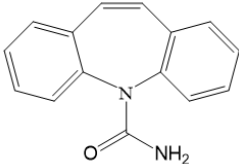
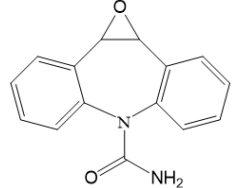
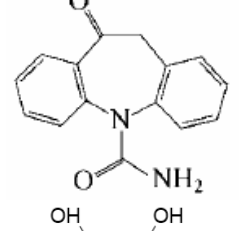
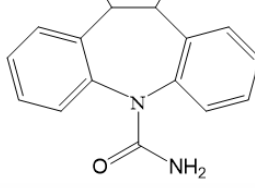
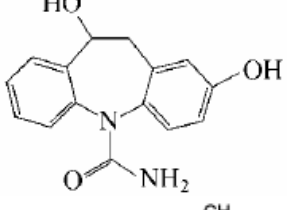
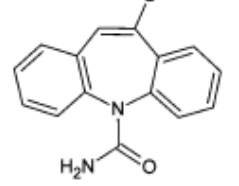
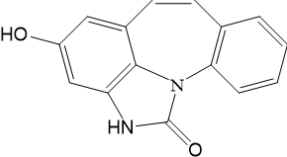
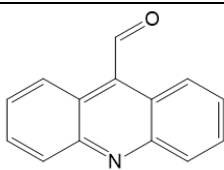
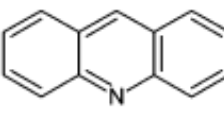
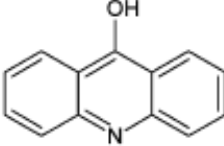
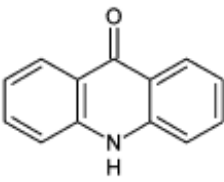
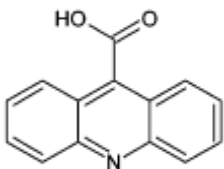
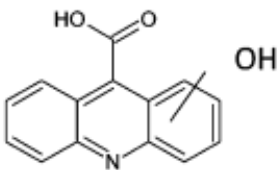
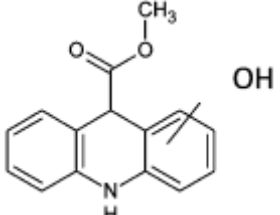
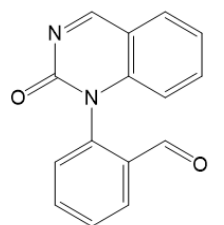
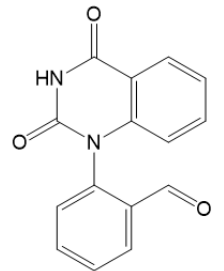
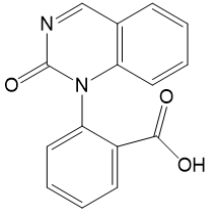
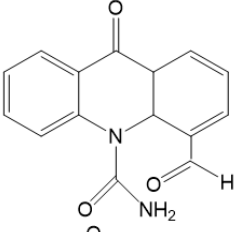
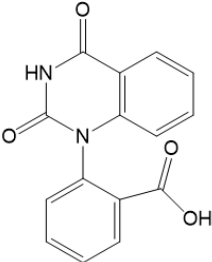
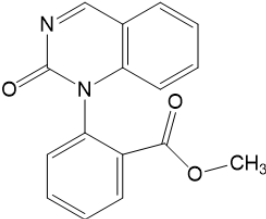
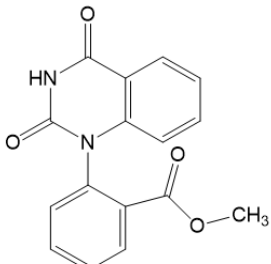
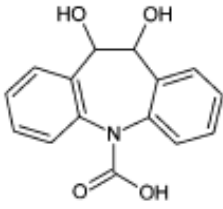
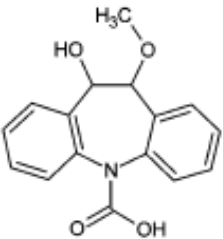


Supplementary Materials

Table S1. Database of CBZ Transformation Products

Name	Structure	Chemical formula	M+H
Compound 1		$C_{15}H_{12}N_2O$	237.1022
Compound 2		$C_{15}H_{12}N_2O_2$	253.0972
Compound 3		$C_{15}H_{12}N_2O_2$	253.0972
Compound 4		$C_{15}H_{14}N_2O_3$	271.1077
Compound 5		$C_{15}H_{14}N_2O_3$	271.1077
Compound 6		$C_{16}H_{14}N_2O_2$	267.1128
Compound 7		$C_{15}H_{10}N_2O_2$	251.0815

Compound 8		$C_{14}H_9NO$	208.0757
Compound 9		$C_{13}H_9N$	180.0808
Compound 10		$C_{13}H_9NO$	196.0757
Compound 11		$C_{13}H_9NO$	196.0757
Compound 12		$C_{14}H_9NO_2$	224.0706
Compound 13		$C_{14}H_9NO_3$	240.0655
Compound 14		$C_{15}H_{13}NO_3$	256.0968
Compound 15		$C_{15}H_{10}N_2O_2$	251.0815
Compound 16		$C_{15}H_{10}N_2O_3$	267.0771

Compound 17		$C_{15}H_{10}N_2O_3$	267.0771
Compound 18		$C_{15}H_{10}N_2O_3$	267.0771
Compound 19		$C_{15}H_{10}N_2O_4$	283.0713
Compound 20		$C_{16}H_{12}N_2O_3$	281.0921
Compound 21		$C_{16}H_{12}N_2O_4$	297.0870
Compound 22		$C_{15}H_{13}NO_4$	272.0917
Compound 23		$C_{16}H_{15}NO_4$	286.1074

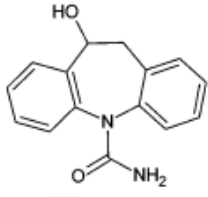
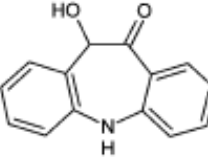
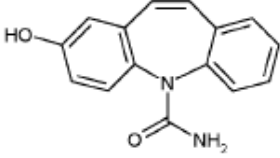
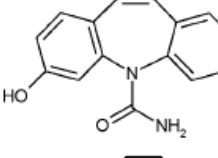
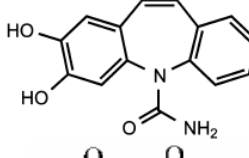
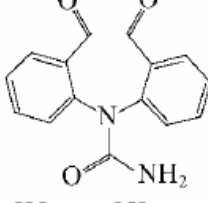
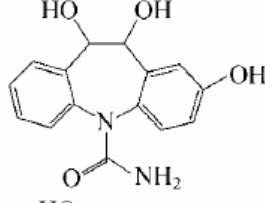
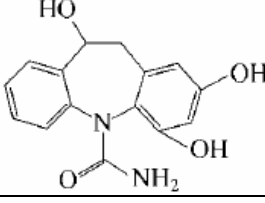
Compound 24		$C_{15}H_{14}N_2O_2$	255.1128
Compound 25		$C_{14}H_{11}NO$	210.0913
Compound 26		$C_{15}H_{12}N_2O_2$	253.0972
Compound 27		$C_{15}H_{12}N_2O_2$	253.0972
Compound 28		$C_{15}H_{12}N_2O_3$	269.0921
Compound 29		$C_{15}H_{12}N_2O_3$	269.0921
Compound 30		$C_{15}H_{14}N_2O_4$	287.1026
Compound 31		$C_{15}H_{14}N_2O_4$	287.1026

Table S2. Limit of Detection and Spiked Recoveries for CBZ

Analyte	Limit of detection (ng/L)	Spiked recoveries (%)	
		effluent	influent
CBZ	500	82	99

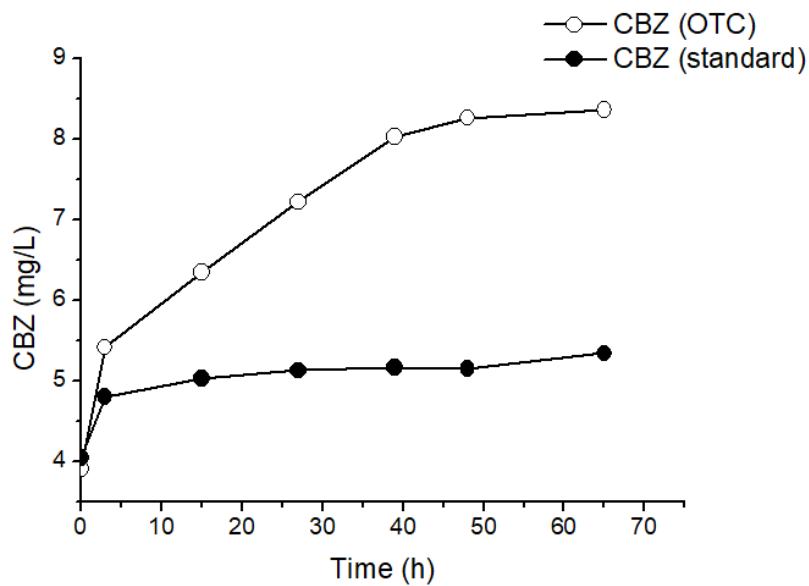


Fig. S1. The CBZ concentration evolution in the solutions of over-the-counter CBZ medicals and standard CBZ samples.

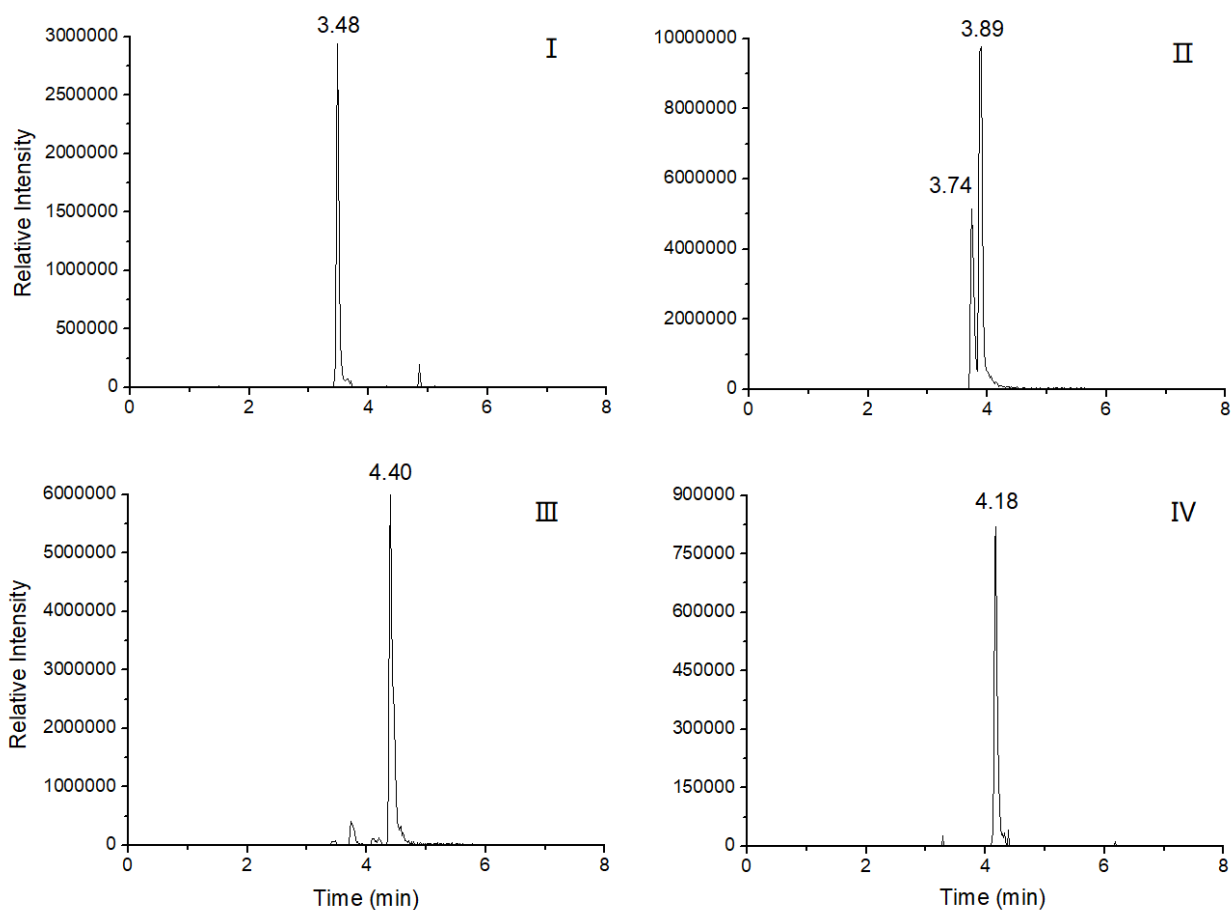


Fig. S2. LC/MS chromatograms of CBZ and its transformation products. I. CBZ, II. TP267, III. TP281, IV. TP283.

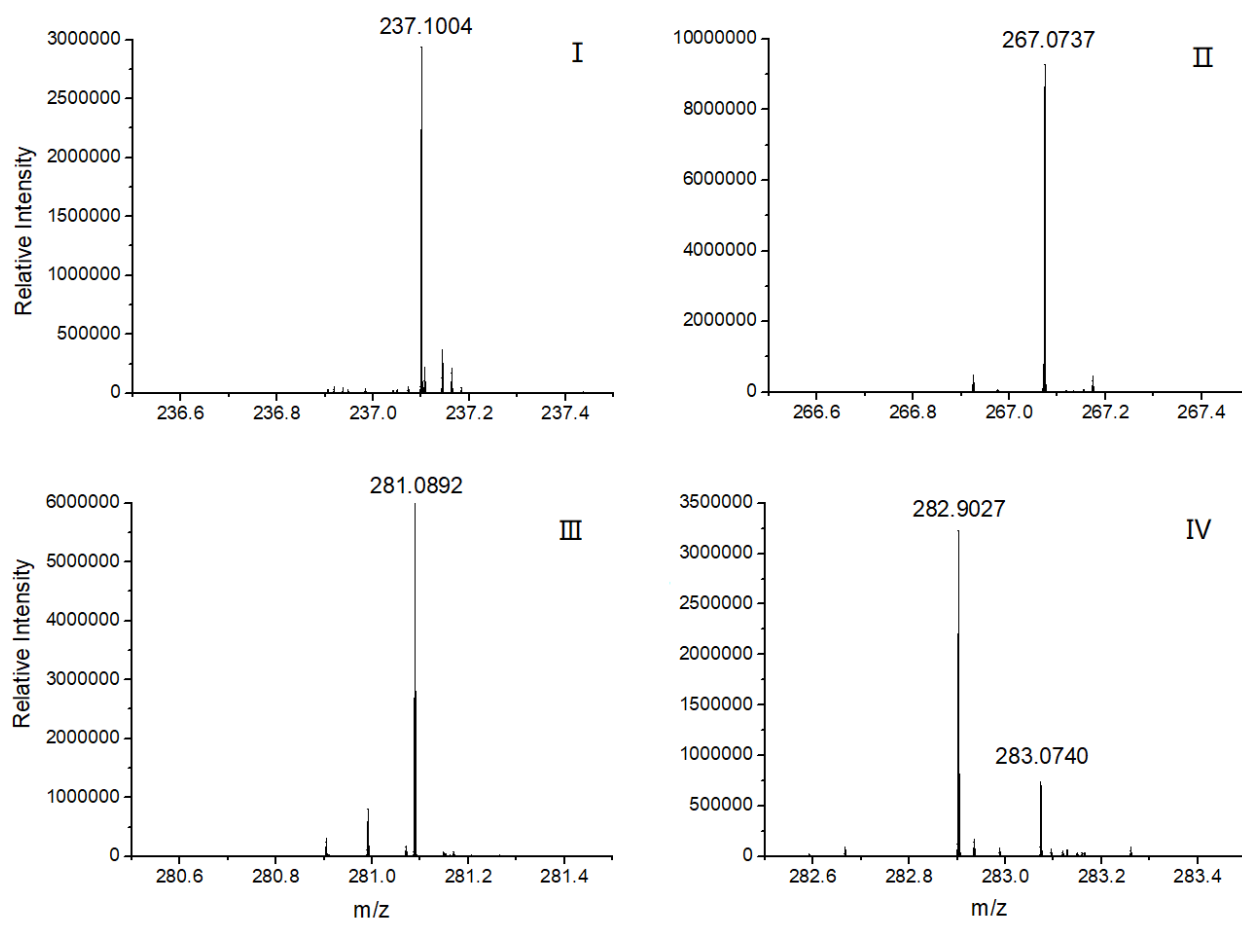


Fig. S3. LC/MS mass spectra of CBZ and its transformation products. I. CBZ, II. TP267, III. TP281, IV. TP283.

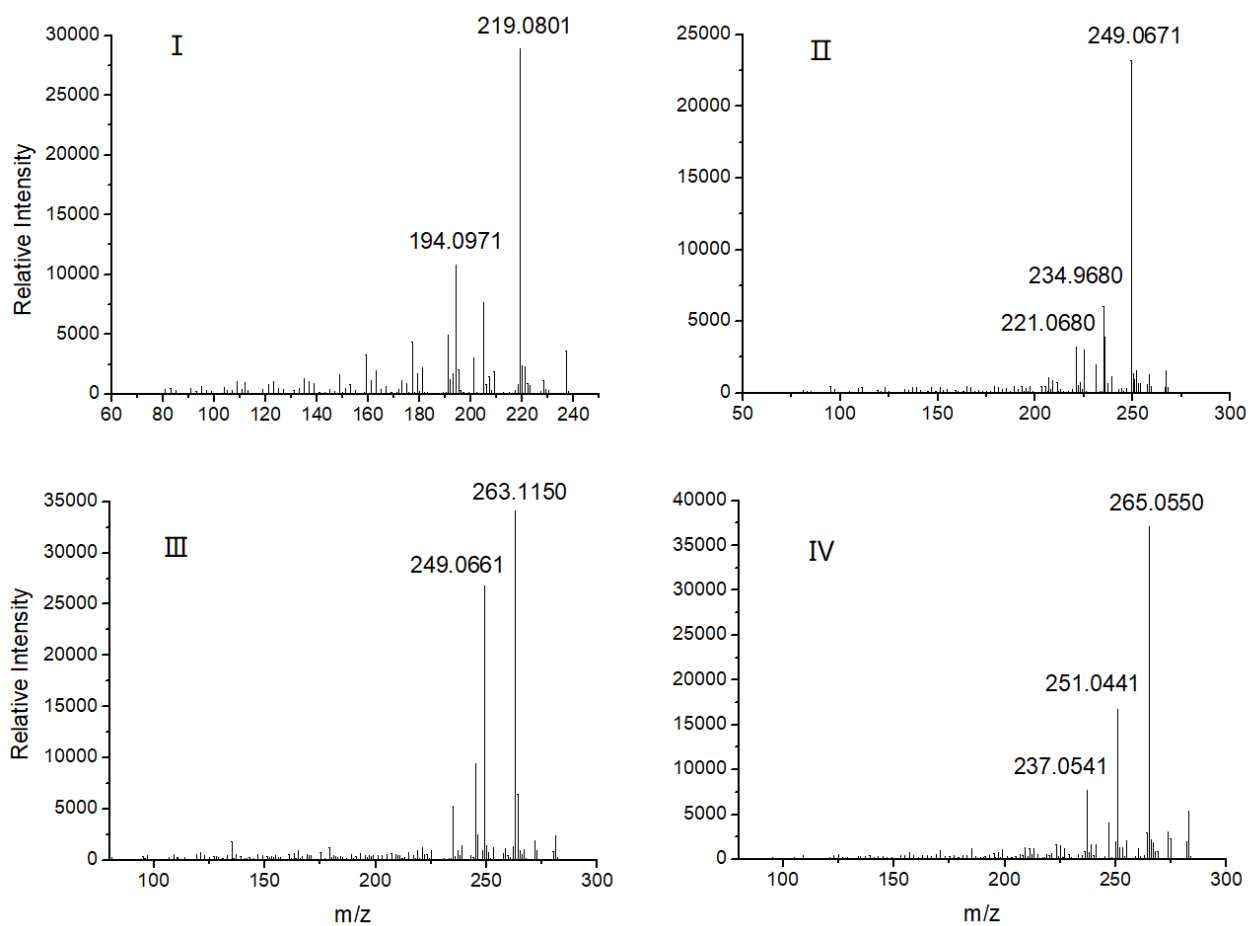


Fig. S4. Mass fragmentation for CBZ and its transformation products. I. CBZ, II. TP267, III. TP281, IV. TP283.

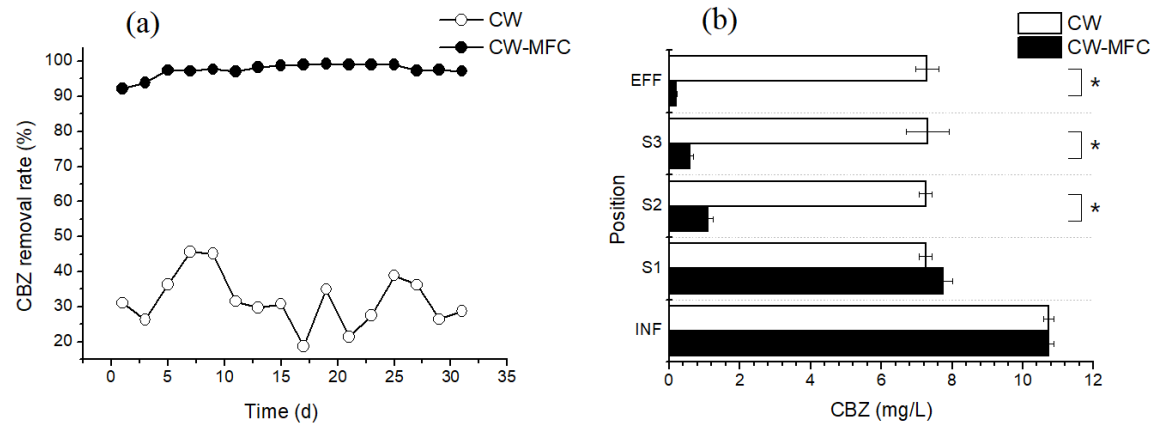


Fig. S5. Removal of CBZ in the two systems. * indicates the values of the variables between the two systems at different positions are significant at the level of $\alpha = 0.05$. (a) Temporal change of CBZ removal rate, (b) CBZ average concentration of the samples at the inlet (INF), three sampling points (S1, S2, and S3) and the outlet (EFF).