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Article

Application of $BiVO_4$–Microalgae Combined Treatment to Remove High Concentration Mixture of Sulfamethazine and Sulfadiazine

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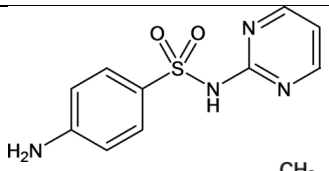
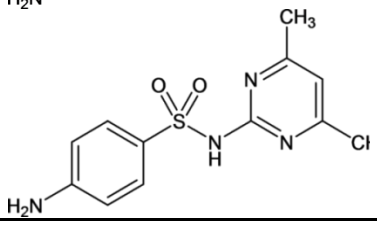
Supplementary Materials

1. Materials and methods

1.1. Chemicals

Table S1. Physicochemical characteristics of the test pharmaceuticals.

Compound	CAS No.	Molecular Structure	Molecular Weight (g mol^{-1})	Formula	p*Ka*	log *Kow*
SD	68-35-9		250.28	$C_{10}H_{10}N_4O_2S$	6.52	−0.0314
SM2	57-68-1		278.33	$C_{12}H_{14}N_4O_2S$	7.40	0.4687

2. Results and discussion

2.1. Effect of algae on the removal of SAs under visible-light irradiation

The degradation rates observed for SM2 and SD via photolysis were 29.3 and 24.8%, respectively (Fig. S1). *Dictyosphaerium* sp. was able to remove 47.7% of SM2 and 28.6% of SD after 7 days of culture. It was found that *Dictyosphaerium* sp. can improve the removal of these two antibiotics. The η value of *Dictyosphaerium* sp. for SM2 was higher than that of SD. It is likely that *Dictyosphaerium* sp. has different sensitivity to different antibiotics. Previous studies have shown that *C. vulgaris* is more sensitive to SM2, followed by SD [1].

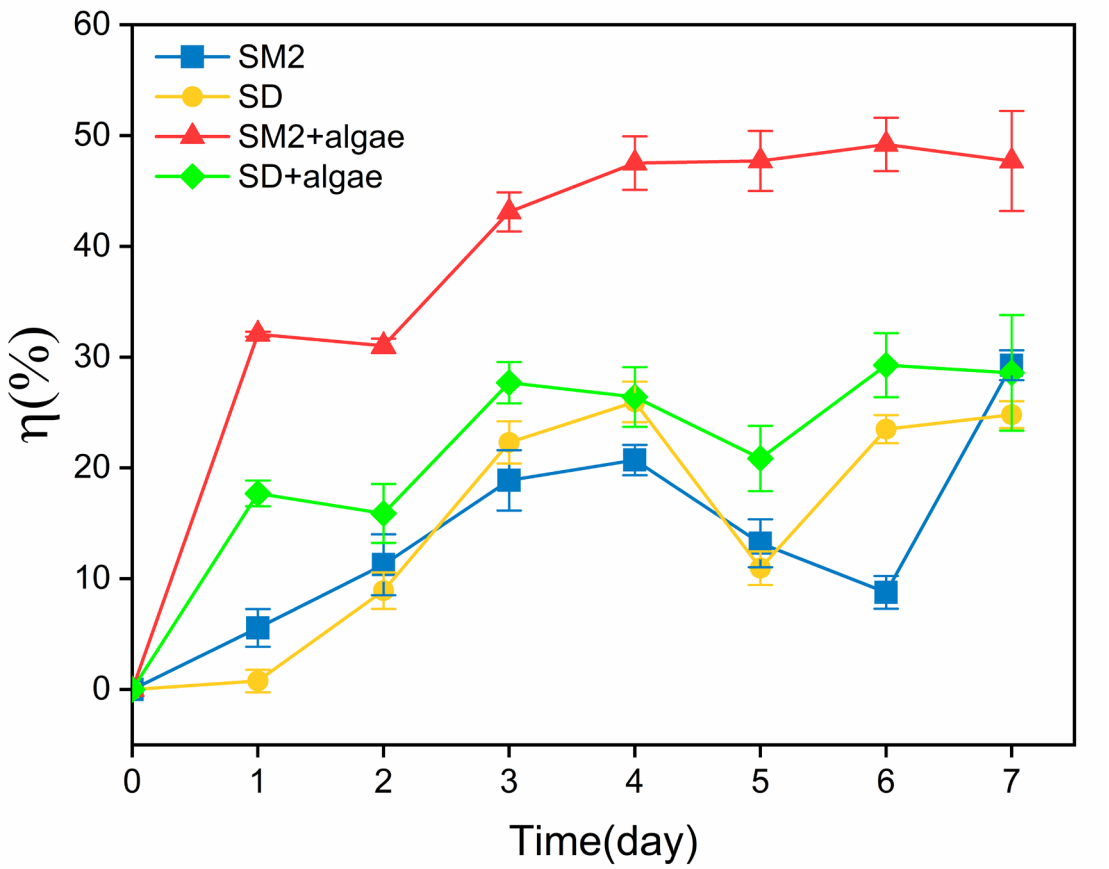


Figure S1. Effect of algae on the removal of SAs under vis-light irradiation.

2.2. Morphology and structure of $BiVO_4$

The TEM image of the as-prepared sample showed that $BiVO_4$ exists in the form of microspheres with a lattice fringe width of 0.228 nm.

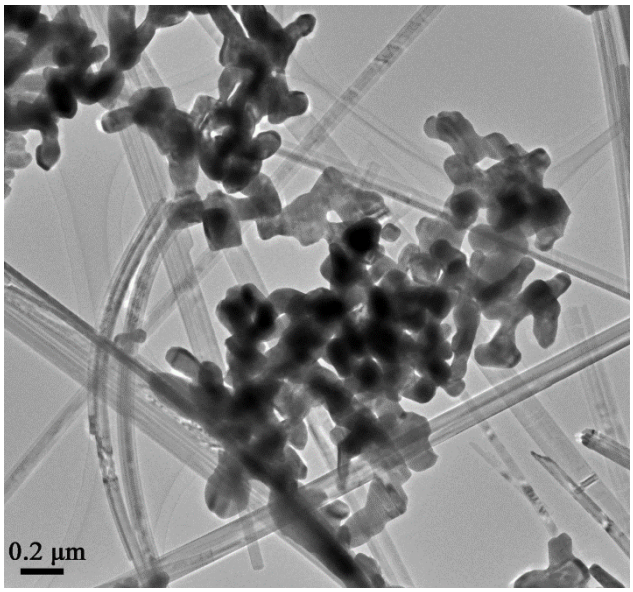


Figure S2. TEM image of $BiVO_4$.

References

1. Kurade, M.B.; Kim, J.R.; Govindwar, S.P.; Jeon, B.-H. Insights into microalgae mediated biodegradation of diazinon by Chlorella vulgaris: Microalgal tolerance to xenobiotic pollutants and metabolism. *Algal. Res.* **2016**, *20*, 126-134.