

### Electronic Supporting Information (ESI)

#### **On the role of N-vinylpyrrolidone in the aqueous radical-initiated copolymerization with PEGDA mediated by eosin Y in presence of O<sub>2</sub>**

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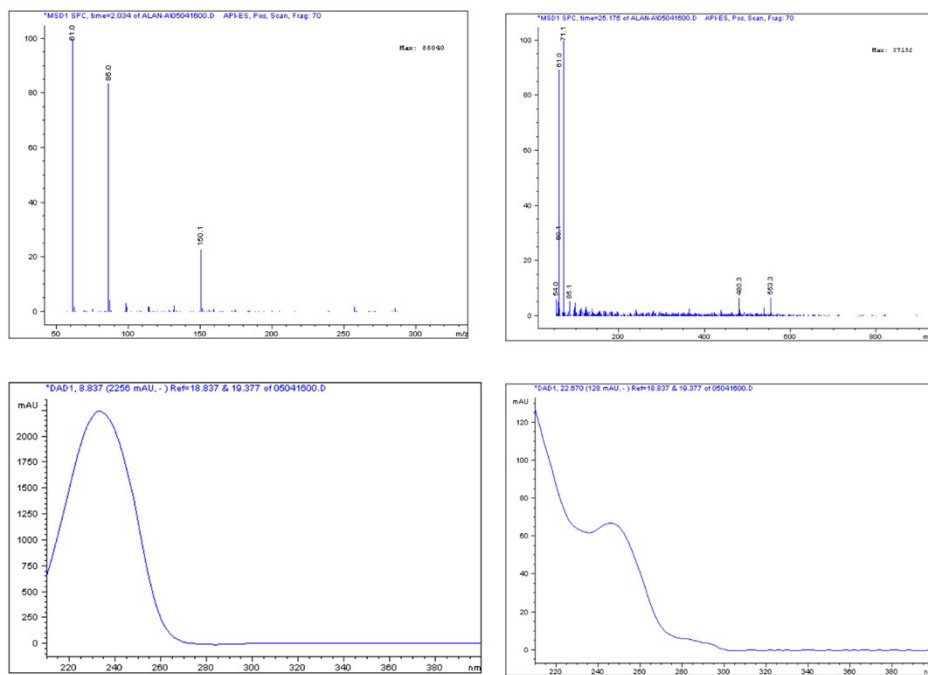
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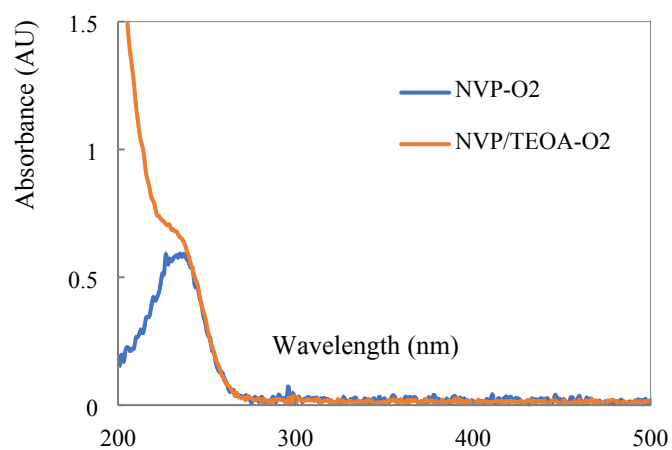
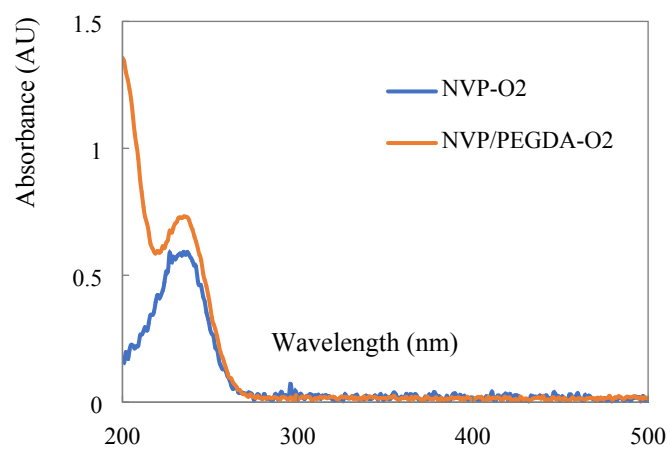
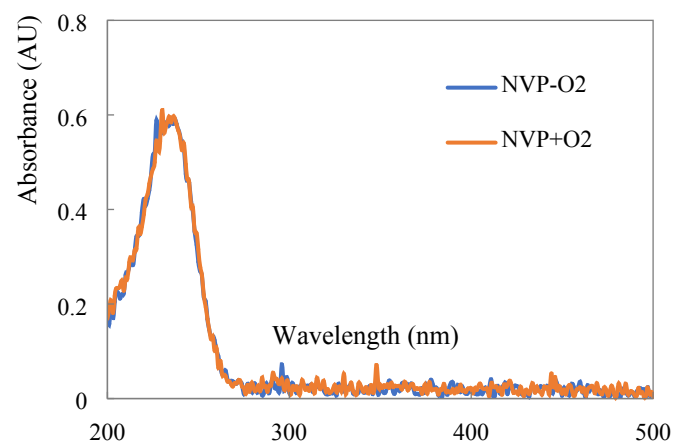
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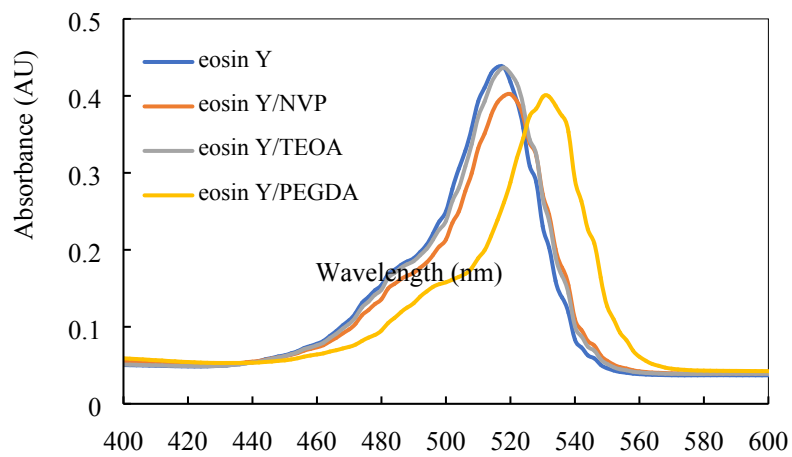
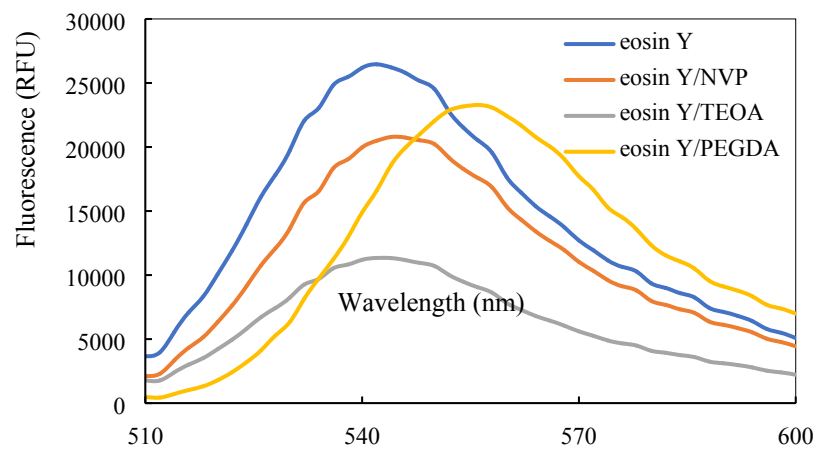
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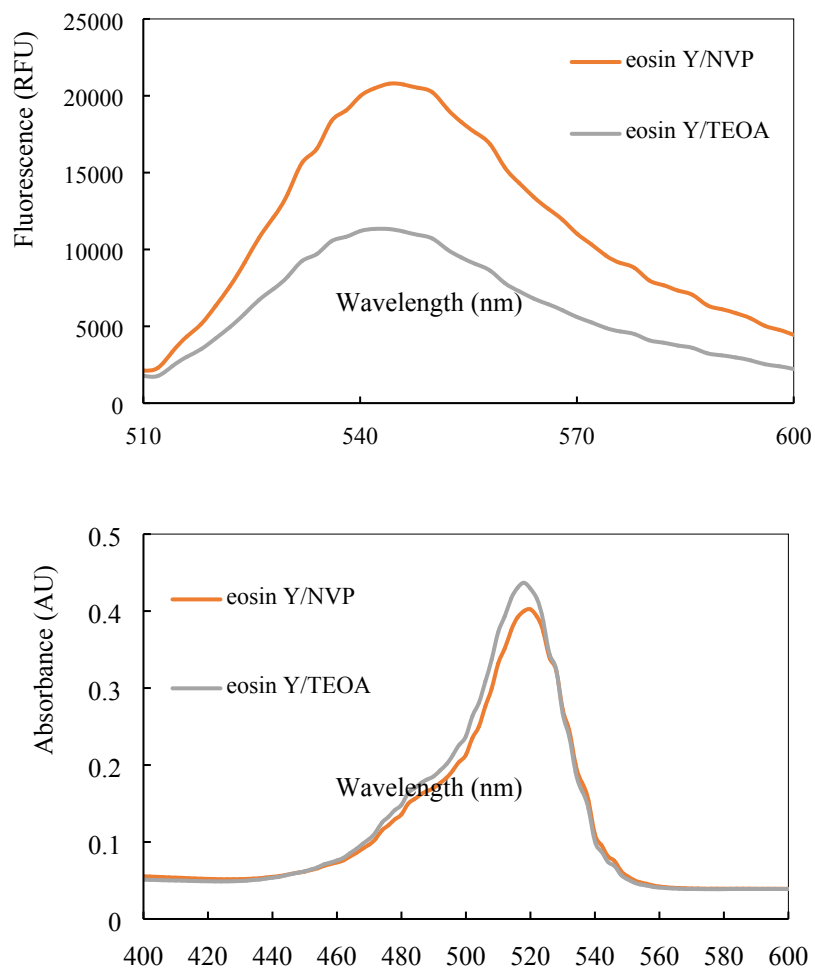
**Fig. S1** LC-MS of the photo-oxidation of TEOA in the presence of NVP with eosin.



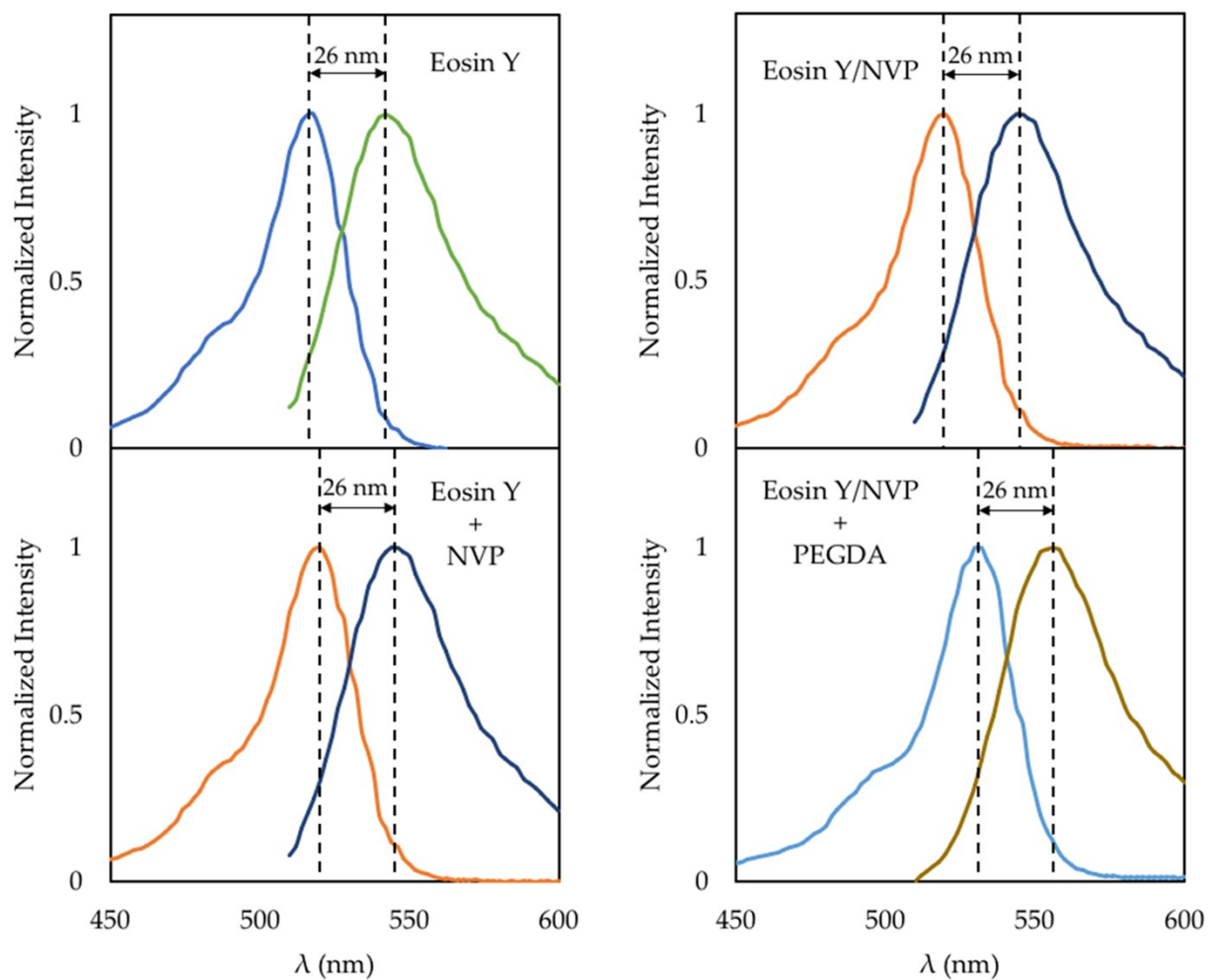
**Fig. S2** Evidence supporting lack of formation of CTC's for NVP/O<sub>2</sub>, NVP/PEGDA, and NVP/TEOA.



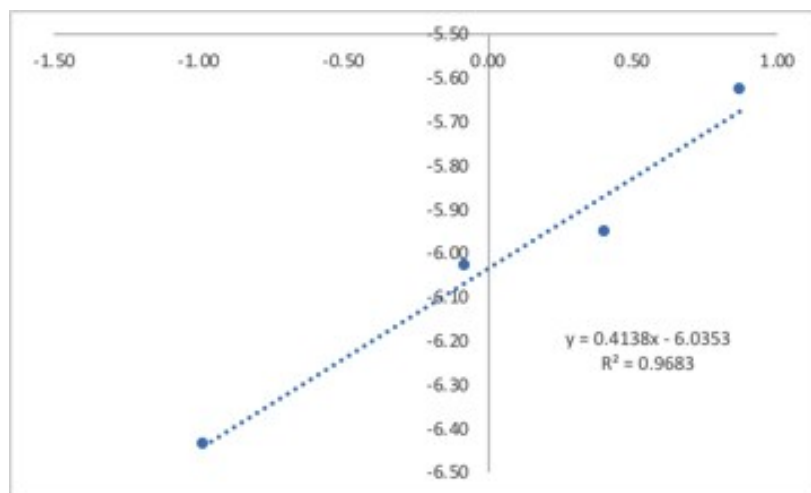
**Fig. S3** Fluorescence and UV-Vis evidence of the formation of an eosin/NVP CTC in water.



**Fig. S4** Fluorescence and UV-Vis comparison of the effect of TEOA and NVP on the emission and absorbance spectra of eosin in water.



**Fig. S5** Analysis of the effect of NVP in the Stoke's shift of eosin in water with and without PEGDA.



**Fig. S6** Scaling of the rate of polymerization with irradiance (power density) of the 500 nm LED.