# Electronic Supplementary Information

## Polyaniline@$MoS_2$-based organic-inorganic nanohybrid for the removal of the congo red: adsorption kinetic, thermodynamic and isotherm studies

*Rajeev Kumar,[a†], Sajid Ali Ansari,[b,c †] M. A. Barakat,[a,d] A. Ibrahim Al-Jaafari,[b] and Moo Hwan Cho*[c]*

[a]*Department of Environmental Sciences, Faculty of Meteorology, Environment and Arid Land Agriculture, King Abdulaziz University, Jeddah 21589, Saudi Arabia*

[b]*Department of Physics, King Faisal University, Al-Ahsa 31982, Saudi Arabia*

[c]*School of Chemical Engineering, Yeungnam University, Gyeongsan-si, Gyeongbuk 712-749, Republic of Korea*

[d]*Central Metallurgical R & D Institute, Helwan 11421, Cairo, Egypt*

*†These authors contributed equally to this work.*

*Corresponding Author:* mhcho@ynu.ac.kr (M.H. Cho)

**XRD patterns of $MoS_2$ and Pani@$MoS_2$**

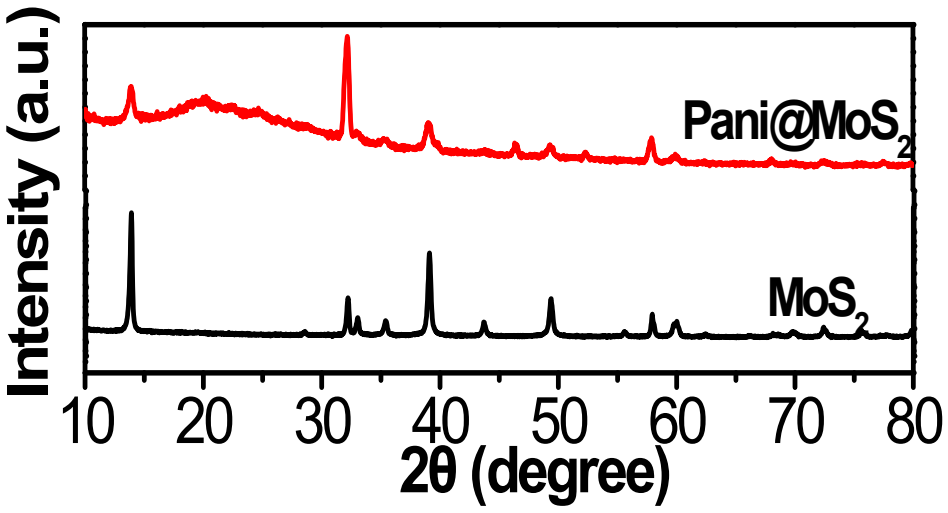


**Figure S1**. XRD patterns of $MoS_2$ and Pani@$MoS_2$.

**SEM images and EDX analysis of Pani@$MoS_2$**

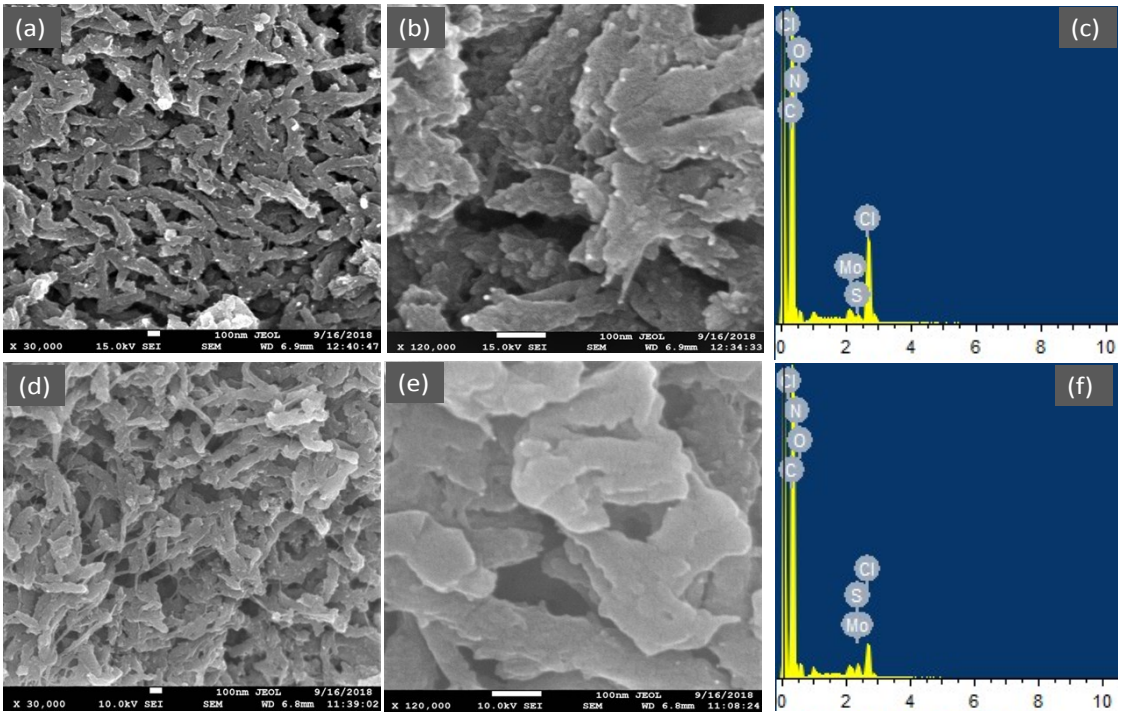

**Figure S2**. SEM images and EDX analysis of Pani@$MoS_2$ (a, b, c) before CR adsorption and (d,e, f) after CR Adsorption, respectively.

**FTIR spectra of $MoS_2$, Pani@$MoS_2$ and CR adsorbed Pani@$MoS_2$**

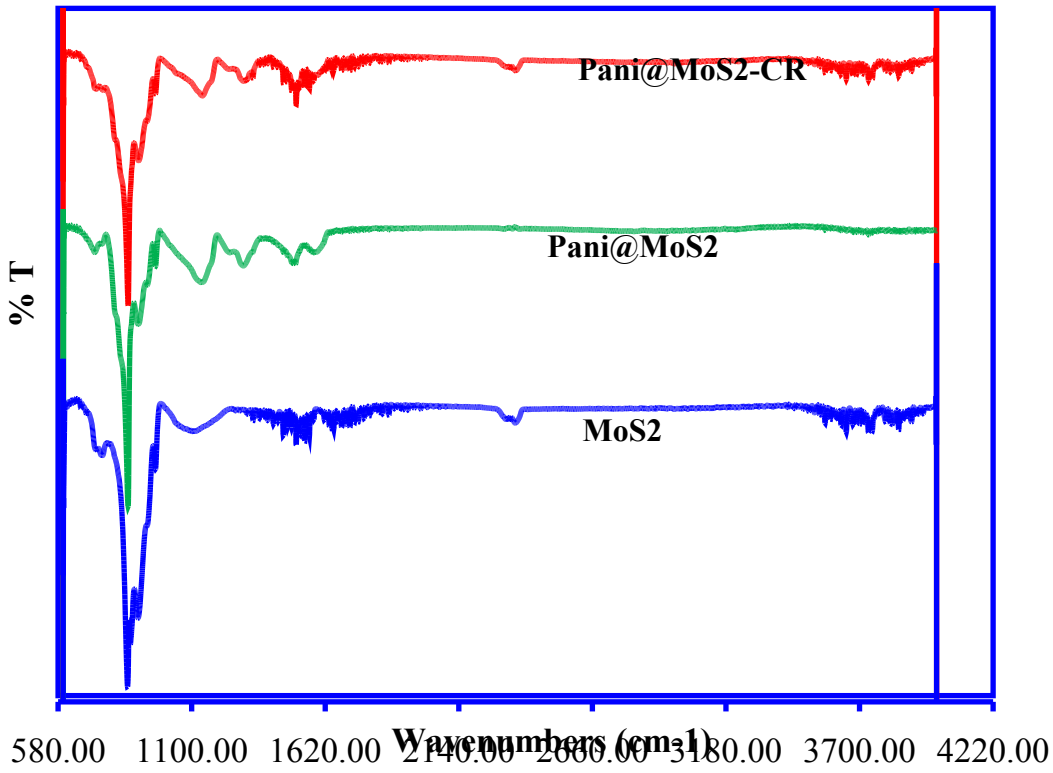


**Figure S3**. FTIR spectra of $MoS_2$, Pani@$MoS_2$ and CR adsorbed Pani@$MoS_2$.