

EXALTED PHOTOCATALYTIC ACTIVITY OF TETRAGONAL BiVO₄ BY Er³⁺ DOPING THROUGH A LUMINESCENCE COOPERATIVE MECHANISM

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Preparation of BiVO_4 systems by microwave assisted hydrothermal method.

The preparation of BiVO_4 systems was performed by the route described in the above experimental section. In order to fit the optimum hydrothermal preparation we have synthesized a set of systems varying the microwave treatment time from 0.25 to 4 hours. In all cases, the crystalline phase obtained was the monoclinic one (**Fig. S1**).

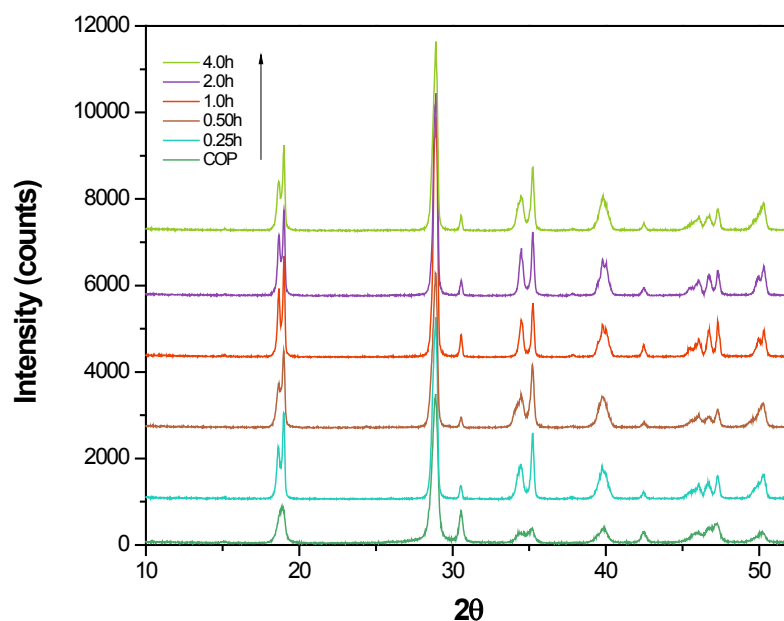


Fig. S1 XRD patterns of BiVO_4 obtained at different mw treatment times.

Photocatalytic activity of BiVO_4 systems obtained at different mw treatment times.

The photocatalytic activity of the obtained systems at different mw times is shown in **Fig. S2**. In all cases, conversions values appear higher with respect to that obtained for BiVO_4 without hydrothermal treatment. Moreover, the best reaction rate is observed for the system obtained after hydrothermal treatment of 0.5 h. Thus, the derived Er^{3+} systems were synthesized considering this hydrothermal procedure under microwave radiation.

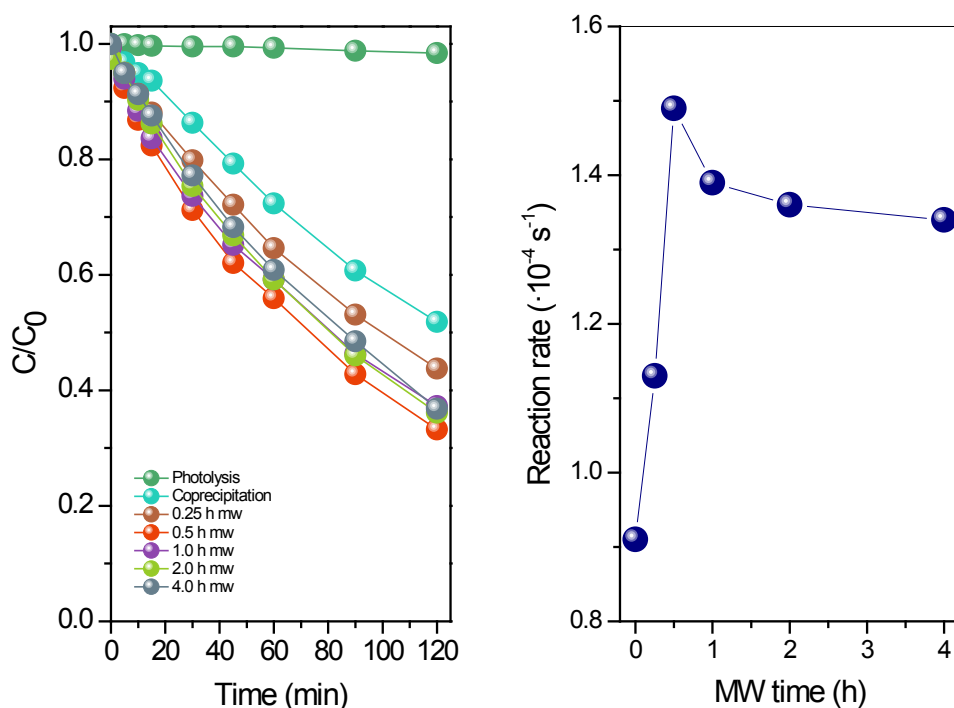


Fig. 2 Photocatalytic degradation of MB for different BiVO_4 systems obtained at different mw treatment times.