Supporting Information

for

BN/Ag hybrid nanomaterials with petal-like surfaces as catalysts and antibacterial agents

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Evaluation of the specific surface area of Ag NPs, histograms of Ag NPs size distribution and TEM microphotograph of CVD BN/Ag hybrid nanomaterials
Figure S1: Histograms of the Ag NP size distribution for CVD BN/Ag hybrid nanomaterials (a) and UV BN/Ag hybrid nanomaterials (b).

Evaluation of the specific surface area of Ag NPs.

Considering that all silver NPs have a shape close to spherical the specific surface area of the Ag NPs could be calculated using the following equation:

$$SSA = \frac{S}{m} = \frac{S}{\rho V} = \frac{4\pi R^2}{\rho \cdot 4/3\pi R^3} = \frac{3}{\rho R} \quad (1)$$

Where $\rho$ is density of Ag; and $R$ is an average radius of Ag NPs.

The average radius can be estimated from TEM images using secant method. For this 5–7 random straight lines are drawn through the TEM micrograph, then sizes of NPs lying on each line are measured (Figure S2). This was repeated for 5 micrographs for each sample. The average radius was calculated as following:

$$R_{av} = \frac{\sum_n R}{n} \quad (1)$$
The calculated average radius of Ag NPs was 7 nm for CVD BN/Ag hybrid nanomaterials and 11 nm for UV BN/Ag hybrid nanomaterials. Specific surface areas of the Ag NPs were respectively $4.3 \times 10^5$ cm$^2$/g and $2.7 \times 10^5$ cm$^2$/g.

**Figure S2**: TEM microphotograph of CVD BN/Ag hybrid nanomaterials with randomly drawn straight lines.