

Fricke gel dosimeter dose-response in function of the gelatinous agent concentration in the solution

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Fricke gel dosimeter, that is the conventional Fricke dosimeter modified by addition of a gelatinous agent, has been studied for many researchers to be used in absorbed dose control in radiotherapy treatments [1,2]. The dosimetry is based on the oxidation of ferrous ions to ferric ions by the ionizing radiation [3].

In this work the Fricke gel dose-response was studied as a function of gelatinous agent concentration. The Fricke gel solutions were prepared with two different concentrations of 240 bloom bovine gelatin (1% and 5%) and maintained during 24 h at 5° C for solidification [1].

The samples were irradiated with gamma radiation of a ⁶⁰Co Gammacell source, in air at electronic equilibrium conditions with doses between 5 and 40 Gy and immediately evaluated by spectrophotometric technique. Solutions prepared with 5% of gelatin; 50 mM sulphuric acid; 1 mM Mohr salt; 1 mM sodium chloride and 0,1 mM xylene orange presented higher sensibility and adequate consistency to spectrophotometric measures when maintained under refrigeration. The color and the consistency of the Fricke gel solutions were observed before and after the irradiation.

References

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