Effect of Cerium Oxide Nanoparticles on Asparagus Lettuce Cultured in Agar Medium

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Figure S1. Ten agar samples were taken from 5 different points of the agar medium containing 200 mg/L CeO$_2$ in a Petri dish. Five from upper parts (1, 2, 3, 4, and 5) and 5 from lower parts (6, 7, 8, 9, and 10).

Figure S2. Relative Ce contents in the agar samples. The content of Ce in sample 1 was set as 1.
Figure S3. Effects of CeO$_2$ NPs on seed germination of asparagus lettuce. The means are averaged from 4 replicates with 14 seeds. The values were given as mean ± SD (standard deviation).

Figure S4. LCF results of XANES Ce L$_{III}$-edge normalized spectra in lettuce roots. Red dash line indicated the LCF fitted line of spectra of samples.
Figure S5. TEM images of lettuce roots treated with CeO$_2$ NPs in water (A) and agar medium (B) for 5 days. ep: epidermis.

Figure S6. Root length of asparagus lettuce cultured in deionized water amended with different concentrations of CeO$_2$ NPs for 5 days. The means are averaged from 4 replicates of *Asparagus* lettuce. The values were given as mean ± SD (standard deviation). Significant differences versus control were marked with "*" (p < 0.05).