

Fluorescent films based on PVDF doped with carbon dots for evaluation of UVA protection of sunscreens and fabrication of cool white LEDs

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Supplementary material

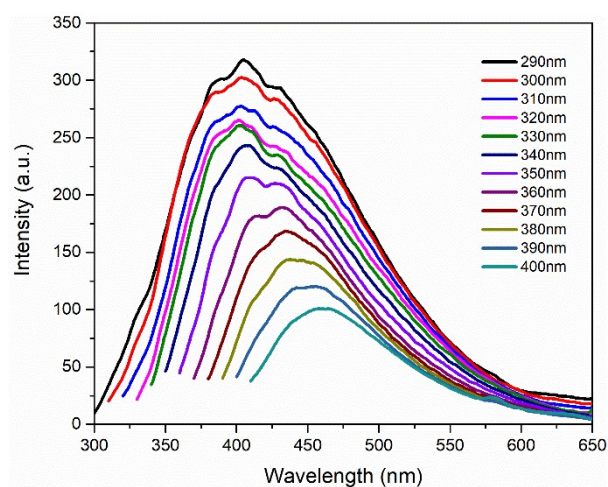


Fig. S1 Photoluminescence emission of the CDs suspended in DMF solution as a function of excitation wavelength. The emission shifts towards higher wavelengths as the excitation wavelength increase.

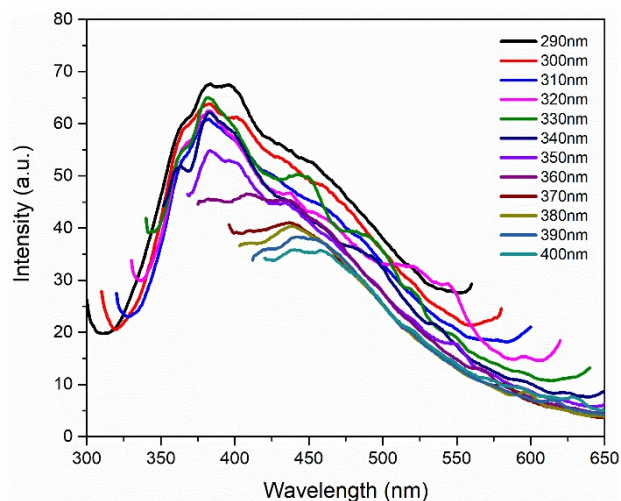


Fig. S2 Excitation wavelength dependent photoluminescence emission of the PVDF/CDs-1200 film. The emission at 456 nm is retained for the different excitation wavelengths.

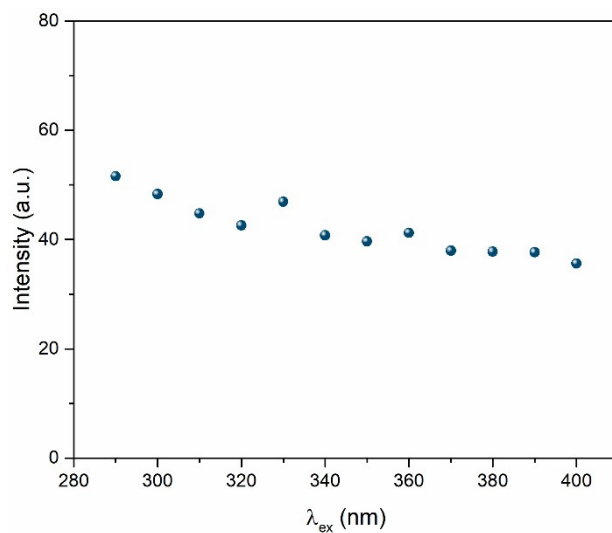


Fig. S3 Photoluminescence peak intensity of the PVDF/CDs-1200 film measured at $\lambda_{em}=456$ nm as a function of excitation wavelength. This emission was used to evaluate the fluorescence intensity of the films coated with sunscreen products.

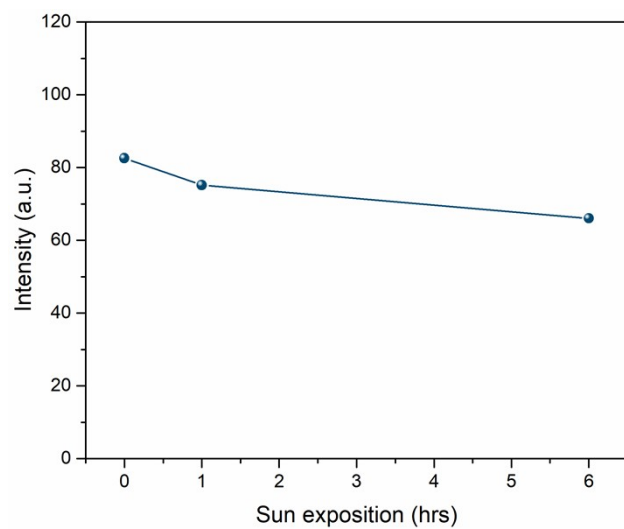


Fig. S4 Fluorescence intensity of the PVDF/CDs-1200 film after 6 hours of continuous exposure to sunlight. The photoluminescence decreased by about 19.5 %.