# Designing Highly Active S-g-C₃N₄/Te@NiS Ternary Nanocomposites for Antimicrobial Performance, Degradation of Organic Pollutants, and Their Kinetic Study

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## 2.8. Characterization techniques

The synthesized samples were characterized employing modern instruments. A SEM-EDS (Hitachi, S-4800) was used to assess the elemental content and morphology of the synthesized samples, while XRD (Bruker AXS, D8-S4) was used to determine their structure. The photocatalytic absorption spectra were determined using a UV-vis-NIR spectrophotometer (UV-770, Jasco). FT-IR spectrometers (Perkin 400 FT-IR) were used to determine the functional groups. On a Kratos Axis-Ultra multifunctional X-ray spectrometer, XPS evaluations were carried out. The electron spin resonance (ESR) signals were collected on a JES FA200, JEOL Co. spectrometer with the 5,5-dimethyl-1-pyrroline-N-oxide (DMPO) solvent.
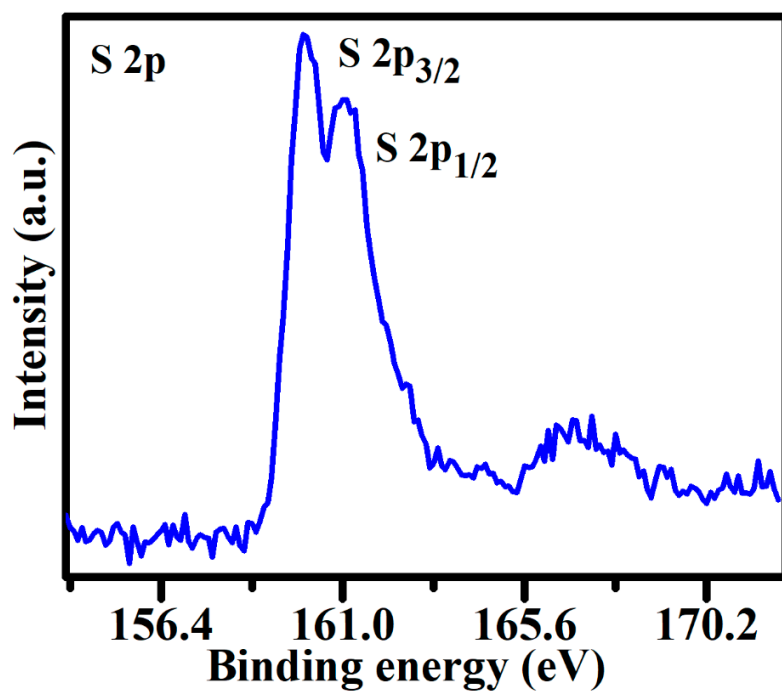
**Figure S1.** High-resolution S 2p XPS spectrum of 70%SGCN/1%Te@NiS NCs.