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The combined toxicity of UV/chlorinated products from binary ibuprofen (IBP) and tyrosine (Tyr) on *Escherichia coli*: Emphasis on their occurrence and underlying mechanism

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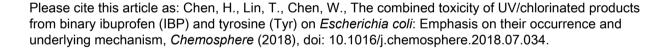
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ACCEPTED MANUSCRIPT

1	The combined toxicity of UV/chlorinated products from binary ibuprofen (IBP) and tyrosine
2	(Tyr) on Escherichia Coli: emphasis on their occurrence and underlying mechanism
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8	Abstract: In this study, the combined toxicity of UV/chlorinated products on Escherichia Coli (E.
9	coli) was investigated when ibuprofen (IBP) and tyrosine (Tyr) were used as two precursors. The
10	median-effect equation and combined index (CI)-isobologram equation were used to evaluate the
11	combined toxicity of UV/chlorinated products. Results revealed that the UV/chlorinated products
12	originated from binary Tyr and IBP showed a synergism in toxicity on Escherichia Coli at low
13	concentration level while it turned into a clear antagonism effect above a fa value of 0.2 in the
14	toxicity trial. The combined toxic effects on E. coli were determined by both the potential toxicity
15	mode of specific disinfection byproducts (DBPs) and the complicated interaction caused by Tyr
16	and IBP. The addition of IBP decreased the yield of N-DBPs generated from Tyr, which dominated
17	the effect of combined toxicity. Even though the antagonism predominated in toxicity effect on E .
18	coli, the synergistic toxicity at low dose levels should be getting attention, which was more close
19	to the natural concentration of N-DBPs in waters.
20	
21	Keywords : UV/chlorine; <i>Escherichia Coli</i> ; combined toxicity; disinfection byproducts
22	

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