

Collins, D. Kadelski, S., Lonardo, R., Peterson, B., Reddy, C., Marzzacco, C., Halpern, A., and Nassiri, F., *The effects of micelles on electron-transfer and proton-transfer fluorescence quenching reactions*, Recent Res. Devel. Photochem. and Photobiol. , 1999; v3, 77-89.

The effects of SDS, CTAC and CTAB micelles on the fluorescence quenching of the doubly protonated form of quinine (QH₂²⁺), free base 5,6-benzoquinoline (5,6-BQ) and protonated 5,6-benzoquinoline (5,6-BQH⁺) by anions such as Cl⁻, Br⁻ and SCN⁻ have been studied. The rate consts., activation energies and frequency factors for these reactions have been detd. SDS micelles have a retarding effect on the fluorescence quenching of these systems. The quenching reactions involving micelles have larger activation energies and larger frequency factors than those without micelles. The fluorescence quenching of QH₂²⁺ and 5,6-BQH⁺ by Br⁻ ions in CTAB is less effective than fluorescence quenching by NaBr. The opposite is true for free base 5,6-BQ. The effects of CTAC, CTAB and SDS micelles on water assisted and acetate assisted excited-state deprotonation of 2-naphthol (2-NOH) have also been investigated. The 2-naphthol excited-state deprotonation system is a very effective probe for the detn. of the crit. micelle concns. of these surfactants. When 2-naphthol becomes assocd. with CTAC micelles, it becomes a stronger acid than it is in water without micelles. When assocd. with SDS micelles it becomes a weaker acid. The effects of ionic strength on the pK_as have also been examd. Excited-state deprotonation by acetate ions becomes enhanced when 2-naphthol becomes assocd. with CTAC micelles, and becomes inhibited when it becomes assocd. with SDS micelles.