

Synthesis and properties of BiDy composite electrode materials in electrochemical sensors

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Fig. S1 shows the SEM images of the BiDy composite nanoscale materials with different magnifications synthesized from 180 °C for 24 h using SDS with different concentrations as the surfactant.

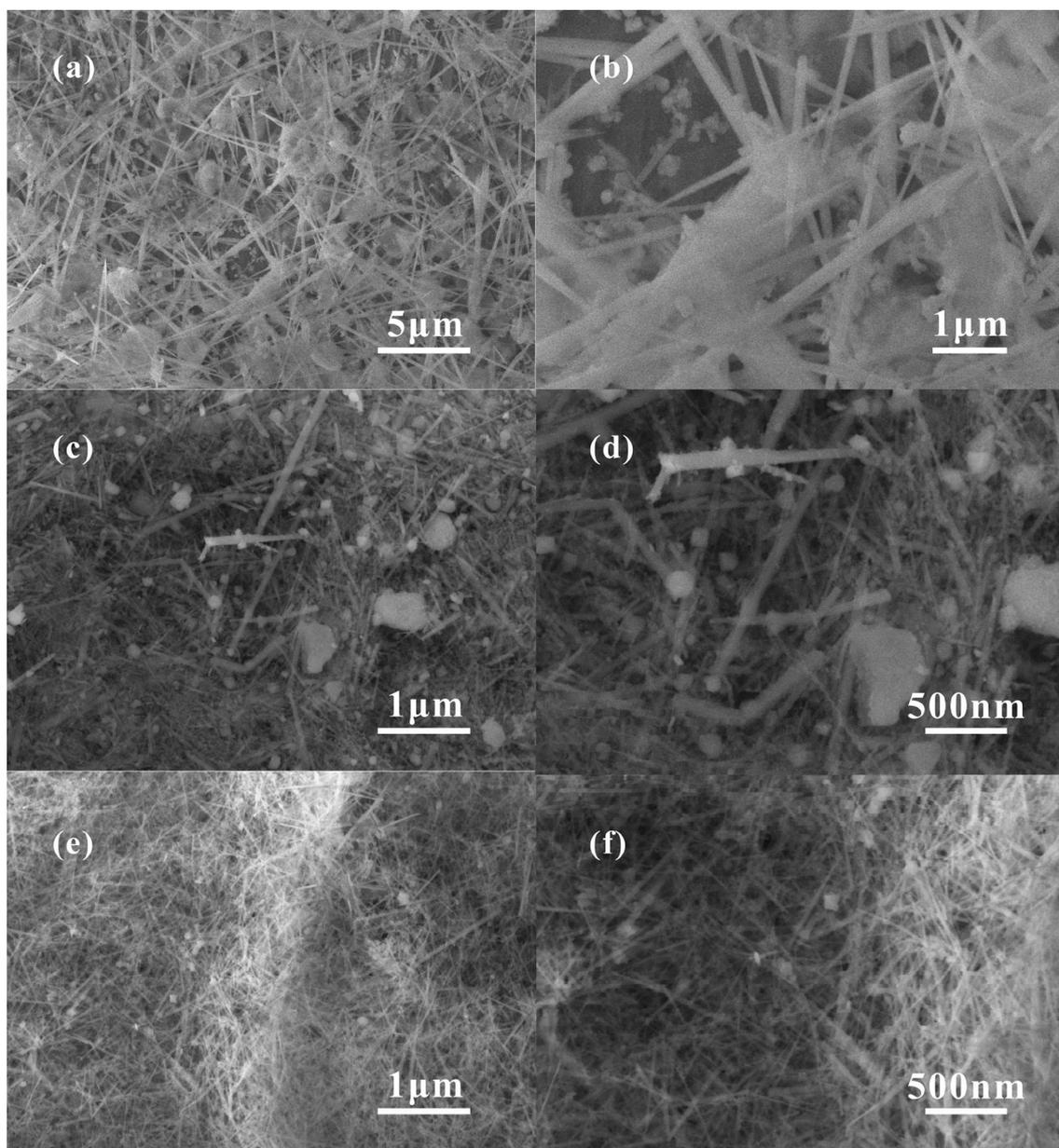


Fig. S1 SEM images of the BiDy composite nanoscale materials with different magnifications synthesized from 180 °C for 24 h using different SDS concentrations. (a) and (b) Without SDS, (c) and (d) 1wt.%, (e) and (f) 3wt.%.

Fig. S2 shows the XRD patterns of the BiDy composite nanoscale materials synthesized from 180 °C for 24 h using different SDS concentrations.

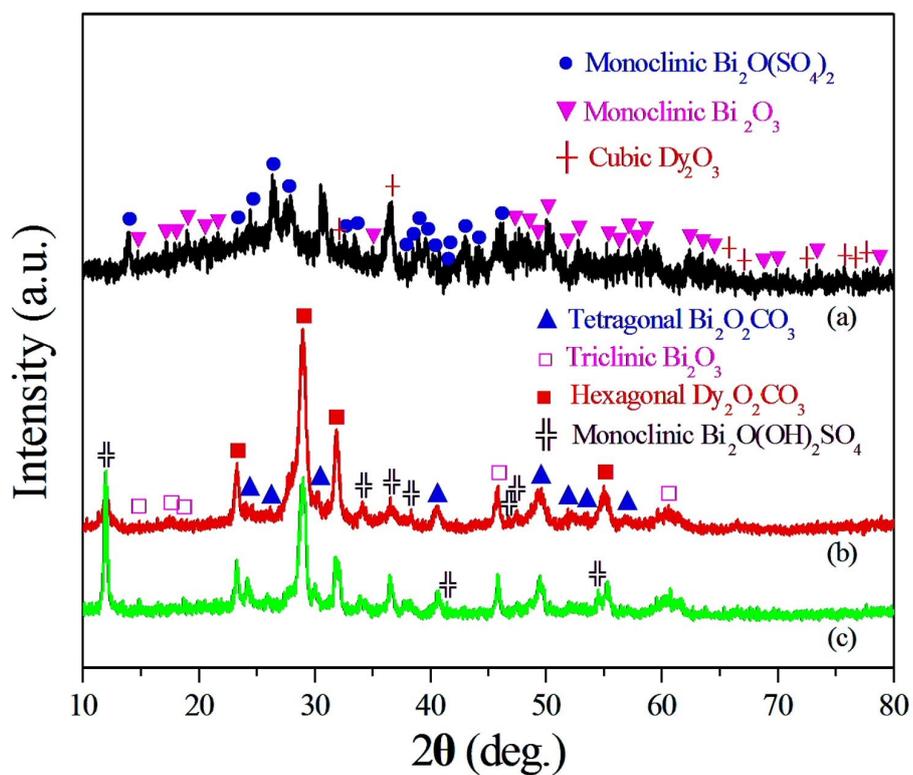


Fig. S2 XRD patterns of the BiDy composite nanoscale materials synthesized from 180 °C for 24 h using different SDS concentrations. (a) Without SDS, (b) 1wt.%, (c) 3wt.%.

Fig. S3 shows the SEM images of the BiDy composite nanoscale materials with different magnifications obtained from different temperatures for 24 h using 5wt.% SDS.

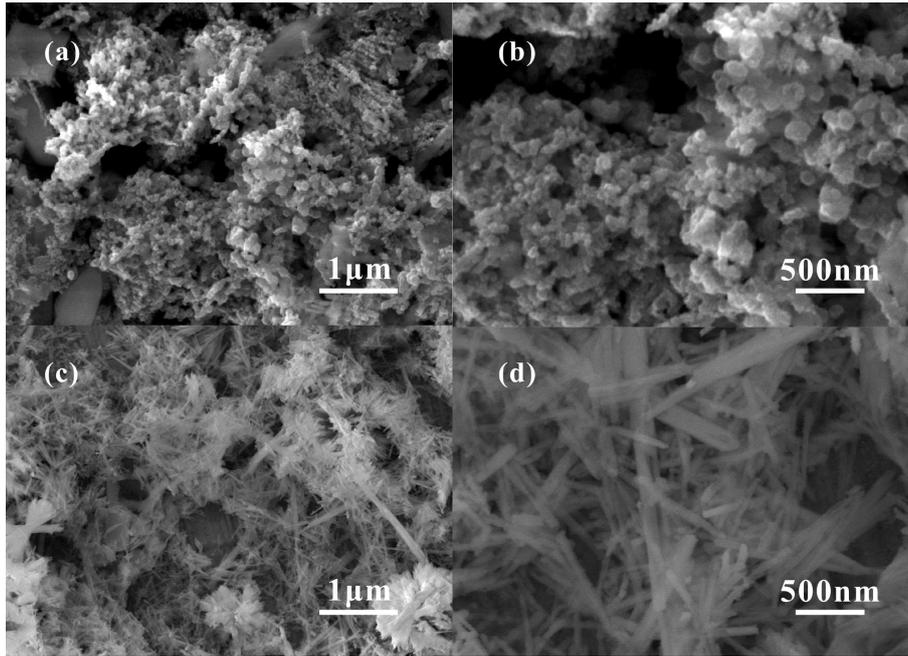


Fig. S3 SEM images of the BiDy composite nanoscale materials with different magnifications obtained from different temperatures for 24 h using 5wt.% SDS. (a) and (b) 80 °C, (c) and (d) 120 °C.

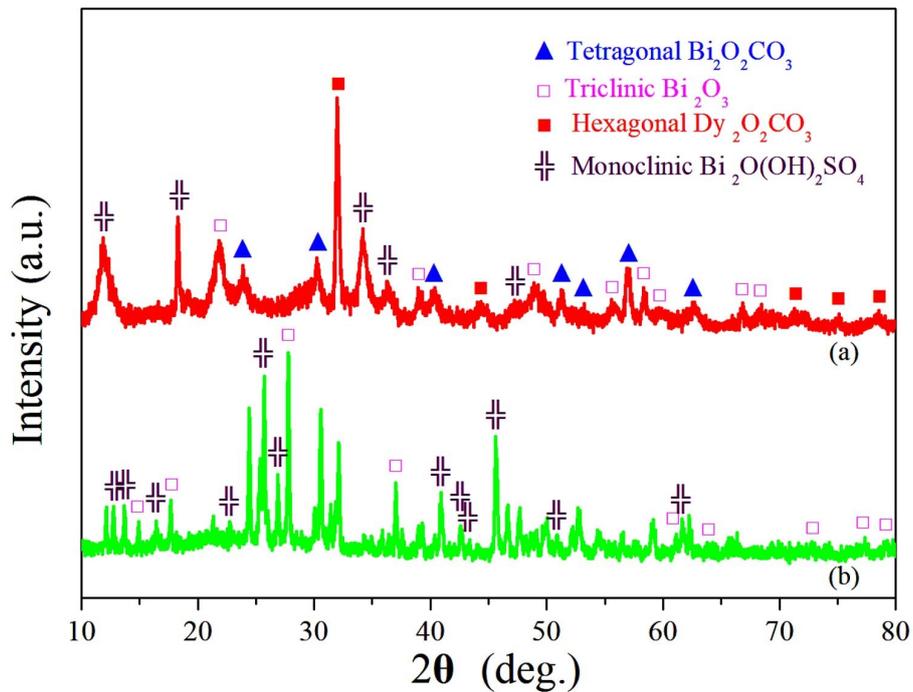


Fig. S4 XRD patterns of the BiDy composite nanoscale materials obtained from different temperatures for 24 h using 5wt.% SDS. (a) 80 °C, (b) 120 °C.

Fig. S4 shows the XRD patterns of the BiDy composite nanoscale materials obtained from different temperatures for 24 h using 5wt.% SDS.

Fig. S5 shows the SEM images of the BiDy composite nanoscale materials with different magnifications obtained from 180 °C for different time using 5wt.% SDS.

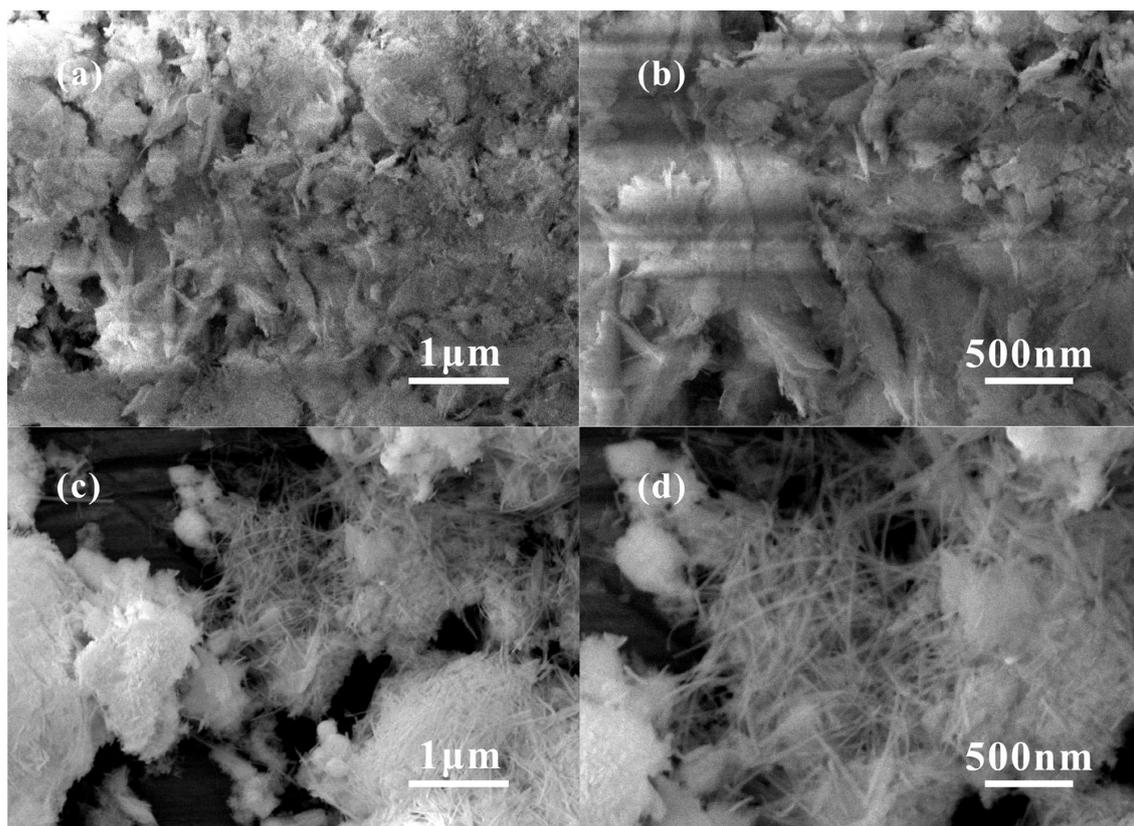


Fig. S5 SEM images of the BiDy composite nanoscale materials with different magnifications obtained from 180 °C for different time using 5wt.% SDS. (a) and (b) 0.5 h, (c) and (d) 12 h.

Fig. S6 shows the XRD patterns of the BiDy composite nanoscale materials obtained from 180 °C for different time using 5wt.% SDS.

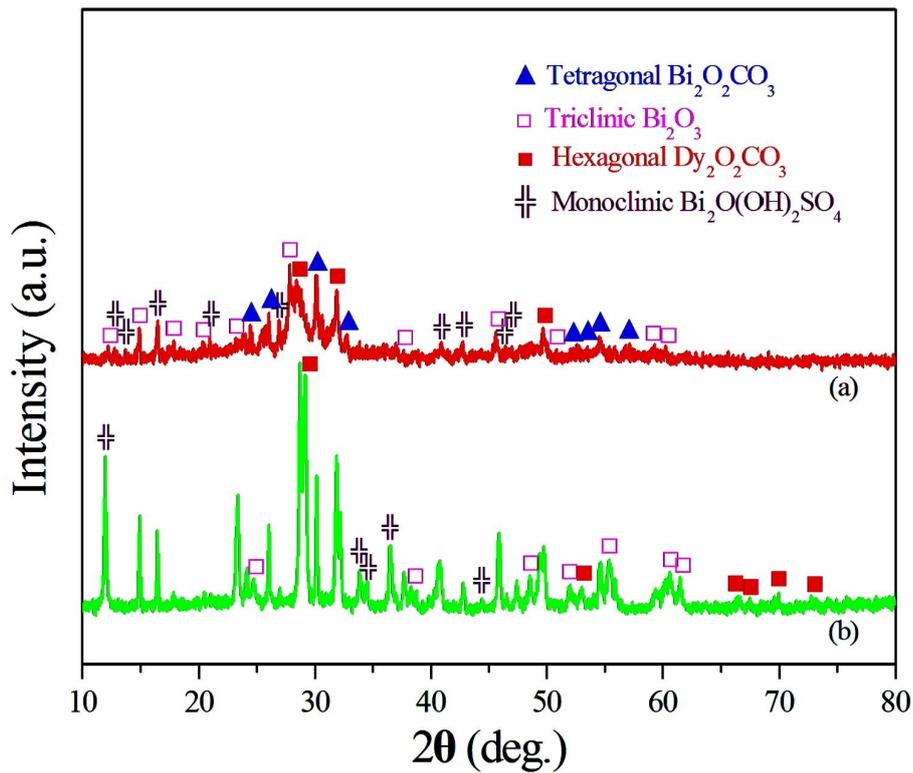


Fig. S6 XRD patterns of the BiDy composite nanoscale materials obtained from 180 °C for different time using 5wt.% SDS. (a) 0.5 h, (b) 12 h.

Fig. S7 shows the growth schematic of the BiDy composite nanowires by the SDS induced hydrothermal process.

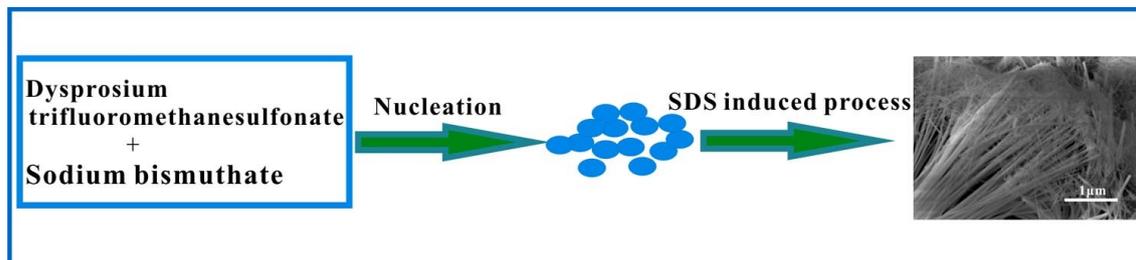


Fig. S7 Growth schematic of the BiDy composite nanowires by the SDS induced hydrothermal process.

Fig. S8 shows the CVs of 2 mM L-cysteine in the presence of the interfering species including phenol, tartaric acid, ascorbic acid and citric acid with the concentration of 2 mM, respectively in 0.1 M KCl solution at the BiDy composite nanowires modified GCE.

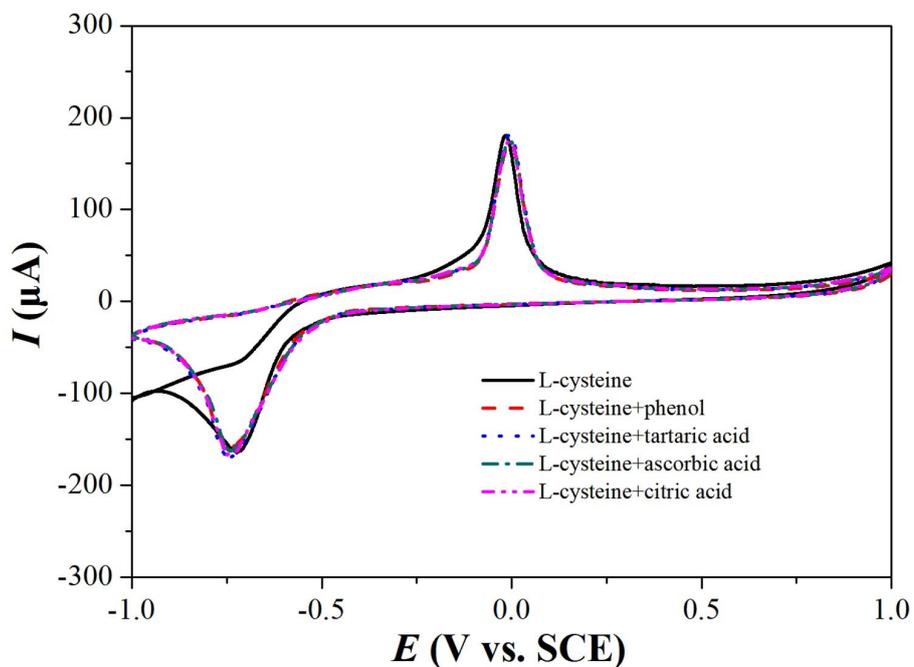


Fig. S8 CVs of 2 mM L-cysteine in the presence of the interfering species including phenol, tartaric acid, ascorbic acid and citric acid with the concentration of 2 mM, respectively in 0.1 M KCl solution at the BiDy composite nanowires modified GCE. Scan rate, $50 \text{ mV}\cdot\text{s}^{-1}$