

Sensitive fluorescence-based detection of magnetic field effects in photoreactions of flavins

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Electronic Supplementary Information

Analysis of flavin photoproducts by mass spectrometry

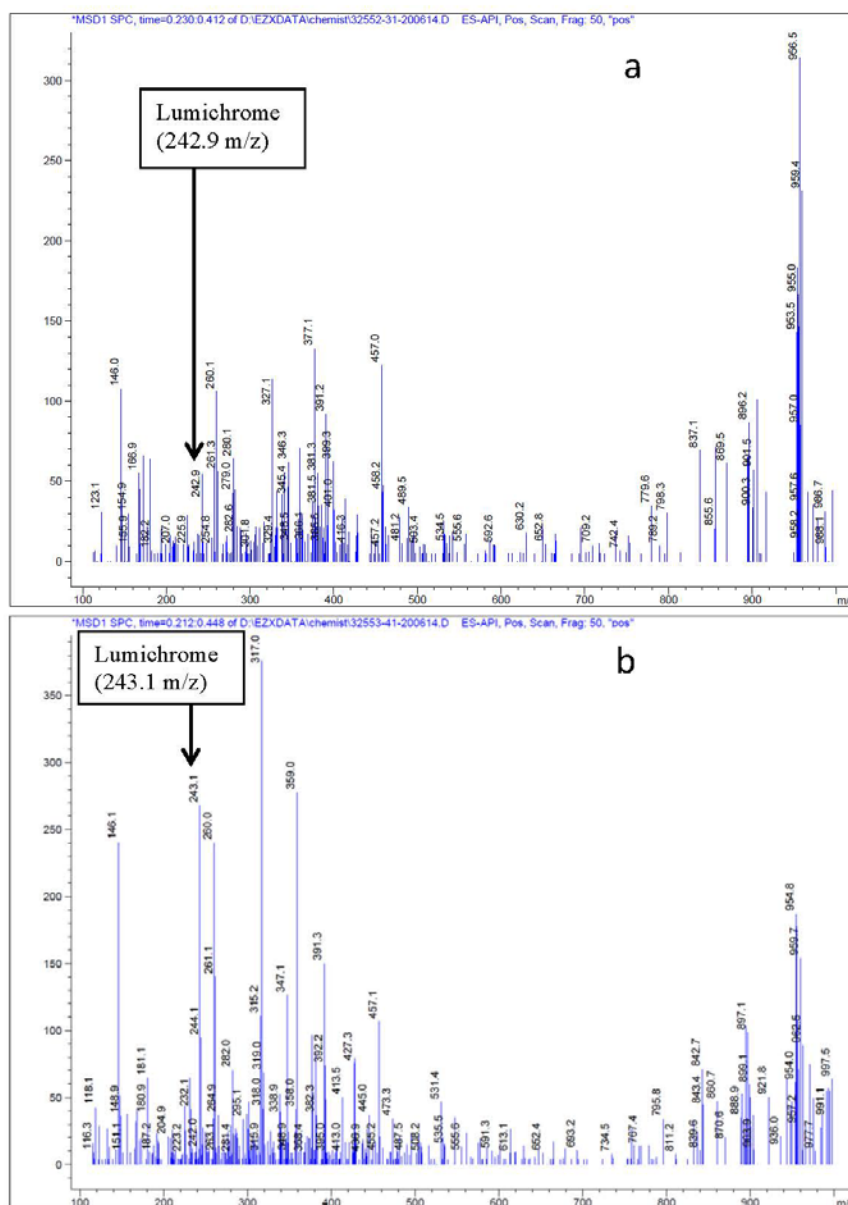


Fig. S1: Mass spectra before, a), and after, b), a PF MARY experiment on a static (non-flowing) sample of 10 μM FMN + 0.5 mM HEWL, showing an increase in lumichrome content resulting from continuous photoexcitation by a 405 nm diode laser at 350 mW. Spectrum a) suggests that lumichrome is present as a minor impurity in commercial FMN. The spectra were recorded using a positive electrospray ionization Waters Premier LCT mass spectrometer.

Hypothesis testing for *AtCry1* MFEs

Band-averaging over the wavelength range 500-600 nm with $B_0 = 12.2$ mT gives an MFE of $0.034\% \pm \text{S.E.}$ 0.007% for *AtCry1* (see main text, figure 10).

A two-tailed hypothesis test of this result for the null hypothesis, $H_0 : \text{MFE} = 0$, and the alternative hypothesis, $H_1 : \text{MFE} \neq 0$ yields a test statistic of 4.9 with a p -value < 0.001 (assuming a normal distribution for the variance in the data as the number of measurements $\gg 30$). Hence, the null hypothesis is rejected in favour of the alternative hypothesis that there is a MFE on the prompt fluorescence of the sample at the 99.9% significance level.