



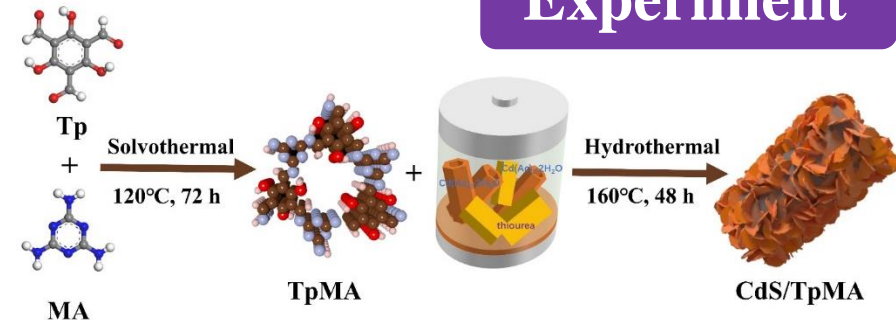
Rationally designed S-scheme heterojunction enhanced transfer of oxygen through multiphase interface boosting photosynthesis of hydrogen peroxide for disinfection

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Introduction

The synthesis of H_2O_2 using visible light-responsive photocatalysts is recognized as the most encouraging green method. Covalent organic frameworks (COFs) are a class of crystalline porous polymers that have superior advantages for the artificial synthesis of H_2O_2 . Besides, heterojunction catalytic systems have been widely established and employed to enhance the performance of COFs for the photosynthesis of H_2O_2 . With H_2O_2 generated *in situ*, a novel disinfection reactor was designed to circumvent damage to the photocatalyst from solvent systems and to achieve rapid sterilization of real water, which has far-reaching concern for public health safety.

Experiment



Scheme 1. Schematic illustration of the synthesis process of CdS/TpMA heterojunctions.

Results

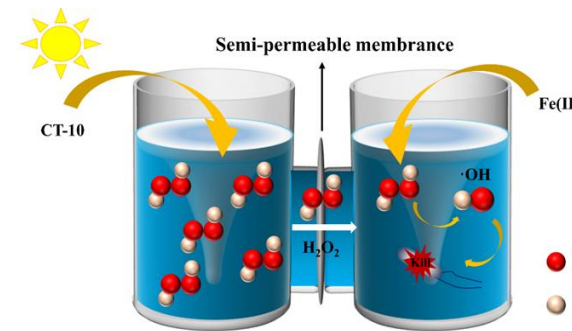
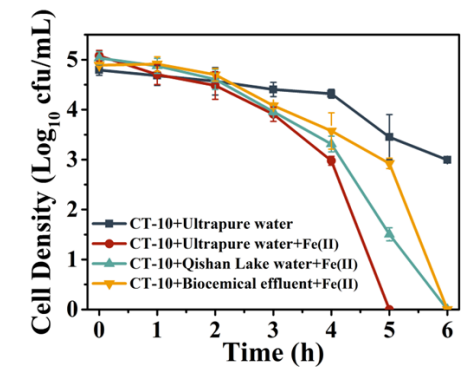


Fig 1. Schematic illustration of an innovative reactor for disinfection.

Fig 2. Reactor for disinfection of different water bodies.



Conclusions

In this study, the direct S-scheme CdS/TpMA composite photocatalysts have been proven effective. And the designed reactor enables long-distance sterilization in different water bodies.