



Ferrous Xylenol Gel Measurements for 6 and 10 MV Photons in Small Field Sizes

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The Fricke dosimeter is a ferrous sulfate aqueous solution that, when irradiated, oxidizes the Fe^{2+} ions to Fe^{3+} . This new concentration, generally determined through spectrophotometry, is directly proportional to the ionizing radiation absorbed energy. The Fricke Xylenol Gel dosimeter (FXG) was developed through the incorporation of swine skin gelatin and xylenol orange. These modifications provided better signal stability

and sensitivity for lower absorbed dose measurements, such as those used in radiotherapy. In this work FXG samples were irradiated with absorbed doses of 2 Gy, from 6 MV and 10 MV photons, using small field sizes geometry for dosimetric parameters determination. All the FXG dosimeter readings were accomplished with our specially developed spectrophotometer, using a narrow light beam at the wavelength of 585 nm, where the highest absorbance sensitivity occurs. From our results, we can confirm not only that the FXG dosimetric

system (FXG plus a high lateral spatial resolution spectrophotometer) can be used for general dosimetry, but as well for small field size dosimetry of interest in radiosurgery.

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