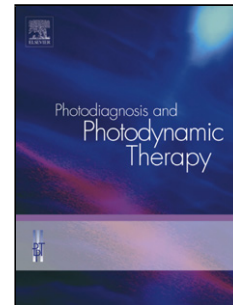


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<AT>Eosin fluorescence: A diagnostic tool for quantification of liver injury

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<ABS-Head><ABS-HEAD>Graphical abstract

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<ABS-P><xps:span class="xps_Image">fx1</xps:span>

<ABS-HEAD>Highlights ► In this study we have shown that under pathological conditions, eosin fluorescence can be used to quantify damage to a tissue. ► The change in the fluorescence spectrum of eosin is due to differential binding ability of eosin to denatured protein under pathological conditions. ► The change in the intensity of eosin fluorescence showed a direct relationship with the level of damage to cells.

<ABS-HEAD>Abstract

<ABS-P>Hepatitis is one of the most common life threatening diseases. The diagnosis is mainly based on biochemical analysis such as liver function test. However, histopathological evaluation of liver serves far better for more accurate final diagnosis. The goal of our study was to evaluate the eosin fluorescence pattern in CCl₄-induced liver injury model compared with normal and different treatment groups. For this purpose, liver tissues were stained with H/E and examined under bright field microscope but the fluorescence microscopy of H/E stained slides provided an interesting fluorescence pattern and was quite helpful in identifying different structures. Interesting fluorescence patterns were obtained with FITC, Texas Red and Dual channel filter cubes that were quite helpful in identifying different morphological features of the liver. During the course of hepatic injury, liver cells undergo necrosis, apoptosis and overall cellular microenvironment is altered due to the modification of proteins and other intracellular molecules. Intensified eosin fluorescence was observed around the central vein of injured liver compared to normal indicating enhanced binding of eosin to the more exposed amino acid residues. To conclude, eosin fluorescence pattern varies with the health status of a tissue and can be used further for the diagnosis and quantification of severity of various liver diseases.

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