biosensors

MDPI

Supplementary Materials

Highly Sensitive and Wide-Range Detection of Thiabendazole via Surface-Enhanced Raman Scattering Using Bimetallic Nanoparticle-Functionalized Nanopillars

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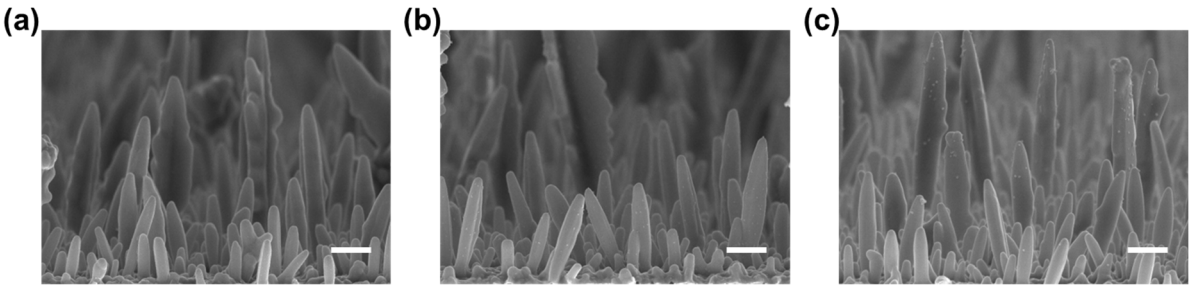

Figure S1. SEM image for examining overall morphology of a) SNPi, b) GNP@SNPi, and c) BNP@SNPi (Scale bar: 1μm).

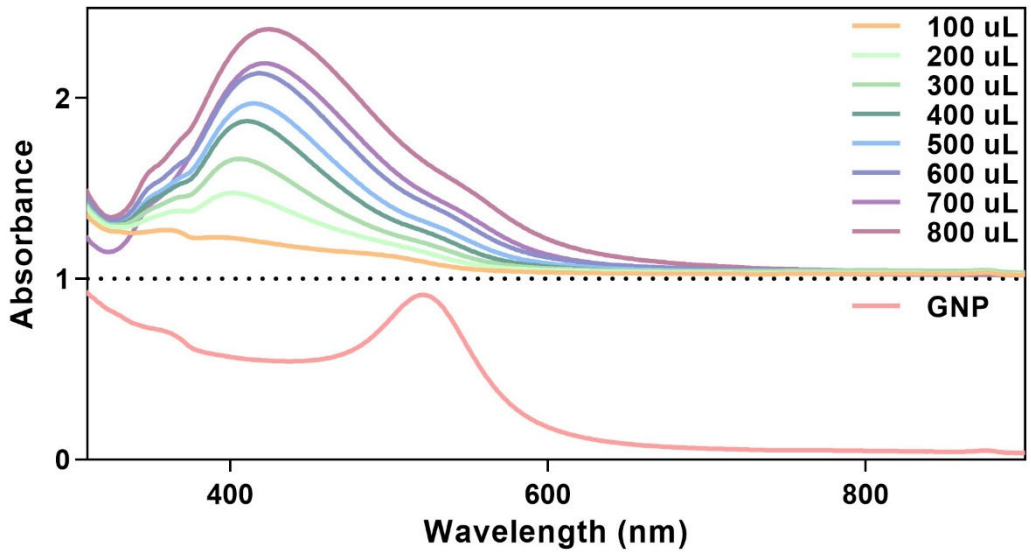

Figure S2. UV-vis spectrum of BNP synthesized with GNP and varying volumes of $AgNO_3$.

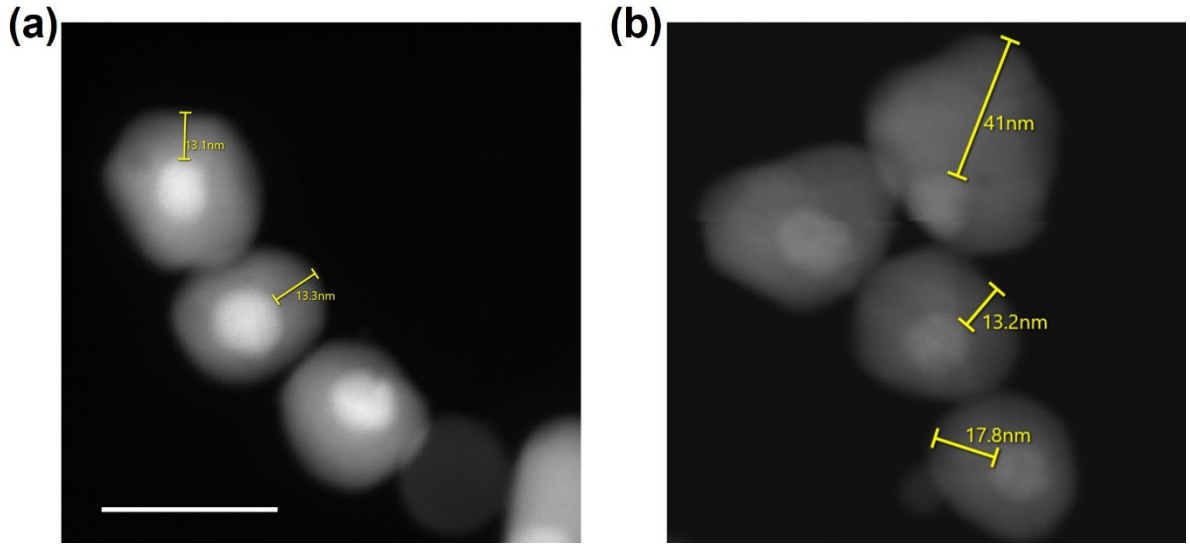

Figure S3. TEM image of BNP for a) 600 µL and b) 800 µL of $AgNO_3$ (Scale bar: 50 nm).

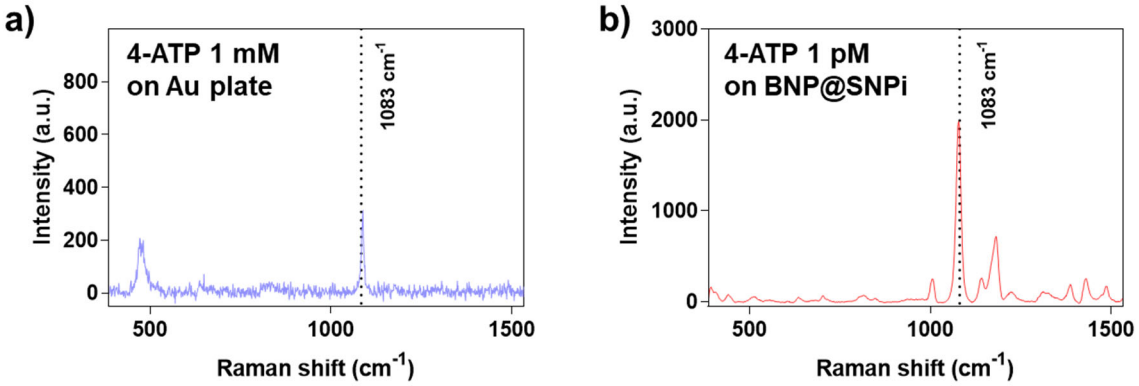

Figure S4. Raman spectrum of a) 1mM of 4-ATP on bare Au plate and b) 1 pM of 4-ATP on BNP@SNPi substrate.

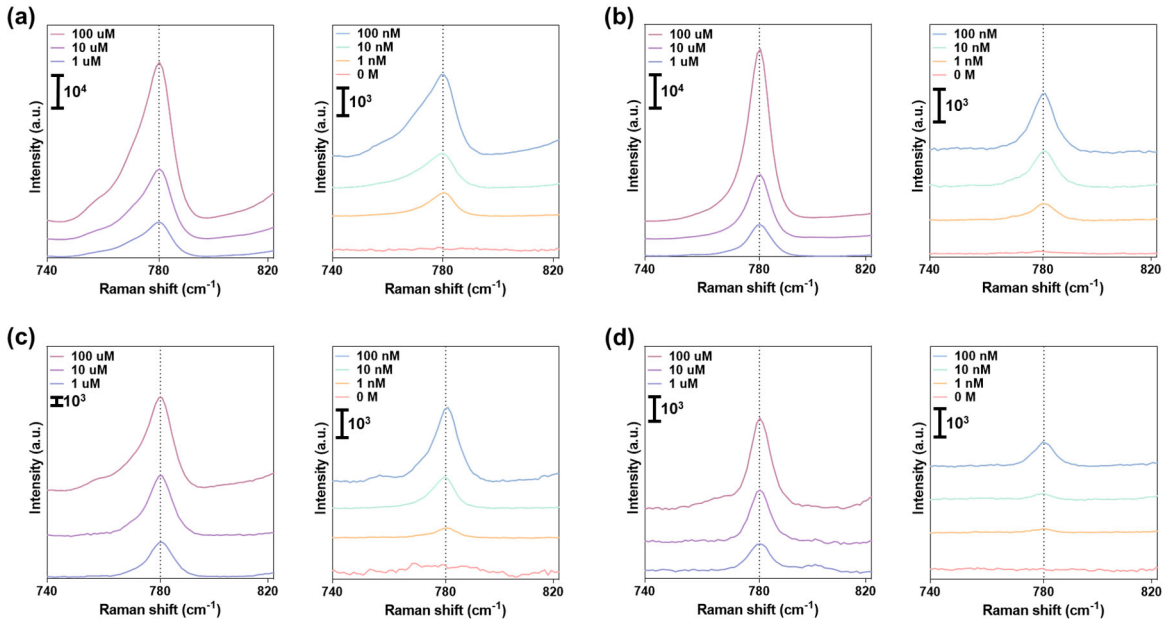

Figure S5. Raman spectral data for TBZ concentration in a) tap water, b) drinking water, c) orange juice, and d) human serum.

Table S1. Comparison of the SERS sensing performance of the BNP@SNPi substrate and other sensing platforms for TBZ.

SERS substrate	Detection range	Detection Limit	References
HAu/Ag nanostar	497 μM – 4.97 nM	4.97 nM	[1]
MOF	9.94 μM – 124 nM	124 nM	[2]
Au/Ag nanopillar	10 μM – 100 pM	100 pM	[3]
AuNR	4.97 μM – 497 nM	497 nM	[4]
HSM@AuNP	497 μM – 24.85 nM	24.85 nM	[5]
AgNF	14.91 – 1.49 mM	1.49 mM	[6]
AgNP paper	497 μM – 497 nM	497 nM	[7]
AgNW-tape	4.97 mM – 49.7 nM	49.7 nM	[8]
BNP@SNPi	1 mM – 100 pM	1.06 pM	**This work**

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