

SUPPLEMENTAL DATA

Hydrolyzed Ce(IV) Salts Limit Sucrose-Dependent Biofilm Formation by *Streptococcus mutans*

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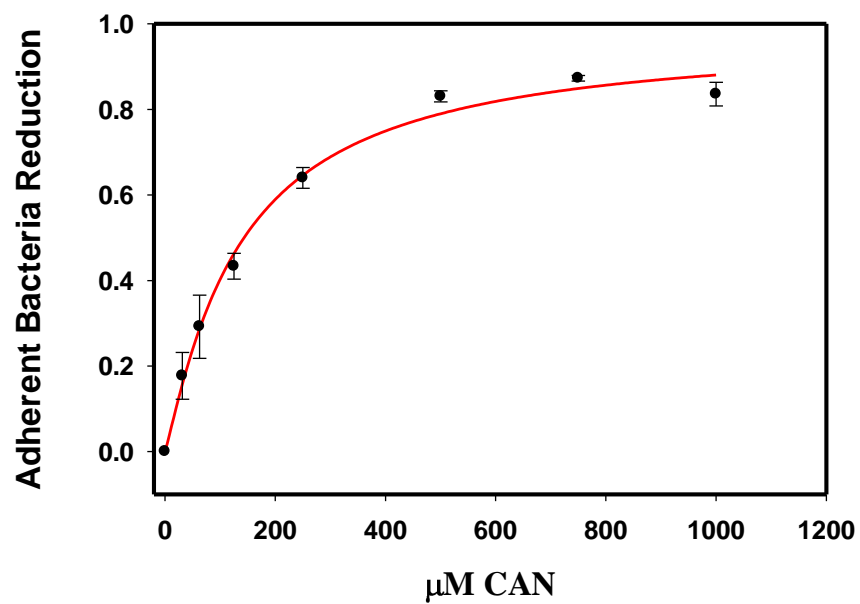


Figure S1. A dose response curve quantifying adherent bacteria reduction upon treatment of *S. mutans* UA159 with increasing concentrations of hydrolyzed CAN in BHI at 37°C, 5% CO₂ (20 h growth). An adherent bacteria reduction of 0.5 is designated as the IC₅₀ (137 ± 24 μM CAN).

Table S1. Sucrose Metabolism Assay (Acid Production) in Phenol Red Broth Base (37°C, 5% CO₂)

Time	(+) control	(-) control	250 µM CAN	250 µM CAS
0 h	7.41 ± 0.01	7.33 ± 0.01	7.18	7.20
5 h	5.65 ± 0.03	6.92	5.67	5.63 ± 0.01
20 h	5.24 ± 0.04	6.72 ± 0.01	5.33	5.31 ± 0.01
% difference in pH of media 0 - 20 h	% 29.3	% 8.4	% 25.8	% 26.2

(+) control = Phenol Red Broth Base, cells, 1% sucrose,

(-) control = Phenol Red Broth Base, 1% sucrose and 250 µM CAN

% difference pH over 20 h = [(media pH at time 0 – media pH at 20 h)]/[(media pH at time 0)] (x 100)

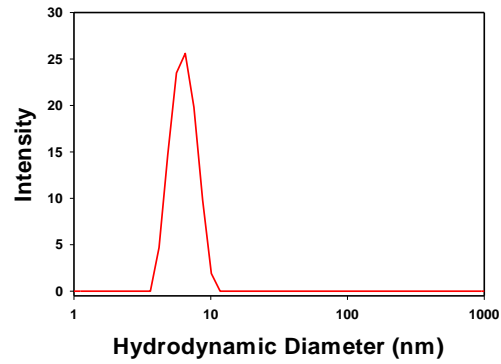


Figure S2-A. DLS size data of 5 mM CAN (30 mM NO₃⁻) in Milli-Q water.

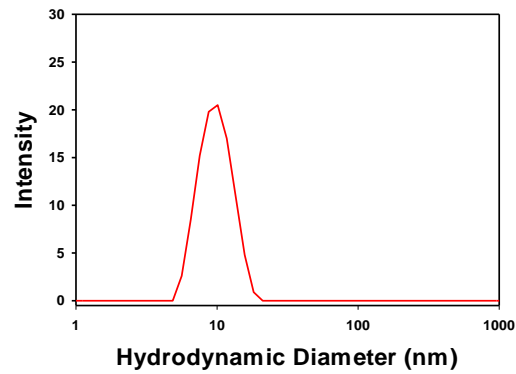


Figure S2-B. DLS size data of 5 mM Ce(IV) Nitrate (30 mM NO₃⁻) in Milli-Q water.

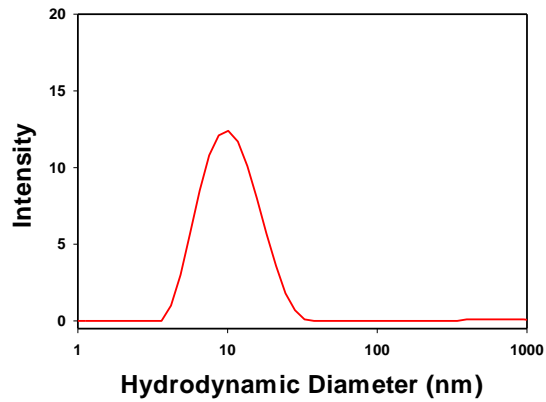


Figure S2-C. DLS size data of 5 mM Strem, 3nm CeO₂-NP (30 mM NO₃⁻) in Milli-Q water.

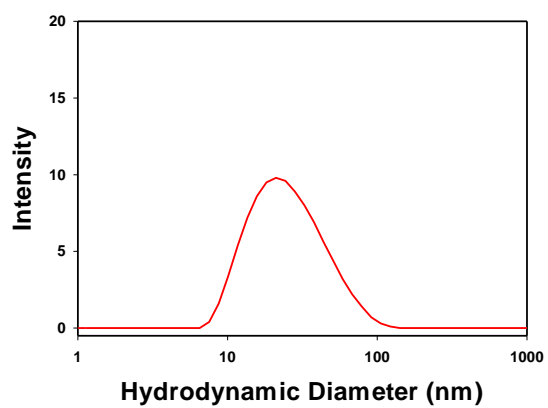


Figure S2-D. DLS size data of 5 mM Alfa Aesar, 10-20 nm CeO₂-NP (30 mM NO₃⁻) in Milli-Q water.

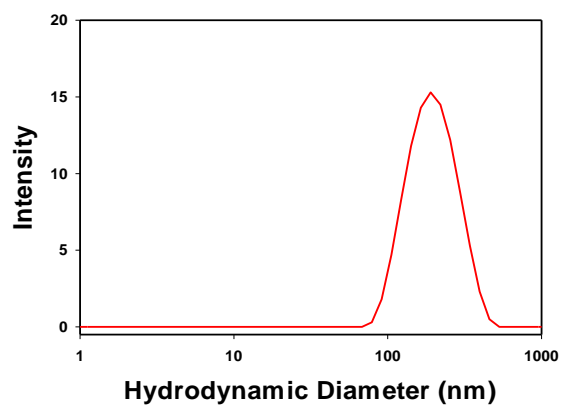


Figure S2-E. DLS size data of 5 mM Alfa Aesar, 30 nm CeO₂-NP (30 mM NO₃⁻) in Milli-Q water.

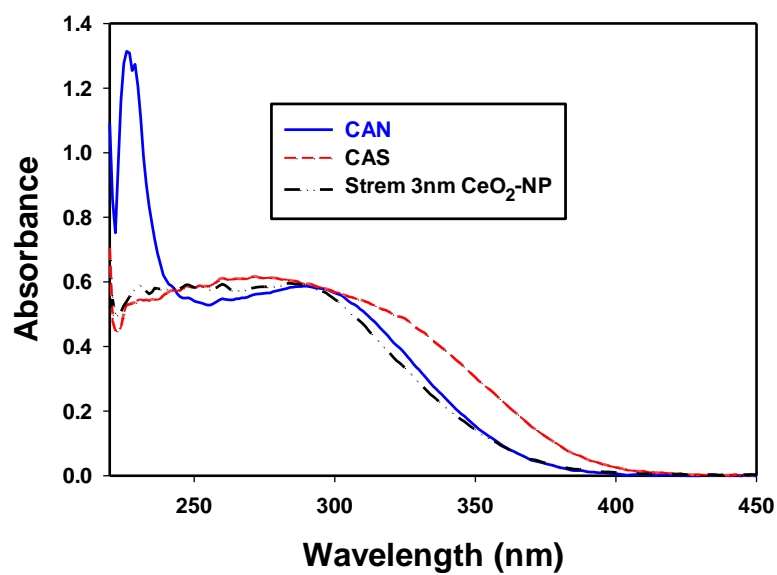


Figure S3. UV-Vis absorption spectra of 150 μM (Ce) CAN, CAS and Strem 3 nm CeO_2 -NP in H_2O at rt. The solutions were allowed to stand 6 h following hydrolysis/dilution. The intense peak at 230 nm in the spectrum of CAN is attributed to the NO_3^- absorbance.

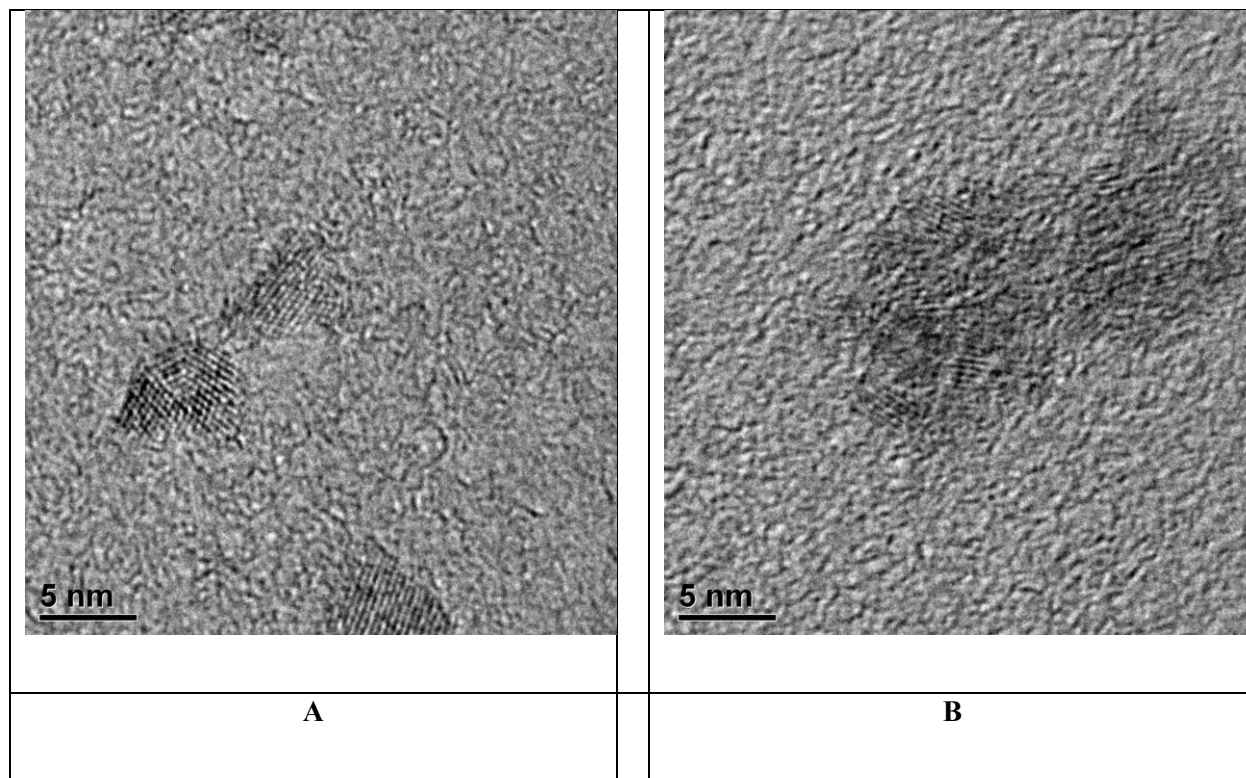


Figure S4 A. HR-TEM image CeO₂-NP derived from CAN hydrolysis (aged 20 h in Milli-Q water) **B.** HR-TEM image CeO₂-NP derived from CAS hydrolysis (aged 20 h in Milli-Q water)

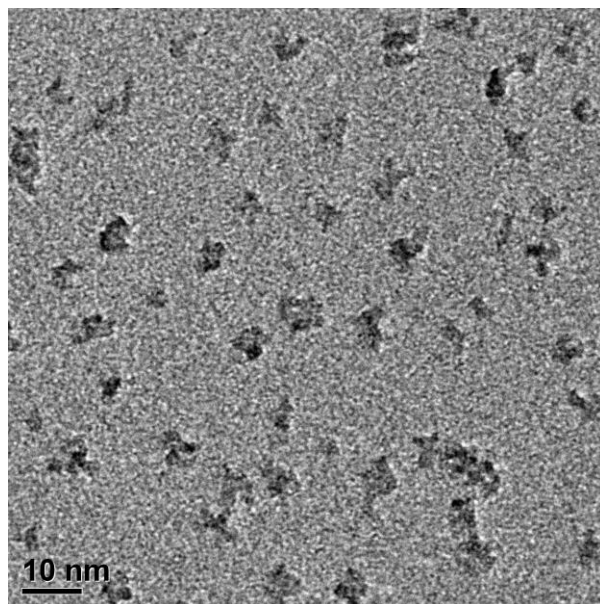


Figure S5. HR-TEM image CeO₂-NP derived from CAN hydrolysis (aged 20 h in Milli-Q water)