catalysts

MDPI

Electronic Supplementary Material (ESI)

Sustainable solar light photodegradation of diclofenac by nano- and micro-sized $SrTiO_3$

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Table S1. Surface composition of the studied STO samples determined by XPS obtained by subtraction of adventitious carbon (at 284.6 eV).

Code	Sr_{atomic} (%)	Ti_{atomic} (%)	O_{atomic} (%)
STOn	17.8	12.9	55.2
STOm	15.6	7.89	40.1

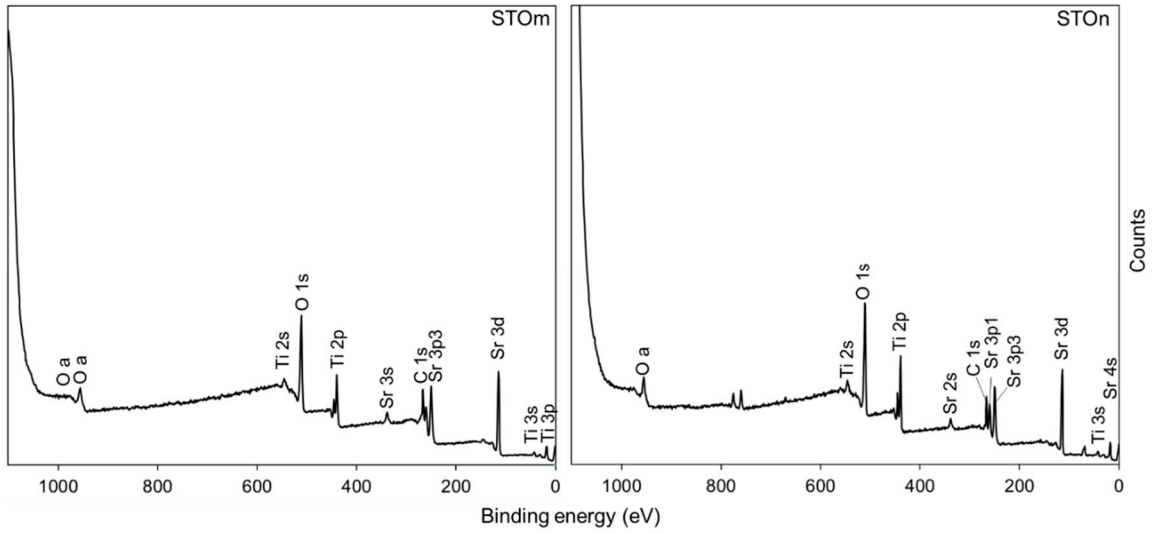

Figure S1. Survey spectra of STOm and STOn (left and right, respectively).

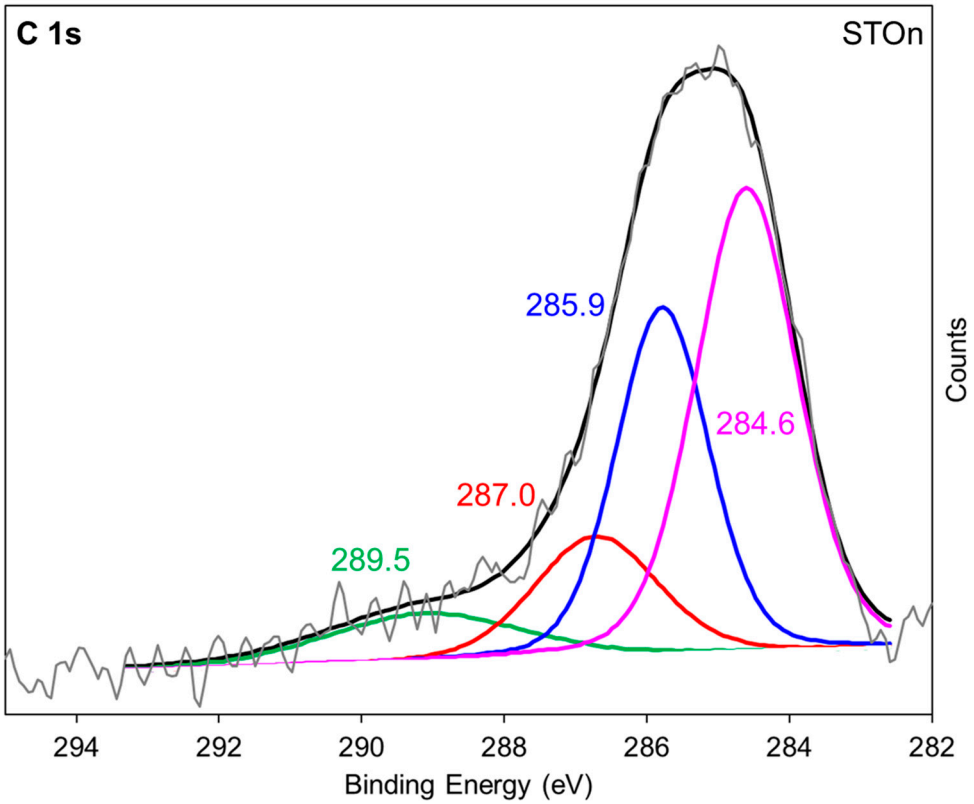

Figure S2. HR C 1s spectrum of STOn.

Paragraph S1: IEP measurement

The isoelectric point (IEP) is an important property of materials that depends on several factors, such as the chemical and physical structure of the studied surface, pH medium, and so on. IEP provides information about the type of charges (due to the combination of all acidic and basic sites) prevailing on the material surface. Although numerous IEP values are tabulated in the literature [Yoon, R.H.; Salman, T.; Donnay, G.; Predicting points of zero charge of oxides and hydroxides; J. Colloids Interface Sci. 1979, 70, 483–493], there is no single IEP value for each chemical compound because the IEP depends on the specific surface properties, such as presence of defects or OH groups on the oxides' surface, number and type of functionalization, and so on.

Following these premises, IEP of both STO samples was determined (Figure S3): both are characterized by an IEP value of about 8.4, according to the literature for commercial STO powders (ca. 8.5–9.5) [Garcia-Lopez, E.; Marcì, G.; Megna, B.; Parisi, F.; Armelao, L.; Trovarelli, A.; Boaro, M; Palmisano, L. SrTiO3-based perovskites: Preparation, characterization and photocatalytic activity in gas–solid regime under simulated solar irradiation; J. Catal. 2015, 321, 13–22].

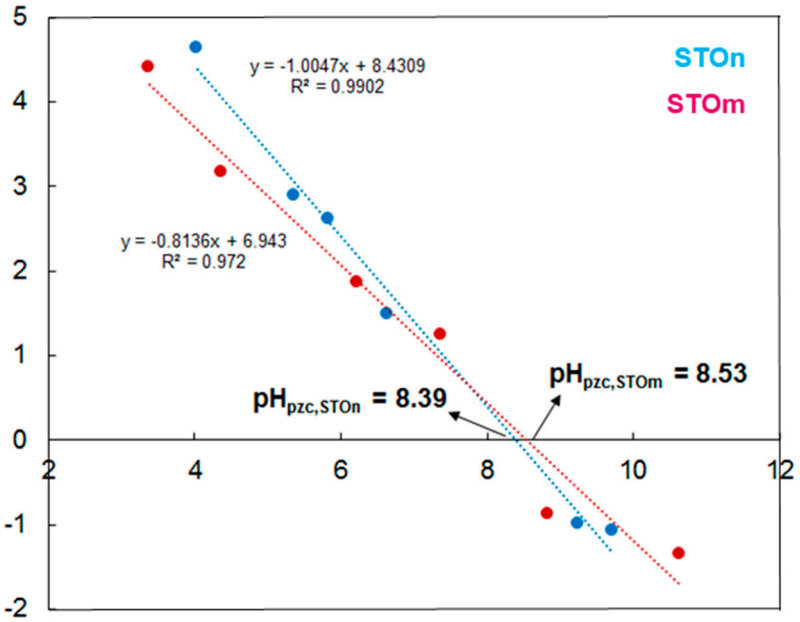

Figure S3. Isoelectric point (IEP) of STOm (red line) and STOn (blue line).

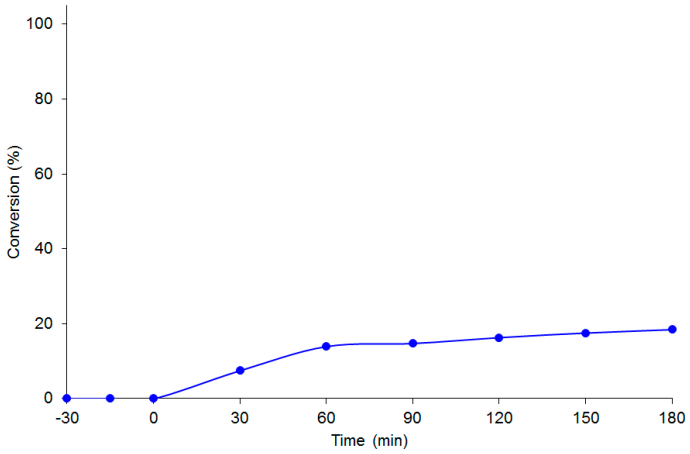

Figure S4. Photolysis study for DCF decomposition without any catalyst.

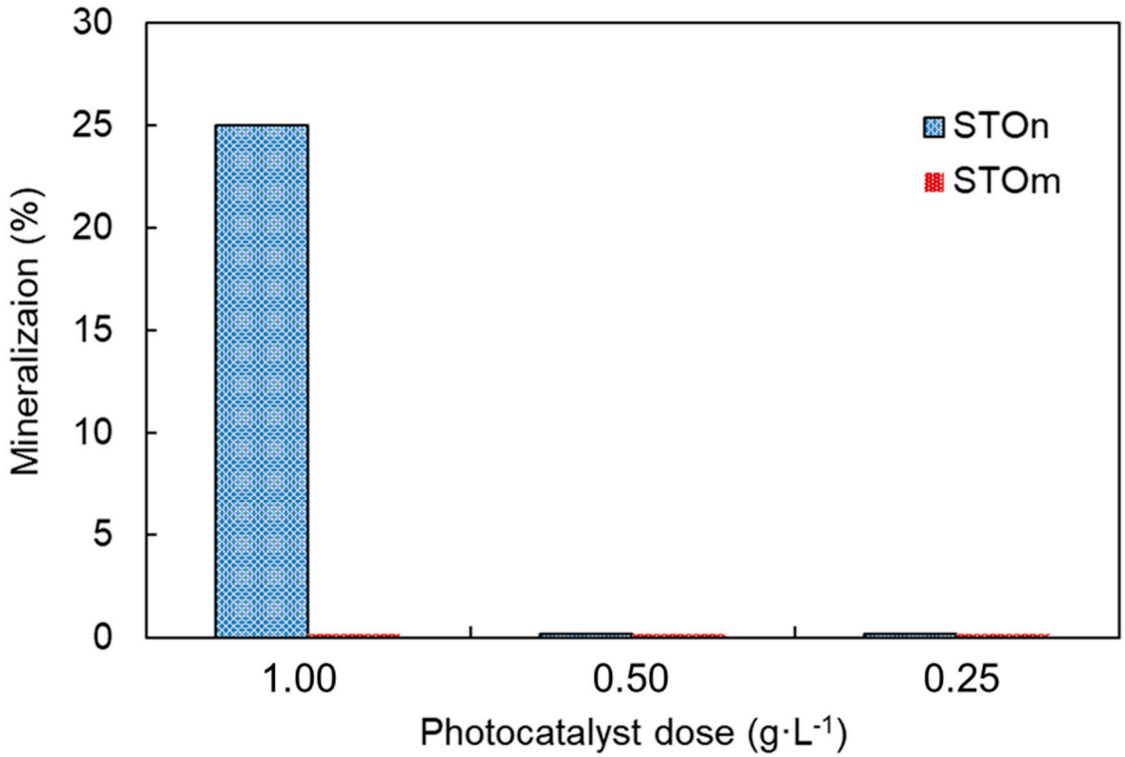

Figure S5. Percentage of DCF mineralization by STOm and STOn in UW.

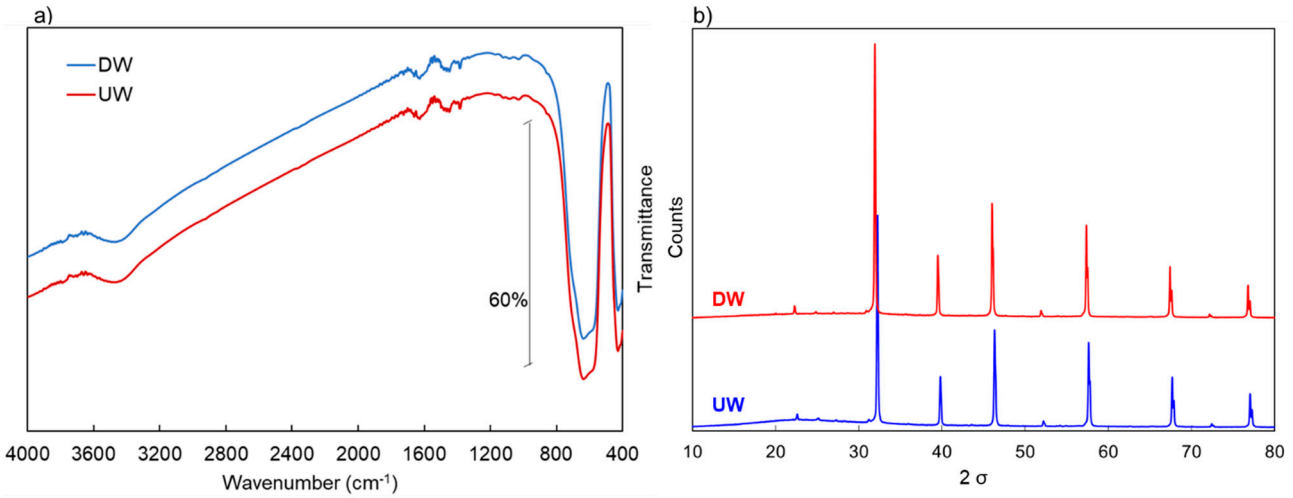

Figure S6. FT-IR spectra and XRD patterns of used STOm in UW and DW.