

## Supplementary

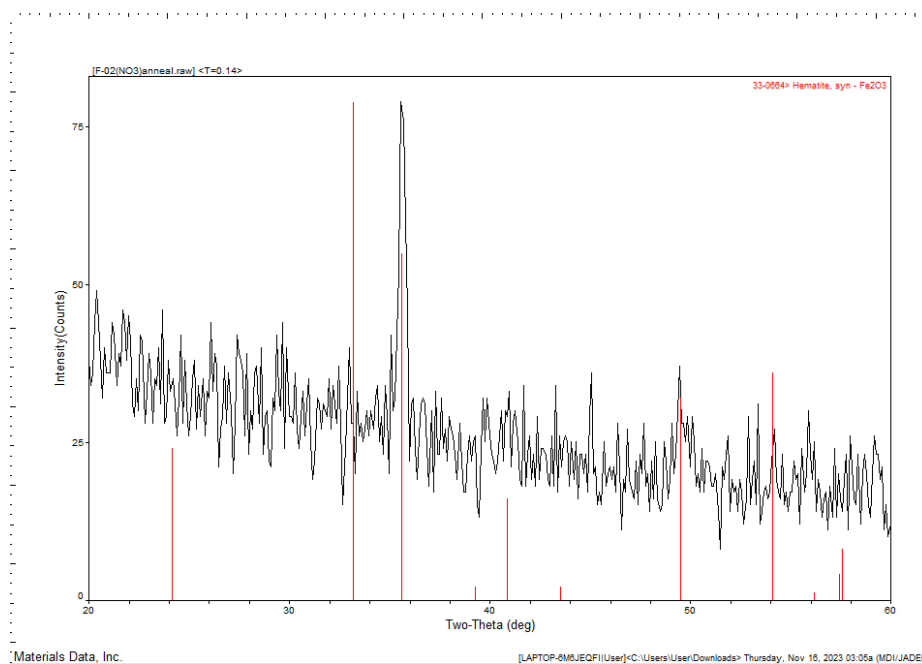


Fig. 1 XRD diagram of  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> nanorod arrays on FTO substrate.

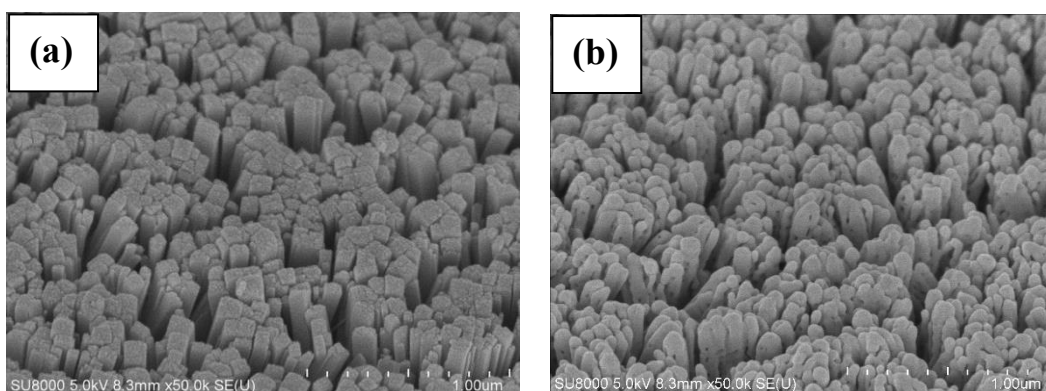


Fig. 2 SEM graphs of (a) FeOOH nanorod arrays, (b)  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> nanorod arrays