Supplementary Information

Growth of TiO$_2$ Microspheres with Radially Oriented Configuration

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**Fig. S1** XRD patterns of particles synthesized with different amount of oxalic acid with R value of (a) 1.5, (b) 3.5, (c) 5, (d) 7 and (e) 9.
Fig. S2 SEM (a) and TEM (b, c) images of particles synthesized in the presence of oxalic acid with R = 5.
Fig. S3 Schematic illustration of the carboxyl groups coordinated to the titanium atom ($\Delta$ (cm$^{-1}$): wavenumber difference of $\nu_{as}$ and $\nu_{s}$ stretching vibration mode of –COO$^-$)).
Fig. S4 XRD patterns of particles prepared with different ageing times from 45 min to 24 h.
Fig. S5 TEM images of particles prepared using peroxo titanate acid with sulfuric acid only: (a, b) 0.25 cm$^3$, pH 0.8; (c, d) 0.50 cm$^3$, pH 0.65; (e, f) 1.00 cm$^3$, pH 0.2.
Fig. S6. TGA of TiO$_2$ microspheres obtained by hydrothermal treatment of titanium complex using oxalic acid (R = 5 with sulfuric acid) with increasing reaction time: (a) 1 h; (b) 2 h; (c) 4 h; and (d) 24 h.