# Photocatalytic Degradation of methylene blue and dyes mixture using indiumdoped $\mathrm{CaWO}_{4}$ synthesized by sonochemical and microwave-assisted hydrothermal methods 

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## Supplementary material



Figure S1. Rietveld refinement of CWPS (a) CW1S (b) CW2S (c) CW4S (d) CW8S (e) samples and unit cells of the pure and indium doped samples synthesized by the SM.


Figure S2. Rietveld refinement of samples CWPMAH (a) CW1MAH (b) CW2MAH (c) CW4MAH (d) CW8MAH (e) samples and unit cells of the pure and indium doped samples synthesized by the MAHM.

Table S1. Position (Xc), area and FWHM for the principal symmetrical elongation peaks from SM and MAHM obtained through the GAUSS adjust.

| Samples | $\mathbf{X}_{\text {c }}$ | Area | FWHM | Samples | $\mathbf{X}_{\text {c }}$ | Area | FWHM |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CWPS | 918.048 | $\begin{gathered} 21367.772 \pm \\ 563.557 \end{gathered}$ | 10.125 | CWPMAH | 917,913 | $\begin{gathered} 15440.586 \pm \\ 366.000 \end{gathered}$ | 9.419 |
| CW1S | 918.189 | $\begin{gathered} 13077.400 \pm \\ 425.577 \end{gathered}$ | 94.192 | CW1MAH | 918,059 | $\begin{gathered} 19377.676 \pm \\ 575.398 \end{gathered}$ | 9.890 |
| CW2S | 917.933 | $\begin{gathered} 10131.647 \pm \\ 279.730 \end{gathered}$ | 8.477 | CW2MAH | 917,964 | $\begin{gathered} 18064.666 \pm \\ 478.355 \end{gathered}$ | 9.419 |
| CW4S | 918.217 | $\begin{gathered} 16030.837 \pm \\ 422.675 \end{gathered}$ | 9.890 | CW4MAH | 917,79 | $\begin{gathered} 19816.452 \pm \\ 467.769 \end{gathered}$ | 9.419 |
| CW8S | 918.045 | $\begin{gathered} 16529.981 \pm \\ 425.152 \end{gathered}$ | 9.890 | CW8MAH | 917,771 | $\begin{gathered} 12970.542 \pm \\ 316.954 \end{gathered}$ | 9.890 |



Figure S3. SEM-EDS analysis of samples CW1S (a) and CW1MAH (b).


Figure S4. Diffractograms (a) and SEM-FEG (b) images of reused samples for methylene blue dye.


Figure S5. SEM-EDS of reused samples: CW4S (a) CW8S (b) CW4MAH (c) CW8MAH (d).


Figure S6. Decomposition of the Gaussian curves of the samples CWPS (a) CW1S (b) CW2S (c) CW4S (d) CW8S (e).






Figure S7. Decomposition of the Gaussian curves of the samples CWPMAH (a) CW1MAH (b) CW2MAH (c) CW4MAH (d) CW8MAH (e).

