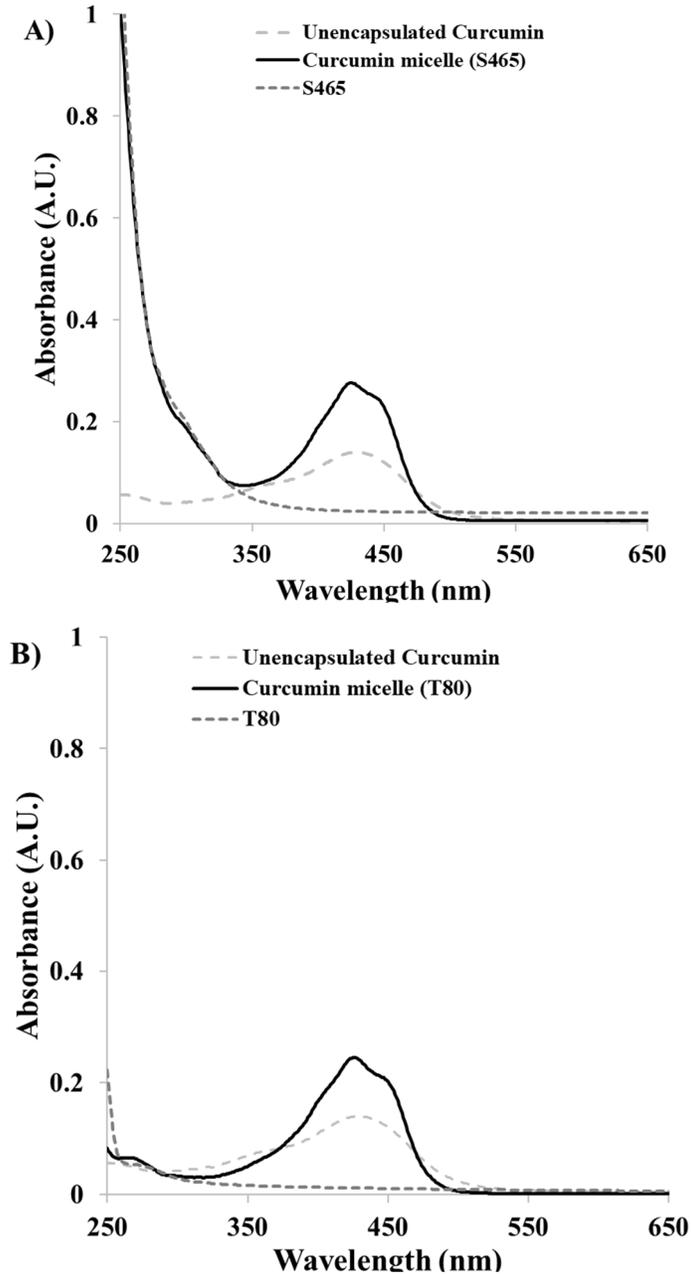


## Supplementary Material

### Mechanisms of microbial photoinactivation by curcumin's micellar delivery

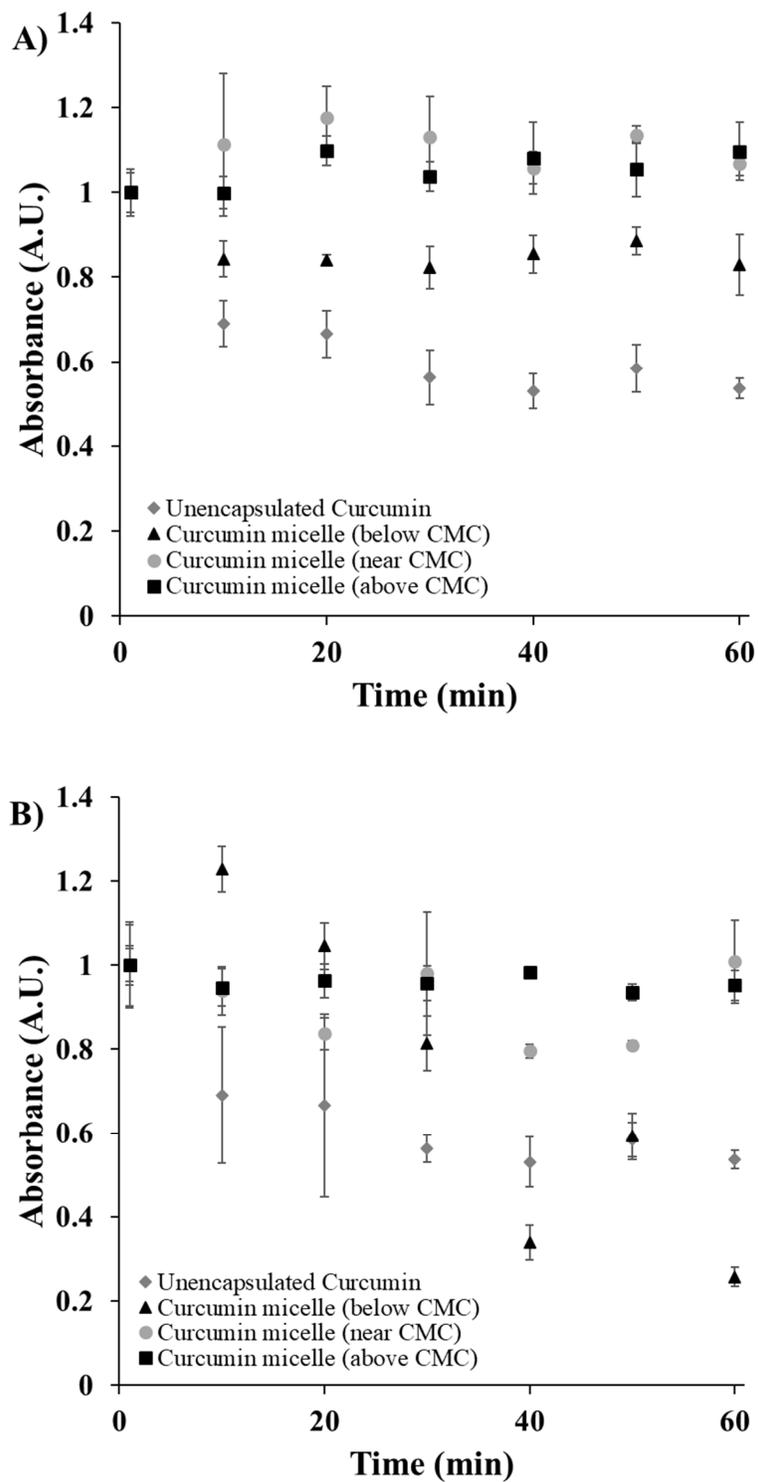
Victor Ryu<sup>1</sup>, Mrinalini Ghoshal, Piyanan Chuesiang, Silvette Ruiz-Ramirez, Lynne McLandsborough, Maria G. Corradini

#### Supplementary Figure 1



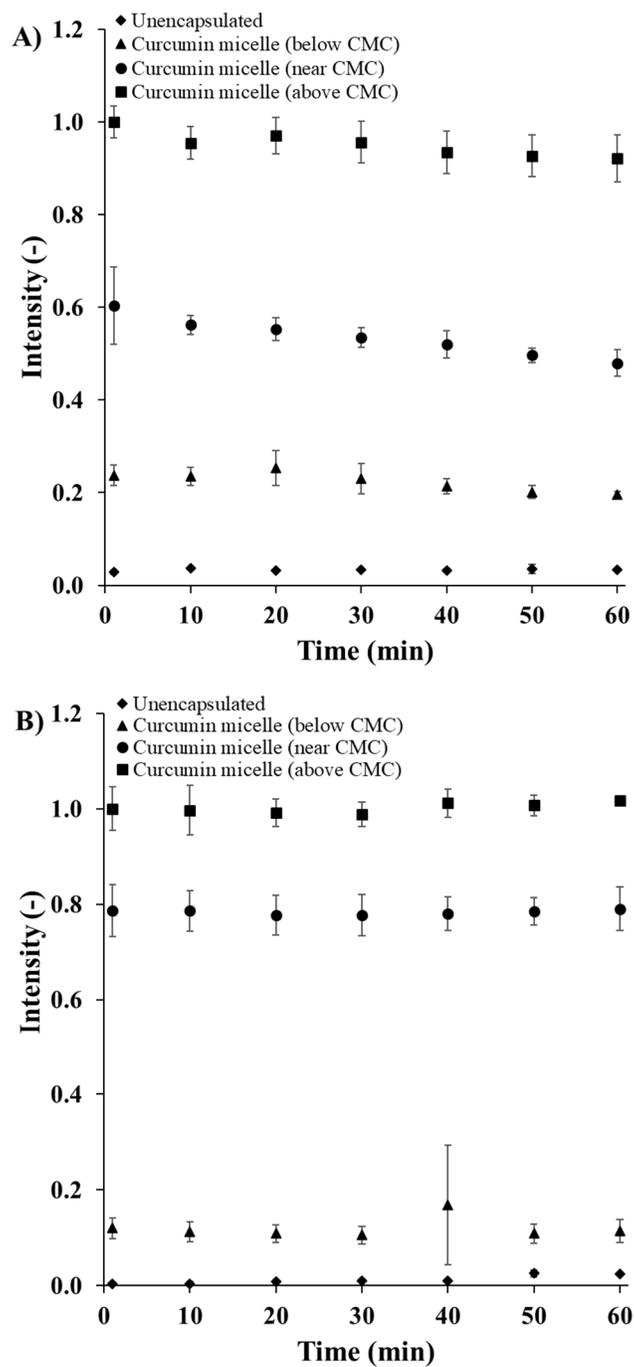
**Figure S1.** Absorbance spectra of unencapsulated curcumin, curcumin-surfactant micelle, and surfactant micelle produced using A) S465 and B) T80.

## Supplementary Figure 2



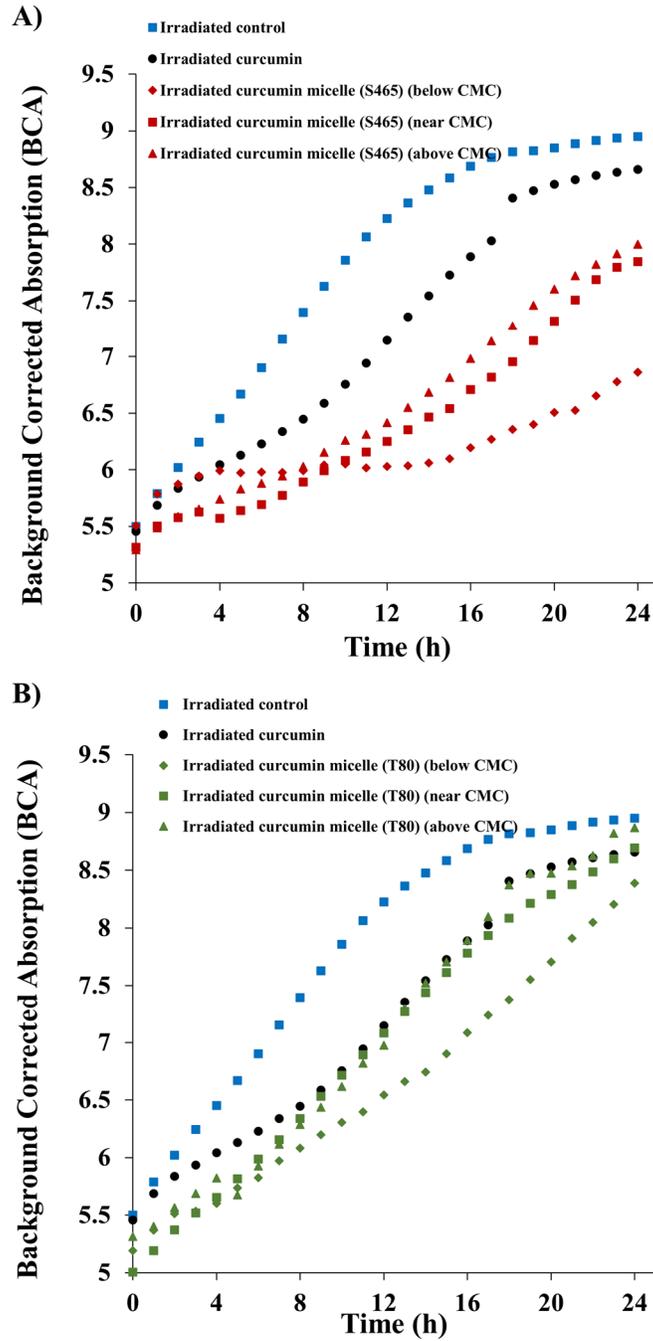
**Figure S2.** Normalized absorbance (at 425 nm) of A) curcumin-S465 and B) curcumin-T80n solutions at different concentrations as a function of time.

### Supplementary Figure 3



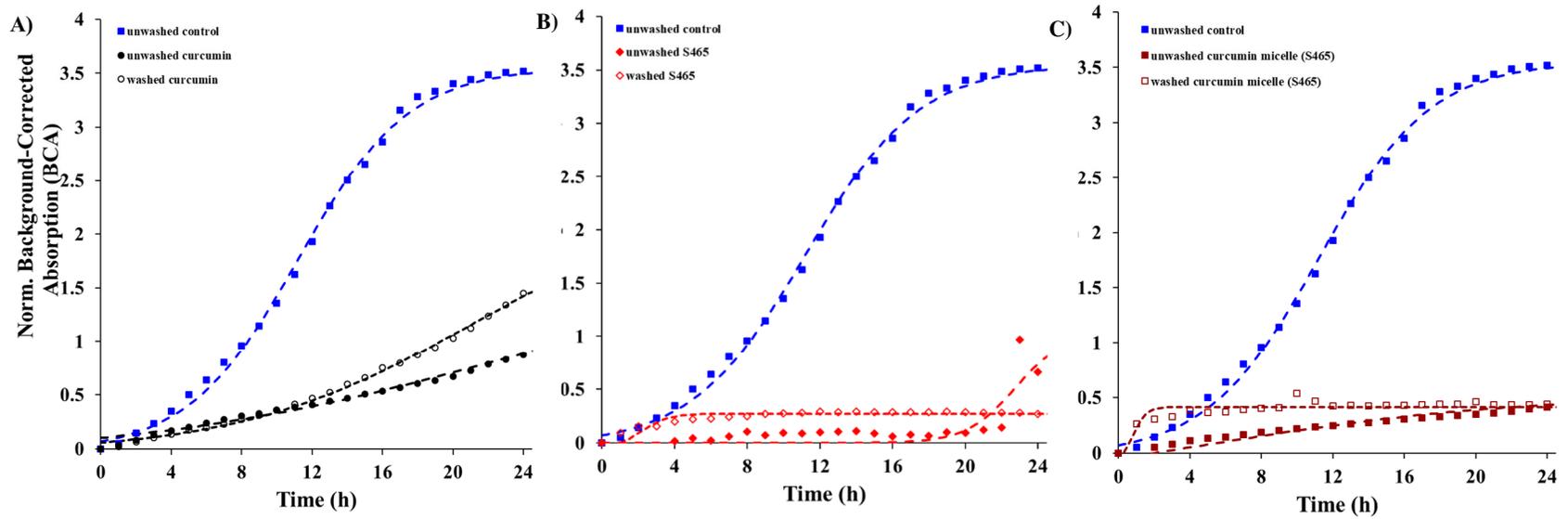
**Figure S3.** Normalized fluorescence emission intensity ( $\lambda_{exc}=365$  nm,  $\lambda_{em}=500$  nm) of A) curcumin-S465- and B) curcumin-T80- solutions at different concentrations as a function of time.

Supplementary Figure 4



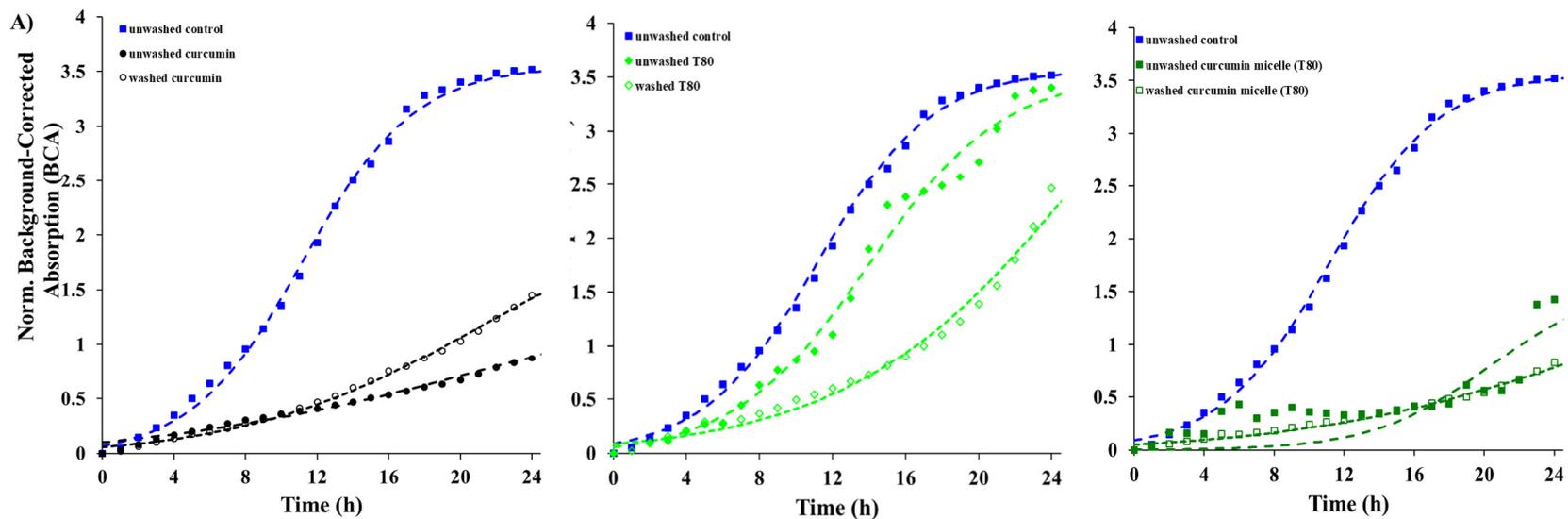
**Figure S4.** Recovery of *E. coli* O157:H7 after treatment with different curcumin-surfactant solutions A) S465 and B) T80. Symbols represent experimental data.

## Supplementary Figure 5



**Figure S5.** Recovery of washed and unwashed *L. innocua* irradiated and treated with A) curcumin, B) S465, and C) curcumin-S465 micelles. Symbols represent experimental data and dashed lines the fit of Eq.1

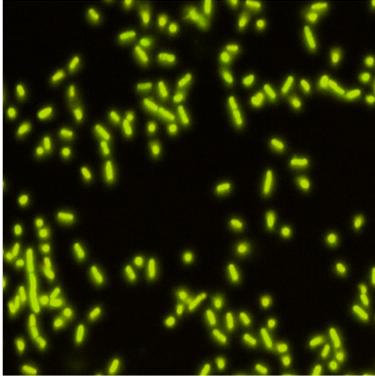
## Supplementary Figure 6



**Figure S6.** Recovery of washed and unwashed *L. innocua* irradiated and treated with A) curcumin, B) T80, and C) curcumin-T80 micelles. Symbols represent experimental data and dashed lines the fit of Eq.1.

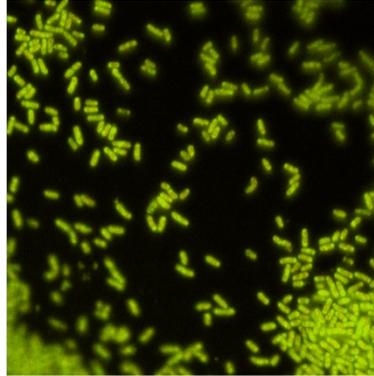
## Supplementary Figure 7

Unencapsulated Curcumin  
(unwashed)



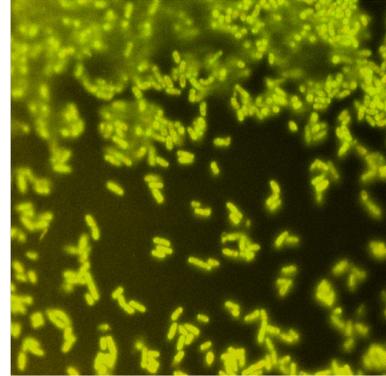
$\tau_1 = 204 \pm 23$  ps;  $\tau_2 = 764 \pm 117$  ps  
 $\tau_{\text{avg}} = 258 \pm 26$  ps

Curcumin in S465 Micelles  
(unwashed)



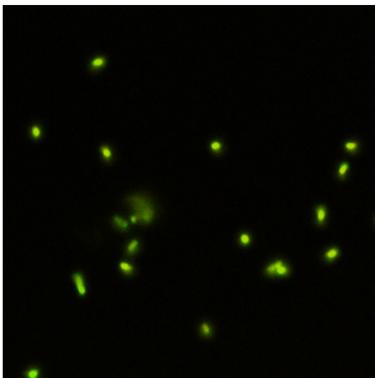
$\tau_1 = 250 \pm 32$  ps;  $\tau_2 = 856 \pm 119$  ps  
 $\tau_{\text{avg}} = 328 \pm 23$  ps

Curcumin in T80 Micelles  
(unwashed)



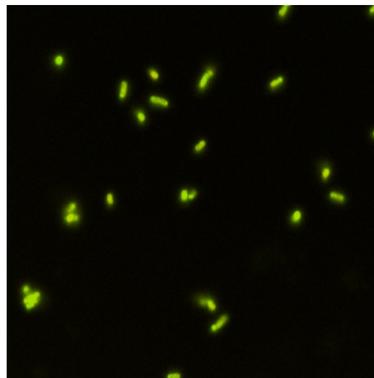
$\tau_1 = 243 \pm 7$  ps;  $\tau_2 = 799 \pm 46$  ps  
 $\tau_{\text{avg}} = 307 \pm 7$  ps

Unencapsulated Curcumin  
(washed)



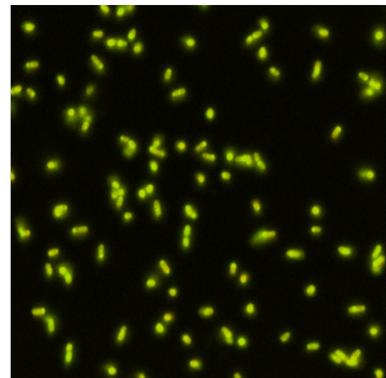
$\tau_1 = 268 \pm 49$  ps;  $\tau_2 = 899 \pm 112$  ps  
 $\tau_{\text{avg}} = 351 \pm 44$  ps

Curcumin in S465 Micelles  
(washed)



$\tau_1 = 293 \pm 24$  ps;  $\tau_2 = 1006 \pm 93$  ps  
 $\tau_{\text{avg}} = 380 \pm 30$  ps

Curcumin in T80 Micelles  
(washed)



$\tau_1 = 239 \pm 11$  ps;  $\tau_2 = 912 \pm 128$  ps  
 $\tau_{\text{avg}} = 349 \pm 23$  ps

**Figure S7.** FLIM micrographs of *L. innocua* treated with unencapsulated curcumin (left), in S465 (middle) and T80 micelles (right) at 0h and washed *L. innocua* after treatment for 1h. The corresponding short and long components of the exponential fit of the lifetimes are listed below each image along their average lifetime.