

Electronic Supplementary Information to:

**Enhanced photoluminescence and energy transfer performances of
 $\text{Y}_3\text{Al}_4\text{GaO}_{12}:\text{Mn}^{4+}, \text{Dy}^{3+}$ phosphors for plant growth LED lights**

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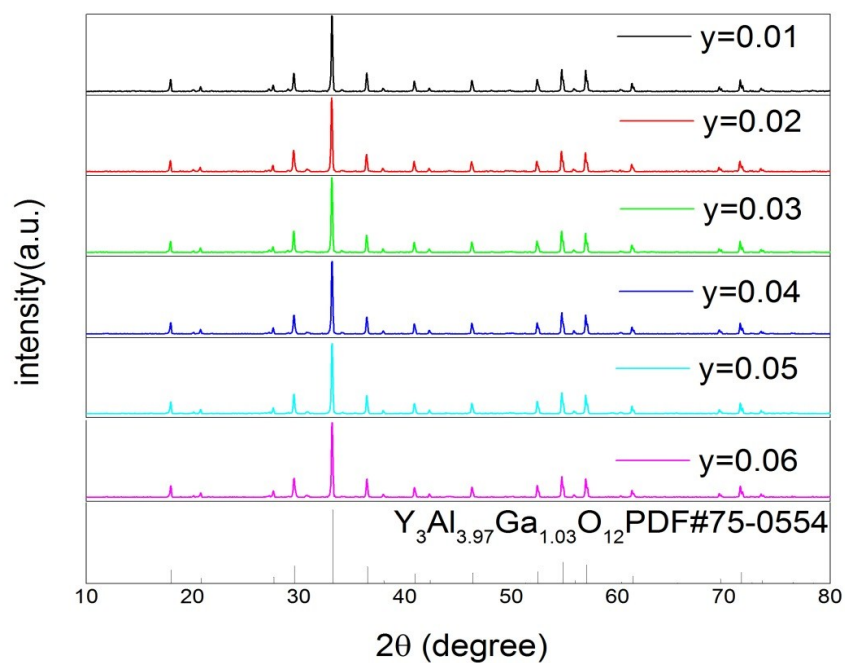


Figure S1. The XRD patterns of $\text{Y}_3\text{Al}_4\text{GaO}_{12}:\text{yDy}^{3+}$ ($y=0.01-0.06$) phosphors and standard card PDF#75-0554 of $\text{Y}_3\text{Al}_{3.97}\text{Ga}_{1.03}\text{O}_{12}$.

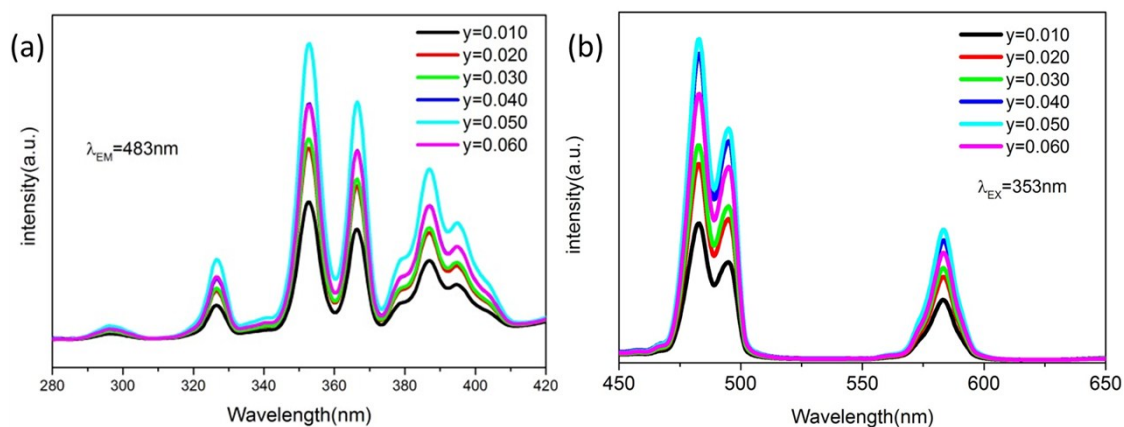


Figure S2. The (a) PLE spectra of $\text{Y}_3\text{Al}_4\text{GaO}_{12}:\text{yDy}^{3+}$ phosphors ($y=0.01-0.06$) and (b) PL spectra of these sample under excitation at 353 nm.

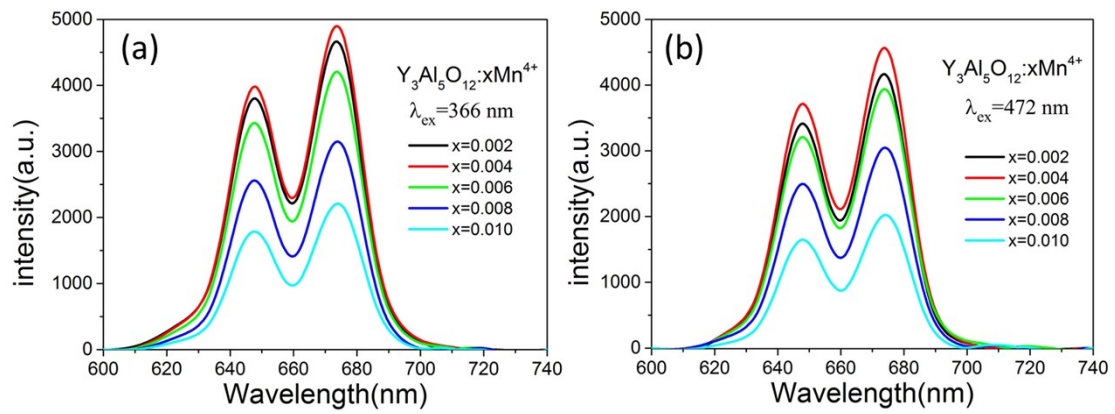


Figure S3. The emission spectra of $Y_3Al_5O_{12}:xMn^{4+}$ when $x = 0.002, 0.004, 0.006, 0.008, 0.010$ under excitation at (a) 366 nm and (b) 472 nm.

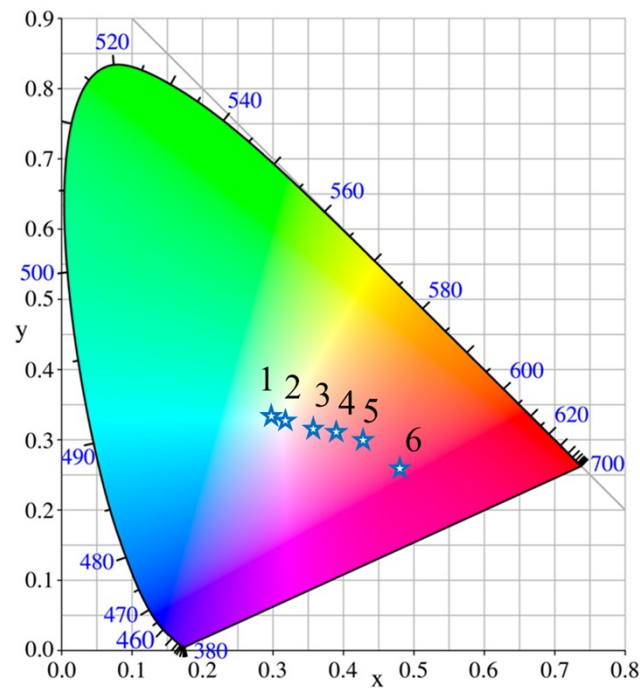


Figure S4. The variation of CIE color coordinates of $YAGO:Mn^{4+}, Dy^{3+}$ based on the PL spectra.