheets.