




# The effect of gamma-irradiation on absorption spectrum of fluorescein dye

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ARTICLE INFO	ABSTRACT
<p>Received 23 May 2023 Accepted 29 June 2023 Published 30 June 2023</p>	<p>In this study, the fluorescein dye was dissolved in the solvent Dimethyl Form amide (DMF). Weighed equivalent to 0.0664, 0.0996 and 0.132 gm from the material. Using 5mM of solvent, each weight of the substance was dissolved separately to obtain the concentration 60 and 80 mM respectively. The effects of both concentration and gamma radiation on optical spectrum of all samples were investigated at room temperature. After irradiation and within the different concentration percentage at fix dose (4.7 KGy), where the results showed increase absorbance with increase concentration (40, 60 and 80 mM). Also, it is found that the decrease absorbance spectrums at wavelength 460 and 487 nm with increase dose and the good stability absorbance spectrum with time. Because of this, the structures in question are regarded as an efficient material for carrying out real-time gamma radiation dosimetry at ambient temperature.</p>
<p><b>Keywords :</b></p>	
<p>Fluorescein dye, Dose response, Gamma irradiation, Solvent, Waviness</p>	
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## 1. Introduction

Radiation can cause deleterious effect in living systems especially gamma-ray which is considered one of the most dangerous cosmic rays that exist in the cosmic space, which causes many skin diseases because they can penetrate the skin and damage the cells inside. Ionization of atoms may be accomplished directly by photons (gamma rays and x-rays) through the photoelectric effect and the compton effect, both of which result in the production of relatively energetic electrons. Because the secondary electron is going to go on to trigger several ionization events, the secondary (indirect) ionization is far more important than the direct kind. No matter what we do, radioactivity will always be a part of our lives, regardless of whether or not we are aware of it. Radiation cannot be detected by any of the human sense organs; it cannot be seen, nor can it be heard; it cannot be smelt or tasted; it cannot be detected by the skin; and it does not have any effect on the vestibular system. But it is something that more or less surrounds us everywhere: Background natural radiation, which is always present, is conditioned by cosmic radiation and by pure earth radiation; walls and dinnerware in the house may

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