EXALTED PHOTOCATALYTIC ACTIVITY OF TETRAGONAL BiVO4 BY Er$^{3+}$ 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).

![XRD patterns of BiVO$_4$ obtained at different mw treatment times.](image-url)
Photocatalytic activity of BiVO₄ 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 BiVO₄ without hydrothermal treatment. Moreover, the best reaction rate is observed for the system obtained after hydrothermal treatment of 0.5 h. Thus, the derived Er³⁺ systems were synthesized considering this hydrothermal procedure under microwave radiation.

![Fig. 2 Photocatalytic degradation of MB for different BiVO₄ systems obtained at different mw treatment times.](image-url)